

# Installation guidelines

FAQ and important information

cerasonar  
invisible speakers

How can cracks be avoided?	<p>Like all built-in speakers, also the invisible speaker panels emit vibration noise into the adjacent areas. To ensure that no cracks occur at the butt joints, mesh tape must be applied before plastering. This kind of processing used for single-layer drywall constructions, which is mandatory according to the generally accepted rules of craftsmanship, is highly recommended also for installation work in solid walls and ceilings.</p> <p>The plaster, whether decorative or non-decorative, which is applied to the panel should have a certain „flexibility“. So pure mineral plasters are not necessarily advisable. In order to minimise the risk of cracking, we recommend using products like Ardex (e.g. 828) or Knauf (Uniflott)</p>																																
What is there to know about sound insulation?	<p>The cerasonar panels emit structure-borne noise into the adjacent areas. It therefore is recommended – and this normally affects any builtin speaker – that the drywall shell is designed in a flexible way as it is very much common in acoustic construction. The rearward sound already is reduced by the mandatory cavity insulation. To furthermore reduce the rearward sound we offer specific backboxes.</p>																																
Documentation of installation positions!	<p>It is strongly recommended to document the installation positions in the architectural plans. If at some point a defect occurs, the position of the defective panel can be accurately determined and the panel be replaced. Also future modifications to the interior design and room layout benefit from the documented positions of the speakers.</p>																																
What happens in case of a defect?	<p>In any case, the panels must be removed. A repair or further use depends on the nature of the defect. We offer for the fit and reference series protection units that limit the max. power and protect the speakers from overload. The ultimate series already has the protection integrated. However, the max. power rating of the speaker should not be exceeded by the amplifier.</p>																																
Warranty period	<p>Ceratec grants a 5-year functional warranty on panels, if the installation and setup protocol has been signed and registered with us. Improper use or overloading may void the warranty.</p>																																
What about the durability?	<p>If installation and operation is effected in accordance with our regulations a malfunction is almost impossible. A good example to compare is perhaps the „floor heating system“, which resembles a similar situation, and which also requires a careful execution. A trained retailer or installer meets these requirements due to the cerasonar installation and setup protocol. DIY is also possible if the manual and technical skills are given.</p>																																
Installation and setup protocol	<p>The installer or reseller should document all installation steps, especially the functional test and have the correct function approved and signed by the customer. The final acceptance should go together with a corresponding protocol which is to be deposited for at least 5 years with the customer and the executing firms. A copy of the protocol should also be handed over to ceratec.</p> <table><tr><td>Project:</td><td>Mr. &amp; Mrs. Sample’s dreamhouse</td></tr><tr><td>Building owner:</td><td>Mr. Sam Sample</td></tr><tr><td>Architect:</td><td>„Name of company“</td></tr><tr><td>Drywall/masonry contractor:</td><td>„Name of company“</td></tr><tr><td>Painting contractor:</td><td>„Name of company“</td></tr><tr><td>Electrocoustic contractor:</td><td>„Name of company“</td></tr></table> <p><b>Here is an example for a room comprising a cerasonar speaker:</b></p> <table><tr><td>Room name:</td><td>Living room</td></tr><tr><td>Installation location:</td><td>Ceiling</td></tr><tr><td>Position:</td><td>Note in drawing/dimensionally correct draft</td></tr><tr><td>Construction type:</td><td>Suspended ceiling with metal substructure, single-layer plasterboard, Q4 type spackling</td></tr><tr><td>Surface finish:</td><td>Paint substrate, pure white</td></tr><tr><td>Speaker model:</td><td>9062 ultimate</td></tr><tr><td>Quantity:</td><td>4</td></tr><tr><td>Application:</td><td>Multiroom audio</td></tr><tr><td>Amplifier type:</td><td>cerasonar AMP</td></tr><tr><td>Circuitry type:</td><td>1x panel per amplifier channel</td></tr></table>	Project:	Mr. & Mrs. Sample’s dreamhouse	Building owner:	Mr. Sam Sample	Architect:	„Name of company“	Drywall/masonry contractor:	„Name of company“	Painting contractor:	„Name of company“	Electrocoustic contractor:	„Name of company“	Room name:	Living room	Installation location:	Ceiling	Position:	Note in drawing/dimensionally correct draft	Construction type:	Suspended ceiling with metal substructure, single-layer plasterboard, Q4 type spackling	Surface finish:	Paint substrate, pure white	Speaker model:	9062 ultimate	Quantity:	4	Application:	Multiroom audio	Amplifier type:	cerasonar AMP	Circuitry type:	1x panel per amplifier channel
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## Plaster finish instruction

All our invisible speakers are already primed with Ardex P4. For further processing, we recommend a filler based on a gypsum-plastic base. We have tested the following plaster:

- Ardex 828
- Ardex R1
- Ardex 820 Superfinish
- Knauf Uniflott (available in most DIY stores)

(For the US market a pre mixed joint compound can be used with standard drying time)

Do not apply more than 2 mm of plaster. Less is more, otherwise the maximum volume will be affected.

