General
The Genelec AIW26 Active In-wall speaker system consists of a bass reflex type two-way speaker and a matched remote amplifier module, RAM1. It has been designed to the same rigorous standards as Genelec’s high-performance HT series active Home Theater loudspeakers. No other in-wall loudspeaker can match the low distortion, neutrality and high sound pressure capability of Genelec AIW26. The AIW26 can be used in the most demanding applications, like the main L-C-R array of a Home Theater system, critical Stereo listening or rear/side channels of a large, state-of-the-art Home Theater.

Unpacking
A Genelec AIW26 set includes the following items. Check that nothing is missing or damaged in transit. If there is a problem with the product, contact your local Genelec dealer.

- AIW26 loudspeaker unit with two mounting brackets attached.
- Grill frame and grill insert (packed separately)
- AIW26 cardboard cut-out template
- RAM1 amplifier unit
- Cable binding post tool
- Mains power cable
- Six M6x60 Pozidrive 3 screws
- Plexiglass cover for the control switches
- This Operating Manual

Installation
Genelec recommends that you use the services of an authorized installation specialist or other competent and experienced installation company for the installation of the AIW26 system. Ask your local Genelec dealer for recommended installation companies in your region.

Matching speakers and amplifiers
Each AIW26 speaker unit has been factory calibrated for optimum performance with the RAM1 amplifier it is shipped with. Never mix these matched amplifier-speaker systems in the installation process. The matching units are marked with the same ID number on the reflex port of the AIW26 and the top panel of the RAM1.

Speaker placement
Genelec AIW26 speakers are equipped with Genelec’s proprietary Directivity Control Waveguide™ (DCW™). One of the main characteristics of the DCW technology is that the speakers give a very even and consistent frequency response over a larger listening area than conventional loudspeakers. A secondary function of the DCW™ is to reduce the off-axis radiated sound energy, thereby minimizing the reflections from the side walls, floor and ceiling. This results in a precise and stable sound image.

If the AIW26 speakers are used in an application where their capability for precise sound imaging is needed, such as the front channels of a Surround Sound system or a Stereo system, we recommend that the speakers are placed as far away from corners or other walls and reflective surfaces as possible. The speakers should be placed symmetrically in relation to the listening position and there should be no obstructions between the speaker and the listener. This guarantees clear dialogue in films and a good stereo image with music.

If you prefer a diffuse sound field, which is less critical to the listening position and gives only a vague sense of direction, for instance in a rear/side channel setup in a Home Theater system, you may actually benefit from the acoustical reflections from nearby boundaries. In this case, place the speakers close to the ceiling or another wall, or have them face away from the listening position, so that the proportion of reflected sound increases.

Choosing and installing the speaker cables
The RAM1 amplifier unit has separate power amplifiers for the tweeter and woofer. Accordingly, there are two pairs of binding posts, white (-) and red (+) for the tweeter and black (-) and grey (+) for the woofer. Be sure to maintain correct polarity when connecting the speaker cables and be extra careful not to mix the tweeter and woofer cables.

Use a good quality 4-conductor cable and make the cable runs as short as possible.

Figure 1. Main components of the AIW26 system.

Figure 2. Symmetrical L-C-R speaker installation

<table>
<thead>
<tr>
<th>Cable gauge</th>
<th>Max. length</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 mm² (14 AWG)</td>
<td>30 m (100 ft)</td>
</tr>
<tr>
<td>3.3 mm² (12 AWG)</td>
<td>40 m (131 ft)</td>
</tr>
<tr>
<td>5.3 mm² (10 AWG)</td>
<td>60 m (200 ft)</td>
</tr>
</tbody>
</table>

Table 1. Recommended maximum lengths for speaker cables.
See Table 1 for recommended cable gauges. The binding posts accept a cable up to 6 mm² (9 gauge).

If you are installing the AIW26 system to an existing wall, examine the walls thoroughly for the shortest and least obstructed cable route. Be careful to avoid cutting or drilling into electrical wires, ventilation or water pipes. These are often visible in the attic, basement or crawl space below the floor. All of this is of course much easier when the installation takes place in an unfinished wall where the wall structure is still open. In both cases it is a good idea to route the speaker cables away from electric, video or phone cables, which might induce hum into the speaker system.

Painting the speakers
The speaker grill frame and the metal mesh part of the grill insert can be spray painted to match the wall colour. Do not paint the speaker cabinet itself, or try to paint the grill frame or grill insert while they are attached to the speaker. Remove the metal mesh from the grill insert to avoid clogging the grill insert cloth with paint. Paint the grill frame and metal mesh separately with a thin spray. Do not use brushes or rollers. Be very careful not to clog the holes on the mesh with paint.

