

APPLICATION NOTES

# DALI PHANTOM E-WR SERIES

WEATHER RESISTANT HIGH-PERFORMANCE  
CUSTOM INSTALLATION IN-CEILING LOUDSPEAKERS

Models:

DALI PHANTOM E- 60 WR

DALI PHANTOM E- 80 WR

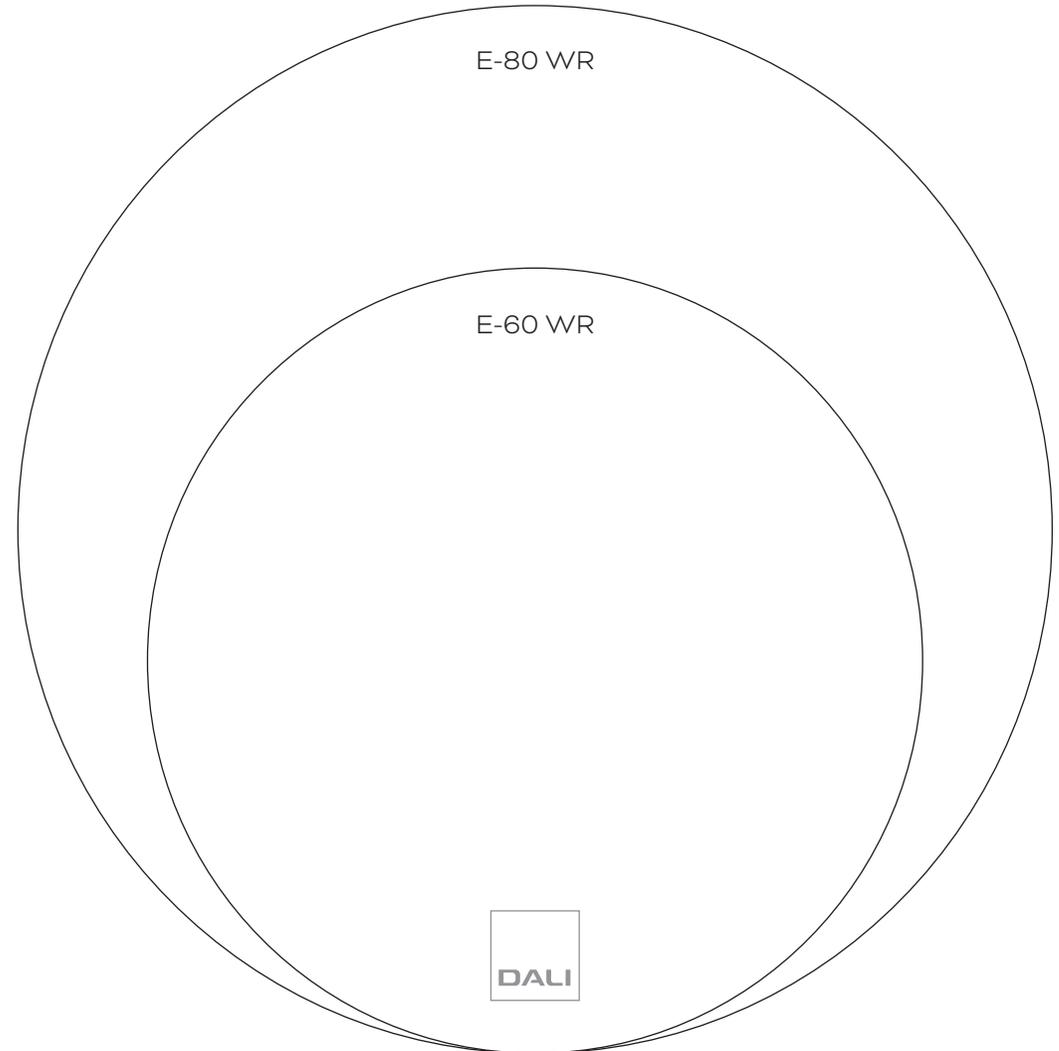
IP Rating: IP 65



IN ADMIRATION OF MUSIC

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# Quick specifications

DALI PHANTOM E	E-60 WR	E-80 WR
Outer dimensions incl. grille (H x W x D)	Ø 258 x 104 mm Ø 10.16 x 4.09 inches	Ø 295 x 116 mm Ø 11.61 x 4.57 inches
Outer dimensions excl. grille (H x W x D)	Ø 242 x 100 mm Ø 9.52 x 3.94 inches	Ø 278 x 113 mm Ø 10.94 x 4.45 inches
Cut-out dimensions	Ø 225 mm Ø 8.86 inches	Ø 261 mm Ø 10.28 inches
Mounting depth	96 mm 3.78 inches	109 mm 4.29 inches
Recommended rear volume (backbox)	5 - 50 litres	10 - 100 litres