In addition, mesh tape should be used, this is especially important with our full-range speakers and subwoofers to strictly prevent cracking in the wall and ceiling.

We can recommend the following jointtapes:

- Knauf Easy-Tape

## Cavity insulation

Our invisible loudspeakers are already equipped with acoustic foam on the back. In order to guarantee perfect sound reproduction, however, the use of rockwool in the wall or ceiling cavity is indispensable. It must be ensured that there is enough space for the loudspeaker so that the insulation does not squeeze against the loudspeaker. We recommend to remove approx. 5 cm / 2 inch from the rockwool behind the loudspeaker\*.

Exemplary product:



## Cable selection

We recommend to use high quality speaker cables and to pay attention to OFC or CU when selecting them. This means that the cable is 99% copper instead of copper coated aluminium. The following rule of thumb should be observed when dimensioning the cable:

### 4 ohms loudspeaker, e.g. cerasonar 4062 reference:

- 10 meter cable length, at least 0.75 mm<sup>2</sup> cross-section
- 20 meter cable length, at least 1.50 mm<sup>2</sup> cross-section
- 50 meter cable length, at least 4.00 mm<sup>2</sup> cross section

or:

### 8 ohms loudspeaker, e.g. cerasonar 1520 fit:

- 10 meter cable length, at least 0.50 mm<sup>2</sup> cross section
- 20 meter cable length, at least 0.75 mm<sup>2</sup> cross-section
- 50 meter cable length, at least 2.50 mm<sup>2</sup> cross-section

## Vibration prevention (speaker mounting)

Our invisible loudspeakers are provided with pre-drilled holes for the screw connection. It is necessary to mount a screw in each hole in order to avoid cracking or disturbing resonances.

## Vibration prevention (cable laying)

Particularly in the ceiling (but also in the wall), care must be taken to ensure that electrical cables or similar do not touch the invisible speakers or the adjacent plasterboard. The reason for this is that the loudspeakers generate vibrations that can cause unwanted noise on the cables or other components. To avoid this, all objects in the cavity must be secured (especially with cerasonar ultimate and sub series). We recommend routing the last meter of the speaker cable to the speaker through the mineral wool.

## Vibration prevention (ceiling and wall installations)

Similar to loudspeaker cables. We recommend that built-in devices, such as LED spots, should not be placed near the speakers. If this is not possible, we recommend installing higher quality devices, as these often have the advantage that they are not so easily prone to vibrate. If disturbing resonances should occur, the built-in devices can be damped with anti-vibration tape.

## Vibration prevention (Detection of disturbing resonances)

A tone generator, for iOS or Android, is suitable for easy detection of disturbing resonances. For this the frequency range from 20 – 20,000 Hz is swept through. In order to detect errors, the volume should be approx. 75%. The speakers must already be fixed with all screws. Especially with the cerasonar ultimate and sub series this procedure is obligatory and should not be skipped under any circumstances.

## Vibration prevention (Elimination of disturbing resonances)

First the position of the interfering resonances should be determined. With the palm of your hand you can check the wall or ceiling for „rattling noises“. After detection, an additional screwing or gluing can solve the problem. Before doing so, however, it should be checked that the rattling noise is not caused by a loose object such as an electric cable.

## Single stereo mode

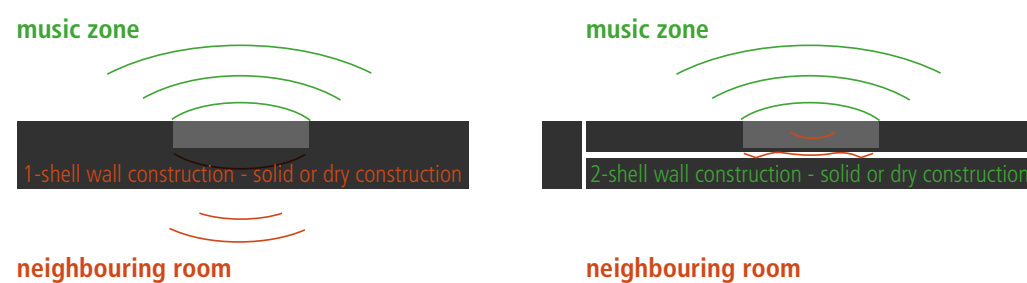
For smaller rooms or for background sound, the single stereo mode is ideal. In this mode, both stereo channels (left and right) are connected to a single loudspeaker. The advantages are the saving of one loudspeaker as well as a more homogeneous sound image when used for background sound (e.g. restaurants, meeting rooms or long corridors).

## Soundproofing

About sound insulation, we would like to clarify the terms relating to our loudspeakers. As the invisible loudspeaker is connected to the adjacent wall and/or ceiling surface with screws and filler transmission of structure-borne sound takes place in any case. With some cerasonar models this is even necessary since the larger area increases the frequency range in the lower region.

It is therefore highly recommended for multi-family buildings to install the invisible loudspeakers in a decoupled level – for example in a suspended ceiling.

**With a separate wall construction, the sound remains in the music zone:**



## FAQ

Further questions & answers can be found in the FAQ section of our website.