Installing the AIW26 speaker unit
Use the cardboard wall cut-out template to find the location for the AIW26. The template also shows the position of the speaker drivers, so you can easily find the placement that brings them to the optimum position as outlined in chapter “Speaker placement”.

Examine the wall structure carefully to find a clearly unobstructed location for the speaker. The speaker cabinet requires a minimum of 88 millimeters (3 1/8”) of free depth behind the sheetrock. Keep in mind that the mounting brackets of the AIW26 need a clearance inside the wall of at least 125 millimeters (5”) above the top edge of the hole and 65 mm (2 1/8”) below the lower edge. Also note that the grill frame is wider and taller than the hole and requires about 30 millimeters (1 3/16”) of smooth wall surface around all sides of the hole.

When you have found a good location, check that the template is level and trace the hole onto the wall with a pencil along the outline of the template. If you are not sure that the chosen part of wall is free from obstructions, you can start by making a smaller hole at the center of the marked area through which you can probe the inside of the wall. Use a dry-wall saw and make the first cut at a 45° angle toward the center of the hole so you can put the cut piece back in if the location is unsuitable. If you find no obstructions, you can make the final cut along the marked lines.

If you have already connected the RAM1 amplifier units to the system, select the speaker that has the same ID number as the amplifier it will be driven by. Check the polarity of the speaker cables and attach the cables to the binding posts of the AIW26 speaker.

Lift the AIW26 into the hole top end (cable binding posts) first (see Figure 3) and push the lower end of the speaker onto the edge of the hole. Push both mounting brackets fully up and hold them there as you push the lower half of the speaker into the wall (see Figure 4). When the speaker is in the correct position, pull the mounting brackets down. If the wall cavity is deeper than 95 mm (3 1/4”), the speaker can drop into it. This can be avoided by mounting the speaker with the grill frame loosely attached. Screw the frame screws only half way in to allow some movement while installing the speaker.

Attach the grill frame to the speaker with six M6x60 Phillips screws provided with the kit (see Figure 5). As you tighten the screws evenly, the sheetrock will be clamped between the ends of the mounting brackets and the grill frame and the speaker will be firmly attached to the wall. NOTE! Overtightening the screws will bend and damage the grill frame. Keep a close look on the frame as you tighten the screws and stop when you see the metal base of the frame starting to bend.

The grill insert has magnets on one side to hold it onto the speaker’s grill frame. Attach the insert on the speaker so that its cross-piece does not cover the drivers. Be very careful not to dent the grill frame if you have to remove the grill insert. Use a wide piece of wood or plastic to wedge the insert out.

Connecting the RAM1 amplifier
The RAM1 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 RAM1 to a speaker level output of a power amplifier! Before making the connections, check that the voltage selector on the amplifier’s back panel is set to the correct voltage and the power on all components is turned off.

Start by connecting the speaker cables to the amplifier’s binding posts (see Fig. 7). Check that the amplifier’s serial number matches that of the AIW26 speaker unit which it will power. The number can be found on a sticker on the speaker’s reflex port and on the amplifier’s top cover. If the speakers are not yet installed, make a note of which amplifier is connected to each channel so you can find the correct AIW26 speaker unit for every amplifier. Check the cable polarity and use the provided cable binding post tool to tighten...
the binding posts. If you have lost the cable binding post tool then a large screwdriver will also work, but be careful not to overtighten the binding posts as they may be damaged.

The RAM1 has two parallel 10 kOhm input connectors: a balanced XLR and an unbalanced RCA. For longer 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 is more commonly available and usually works as well for shorter connection lengths in less electrically noisy environments. Do not use both inputs at the same time. Consult your Genelec dealer for the choice of signal cables.

Mounting the RAM1 amplifier to an equipment rack

We recommend that you use the Genelec RM1 rack mount kit when installing the RAM1 amplifier in an equipment rack. Make sure that the space above and below the RAM1 is 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 RAM1’s 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 RAM1 to the RM1 rack mount with two M3 screws provided with the rack mount kit. The screws go through the holes on the RM1’s shelf plate (see Figure 9). Each RM1 can take three RAM1 units. Two blanking plates are provided to cover empty spaces in the rack if only one or two RAM1’s are installed.

Table 2. Remote control connectors on the RAM1

<table>
<thead>
<tr>
<th>Remote control type</th>
<th>Pole or</th>
<th>Connect to remote control input pin no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 V DC remote control</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>External switch or relay</td>
<td>Contact 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Contact 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Connect only one remote control unit at a time.