See the User Manual for a list of complete specifications and the Outer Dimensions drawing for complete dimensions – both documents are available on the PHANTOM E-WR product pages on the DALI website.  
[www.dali-speakers.com/en/](http://www.dali-speakers.com/en/)

# PHANTOM E-WR description

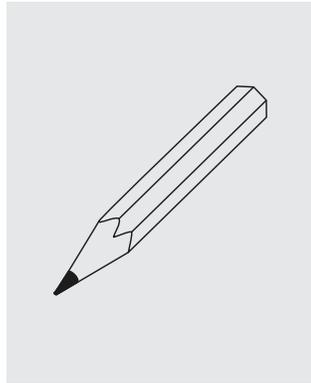
The PHANTOM E-60 WR and E-80 WR are in-ceiling/in-wall loudspeakers for almost any location and any audio system. Engineered weather resistance and IP65 rated ingress protection makes the E-WR series suitable for high humidity and covered outdoor locations such as bathrooms, and patios. And their wide dispersion DALI designed bass/midrange drivers and 25 mm dome tweeters result in performance appropriate for the widest possible variety of audio systems. E-WR series installation, through swing-out dogleg clamps, requires no specialist tools, and the inclusion of both midrange and high frequency level adjustment (High+/Mid+) provides unbeatable configuration versatility.

## INSTALLATION

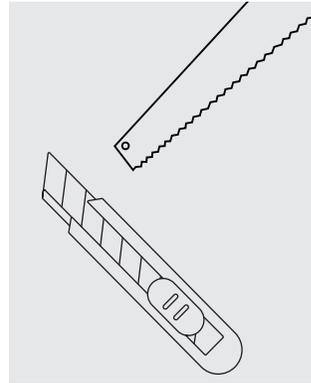
# You will need



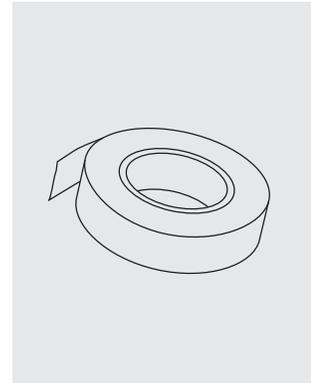
Tape measure



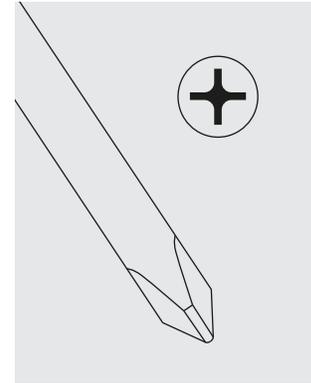
Pencil



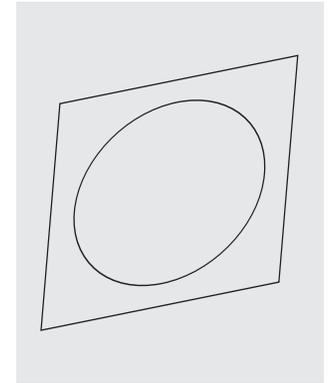
Saw and  
box cutter knife



Tape



Phillips PH2 driver  
or bit

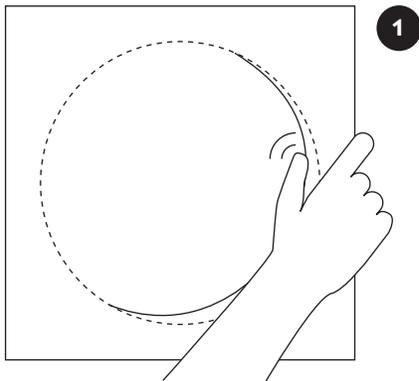


Cut out template

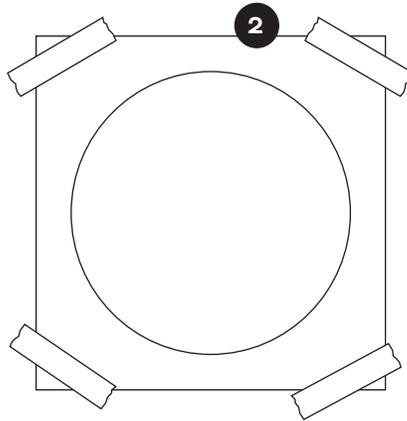
## INSTALLATION

# Cut out template

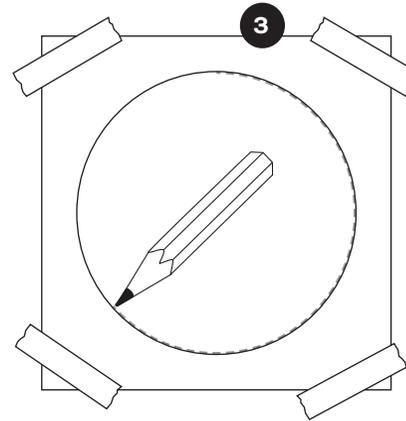
- 1** Gently press out the circular part of the cut out template.



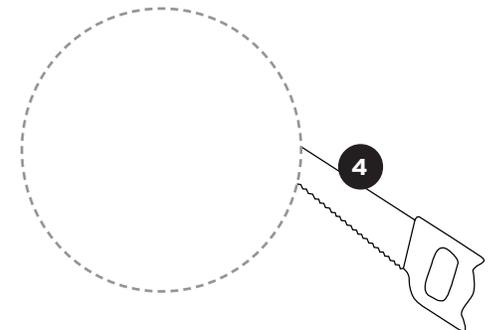
- 2** Tape the template to the mounting position.



- 3** Draw on the ceiling around the edge of the template.

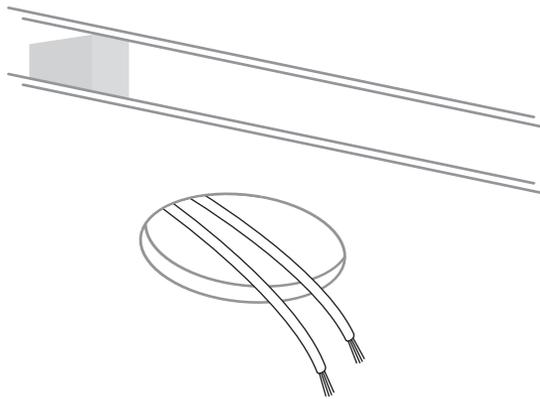


- 4** Cut out a hole in the ceiling.

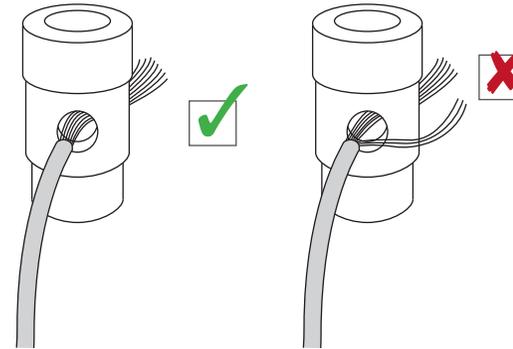


## INSTALLATION

# Cables



Connect cable to the terminals – being careful to connect the amplifier's (+) terminal to the loudspeaker's red (+) terminal and the amplifier's (-) terminal to the loudspeaker's black (-) terminal.



1. Strip 1/2" / 12 mm of cable insulation and gently twist the stranded wires.
2. Insert the cable end into the spring loaded terminals of the speaker.
3. All wire strands must be inside the terminal to avoid any short circuit.

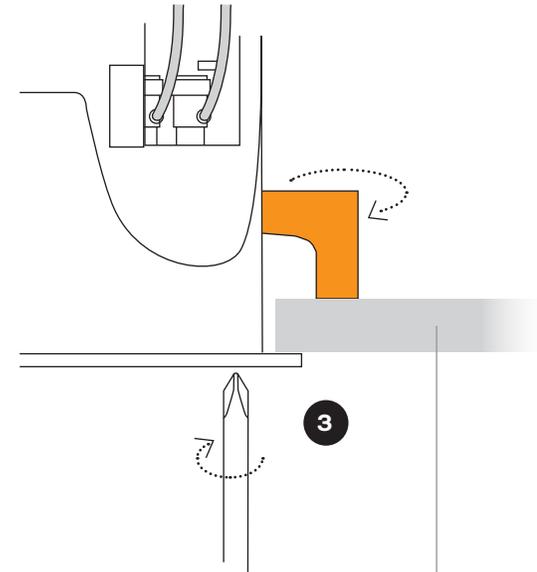
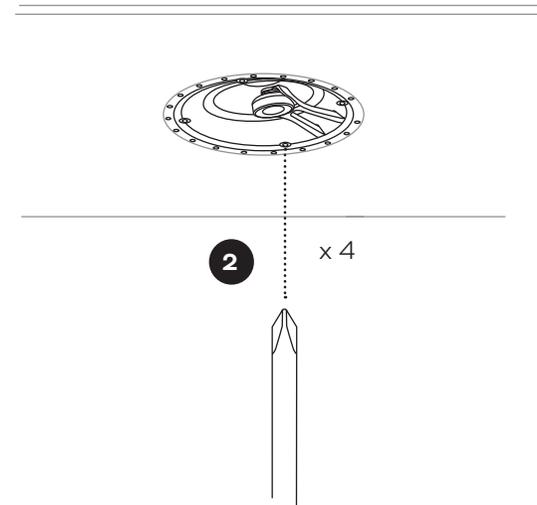
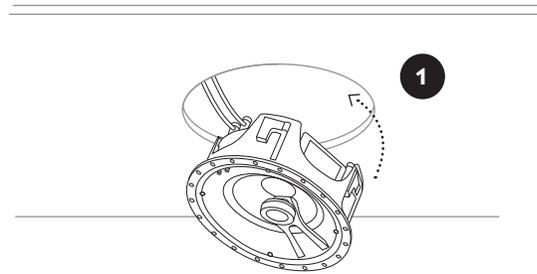
## INSTALLATION