Setting the input sensitivity

The input sensitivity of each speaker can be made to match that of the decoder or other source by use of the input sensitivity control on the amplifier’s front panel (see figure 6). A small screwdriver is needed for the adjustment. The manufacturer default setting for this control is -6 dBu (0.389V, fully clockwise) which gives SPL of 100 dB @1m with -6 dBu input level. Note that to get the full output level of 110 dB SPL, an input level of +4 dBu (1.22V) is needed in this setting. Most pre-amplifiers are capable of this output level.

Setting the room response controls

The acoustic response of the system may have to be adjusted to match the acoustic environment and personal taste. See Table 3 for suggested room response control settings in differing acoustic environments. If the sound is found subjectively too bright, set

<table>
<thead>
<tr>
<th>Remote control type</th>
<th>Pole or</th>
<th>Connect to remote control input pin no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 V DC remote control</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>External switch or relay</td>
<td>Contact 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Contact 2</td>
<td>4</td>
</tr>
</tbody>
</table>
'treble tilt' to -2 dB, if too bass heavy, set 'bass tilt' to -2 dB. The adjustment is done by setting
the three groups of room response control switches 'treble tilt', 'bass tilt' and 'bass roll-off'
on the front panel of the amplifier. The manufacturer default settings for all controls are 'All
OFF' to give a flat response in half space, i.e. when the speaker has been installed in a wall.
Always start adjustment by setting all switches to the 'OFF' position. Then set only one switch
within each group to the 'ON' position to select the desired response curve. The switches are
not cumulative. If more than one switch is set to 'ON' (within one switch group) the attenuation
value is not accurate.

Using Autostart and Remote control functions
In daily use, the RAM1 amplifier can be switched to “STANDBY” mode to save energy by activating the signal sensing
Autostart function or by using a remote control unit (not included in the AIW26 system).
If the system is left unused for several days, we recommend that you power it down using
the RAM1’s main power switch or a central power switch if one has been installed.

The Autostart function is activated by turning
switch 4 (AUTOSTART) on the first switch group to “ON”. Autostart turns the amplifier to
“STANDBY” mode if there is no signal present for about 30 minutes. When the signal returns
the amplifier switches on immediately and
the speaker functions normally.

If you are using a remote control to switch the
RAM1 between “STANDBY” or “ON” modes
(see chapter "Connecting the RAM1 amplifier"), turn switch 3 (REMOTE CONTROL), on
the first switch group to “ON”. This activates the remote control function. In this setting
the remote control will override the Autostart function. If you want to use Autostart, turn the
“REMOTE CONTROL” switch to “OFF”.

Protecting the settings
The control group of the RAM1 can be cov-
ered with a piece of plexiglass to protect
the settings. Attach the plexiglass over the
switch groups with two Phillips screws when
you have completed the adjustments. Do not
overtighten the screws.

Table 3. Suggested room response control settings for differing acoustical environments

<table>
<thead>
<tr>
<th>Setting</th>
<th>Bass Roll-Off</th>
<th>Bass Tilt</th>
<th>Treble Tilt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half space factory default calibration setting</td>
<td>ALL OFF</td>
<td>ALL OFF</td>
<td>ALL OFF</td>
</tr>
<tr>
<td>Well damped (dead sounding) room</td>
<td>0 dB</td>
<td>0 dB</td>
<td>0 dB</td>
</tr>
<tr>
<td>Normal room</td>
<td>0 dB</td>
<td>0 dB</td>
<td>-2 dB</td>
</tr>
<tr>
<td>Highly reflective (live sounding) room</td>
<td>0 dB</td>
<td>-2 dB</td>
<td>-4 dB</td>
</tr>
</tbody>
</table>

Additional settings to compensate for the loudspeaker positioning within the room:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Bass Roll-Off</th>
<th>Bass Tilt</th>
<th>Treble Tilt</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a double corner (wall/wall or wall/ceiling)</td>
<td>-2 dB</td>
<td>-2 dB</td>
<td>0 dB</td>
</tr>
<tr>
<td>In a triple corner (wall/wall/ceiling)</td>
<td>-4 dB</td>
<td>-4 dB</td>
<td>0 dB</td>
</tr>
<tr>
<td>If the speaker is positioned behind a perforated screen, add +2 dB to the Treble Tilt setting to compensate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Status indicator LED
The status indicator LED on the RAM1 changes colour to indicate amplifier status. If
the LED is yellow, it indicates that the amplifier is in “STANDBY” mode. When the
amplifier is switched to “ON” mode, the LED changes to green colour.

Automatic protection circuits
The AIW26 system has protection circuits against speaker driver thermal overload and amplifier overheating. The protection system
resets automatically so the user only has to turn the input level down to ensure that it
does not reactivate.

Driver thermal overload protection protects
the drivers from damage caused by pro-
longed overdriving with excessively high or
distorted signal. The circuit automatically
reduces the volume of the channel that is
being overloaded. To avoid this, lower the
listening volume if the sound becomes harsh and distorted at high sound pressure levels.

Amplifier thermal protection turns the ampli-
fier to “STANDBY” mode if the amplifier over-
heats. Let the amplifier cool down and check
that there is sufficient clearance around the
amplifier for cooling (see chapters "Space
requirement for the RAM1 amplifier" and
"Mounting the RAM1 amplifier to an equip-
ment rack" above). If the problem persists,
consult your Genelec dealer or Home Theater
Installation company for an improved cooling
solution for your equipment cabinet or rack.

Maintenance
There are no user serviceable parts within the
loudspeaker or the amplifier. Any main-
tenance or repair should only be undertaken
by qualified service personnel.

Safety considerations
• Servicing and adjustment must only be performed by qualified service personnel. The loudspeaker or
amplifier must not be opened.
• Do not use this product with an unearthed mains cable as this may compromise electrical safety.
• Do not expose the loudspeaker or the amplifier to water or moisture. Do not place any
objects filled with liquid, such as vases, on or near them.
• Do not place naked flame sources like lighted candles on or near the loudspeaker or the amplifier.
• This loudspeaker is capable of producing sound pressure levels in excess of 85 dB,
which may cause permanent hearing damage.
• Free flow of air around the amplifier is necessary to maintain sufficient cooling. Do not
obstruct airflow around the amplifier.
• Note that the amplifier is not completely dis-
connected from the AC mains service unless
the mains power cord is removed from the
amplifier or the mains outlet.

WARNING!
This equipment is capable of delivering Sound Pressure Levels in excess of 85dB, which
may cause permanent hearing damage.

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

EC Declaration of Conformity
This is to certify that Genelec AIW26 I-wall
Speaker System conforms to the following
standards:

Safety:
EMC:
EN 55013: (2001)
EN 61000-3-2 (2000)
EN 61000-3-3 (1995)
EN 55013: (2001)
A11: (1996), A12: (1999),
EN 61000-3-2 (2000)
EN 61000-3-3 (1995)
The product herewith complies with the
requirements of The Low Voltage Directive
73/23/EEC, EMC Directive 89/336/EEC and
93/68/EEC

Signed:
Ilpo Martikainen
Position: Managing Director
Date: 25-November-2004
SYSTEM SPECIFICATIONS

AIW26 Speaker unit

Free field frequency response of system: 45 Hz...21kHz (±2.5 dB)

Maximum short time sine wave acoustic output at 1 m on axis in half space, averaged from 100 Hz to 3 kHz: >110 dB SPL

Maximum peak acoustic output for a pair with music material: >120 dB SPL

Drivers

Bass: 182 mm (7"
Treble: 19 mm (3\(\frac{3}{4}\)) metal dome

Harmonic distortion at 90 dB SPL @ 1 m on axis:

< 3% (50...200 Hz)
< 0.5% (>200 Hz)

Weight including grill assembly: 10.7 kg (23.6 lbs)

Required cut-out dimensions

Height: 545 mm (21\(\frac{1}{2}\))
Width: 334 mm (13\(\frac{3}{8}\))
Depth: 88 mm (3\(\frac{3}{8}\))

*Note: The mounting brackets of the AIW26 need a clearance inside the wall of at least 125 millimeters (5") above the top edge of the cut-out and 65 mm (2\(\frac{15}{16}\)) below the lower edge.

RAM1 Amplifier unit

Bass amplifier output power: Short term 120 W
Treble amplifier output power: Short term 120 W

Input impedance: 10 kOhm

Crossover frequency: 3.5 kHz

Treble tilt control in 2dB steps from +2 to -4dB & MUTE: @ 15 kHz
Bass roll-off control in 2 dB steps from 0 to -6 dB: @ 50 Hz
Bass tilt control in 2 dB steps from 0 to -6 dB & MUTE: @ 100 Hz

Mains voltage: 100/200V or 115/230V
Power consumption (Standby / Idle / Full output): 5/10/200 W

Maximum ambient temperature 35°C (95°F)

Weight: 4.6 kg (10.1 lbs)

Dimensions

Height: 130 mm (5\(\frac{1}{8}\))
Width: 145 mm (5\(\frac{5}{8}\))
Depth: 309 mm (12\(\frac{1}{8}\))