# Mounting the speaker

When the cables are connected, turn on the system and listen to the loudspeakers before final mounting to make sure that all connections are correct.

Insert the loudspeaker in the ceiling and align the loudspeaker.

Insert and align the loudspeaker for stereo, movie or ambient sound. Tighten all four dogleg screws evenly.



Ceiling/wall thickness  
(total dog-leg span)  
10 - 70 mm  
0.39 - 2.76 inches

# Common applications

The PHANTOM E-60 WR and E-80 WR combine high performance audio and great installation versatility. The following paragraphs describe some potential installation scenarios for the E-60 WR and E-80 WR custom installation in-ceiling loudspeaker. The audio performance of the E-60 WR and E-80 WR is generally similar, however the E-80 WR is able to reproduce deeper bass and offers 2 dB higher maximum sound pressure level and 1.5 dB greater sensitivity, making it more appropriate for larger scale and more ambitious installations.

## Bathrooms

The environmental challenges presented to loudspeaker in bathrooms are those of raised temperature and humidity, however the E-60 WR and E-80 WR are specifically designed to be able to withstand both. E-60 WR and E-80 WR weather resistance means suitability for installation where temperature and humidity can reach + 60°C / 140°F and 100% respectively. And, with their IP65 rating, even indirect water spray is no problem for the E-60 WR and E-80 WR. When selecting bathroom locations for E-60 WR and E-80 WR loudspeakers consider the architecture of the space and how it is used.





Bathrooms effectively comprise multiple 'workstations'; shower, bath, toilet, basin, mirror, etc.. So, in larger bathroom spaces, in-ceiling loudspeaker locations might be chosen specifically to reflect these zones.

In smaller bathroom spaces, in-ceiling loudspeakers might be located between zones so that coverage is shared. The naturally wide acoustic dispersion of the E-60 WR and E-80 WR is of benefit in this style of installation, as is the tilted driver arrangement that means their output can be aimed towards a preferred direction by rotating the loudspeakers in their mounting apertures. And in the most compact of bathrooms, it may be appropriate simply to install one E-60 WR or E-80 WR in the centre of the room.

Bathrooms are often tiled spaces in which high frequency sounds can become emphasised, so it is likely to be useful to switch the E-60 WR or E-80 WR High+ level control to its attenuated position.

## Indoor Pools and Spa Areas

Installing loudspeakers in indoor pool areas, spas and saunas presents many of the same high temperature and humidity challenges as those of bathrooms, however there are potentially some further factors to consider.

While stereo reproduction is perhaps not significant in bathrooms, in spas and pools where listeners potentially remain seated and relaxed for longer periods, stereo is likely to be more appropriate. This means the location of stereo left and right loudspeakers needs to be considered in relation to potential listener positions. An indoor pool and spa installation might comprise a mix of stereo pairs of E-60 WR or E-80 WR loudspeakers, rotated in their mounting apertures so that their output is directed towards the listening positions, with individual mono fed loudspeakers that cover non-seated areas.

The installation of loudspeakers in pool areas can potentially be compromised by the highly reverberant nature of large, tiled spaces. The result can be impaired sound quality or speech intelligibility, which may be highly significant in terms of safety announcements. It is however possible to mitigate the effects of excess reverberation by carefully considering the number and location of E-60 WR or E-80 WR loudspeakers. Intelligibility and sound quality will improve if listeners hear a higher proportion of sound directly from the loudspeakers than from wall, floor or ceiling reflections, so more, rather than fewer, loudspeakers will help.

Like bathrooms, pools are tiled spaces in which high frequency sounds can become emphasised, so it is likely to be useful to switch the E-60 WR and E-80 WR High+ level control to its attenuated position.

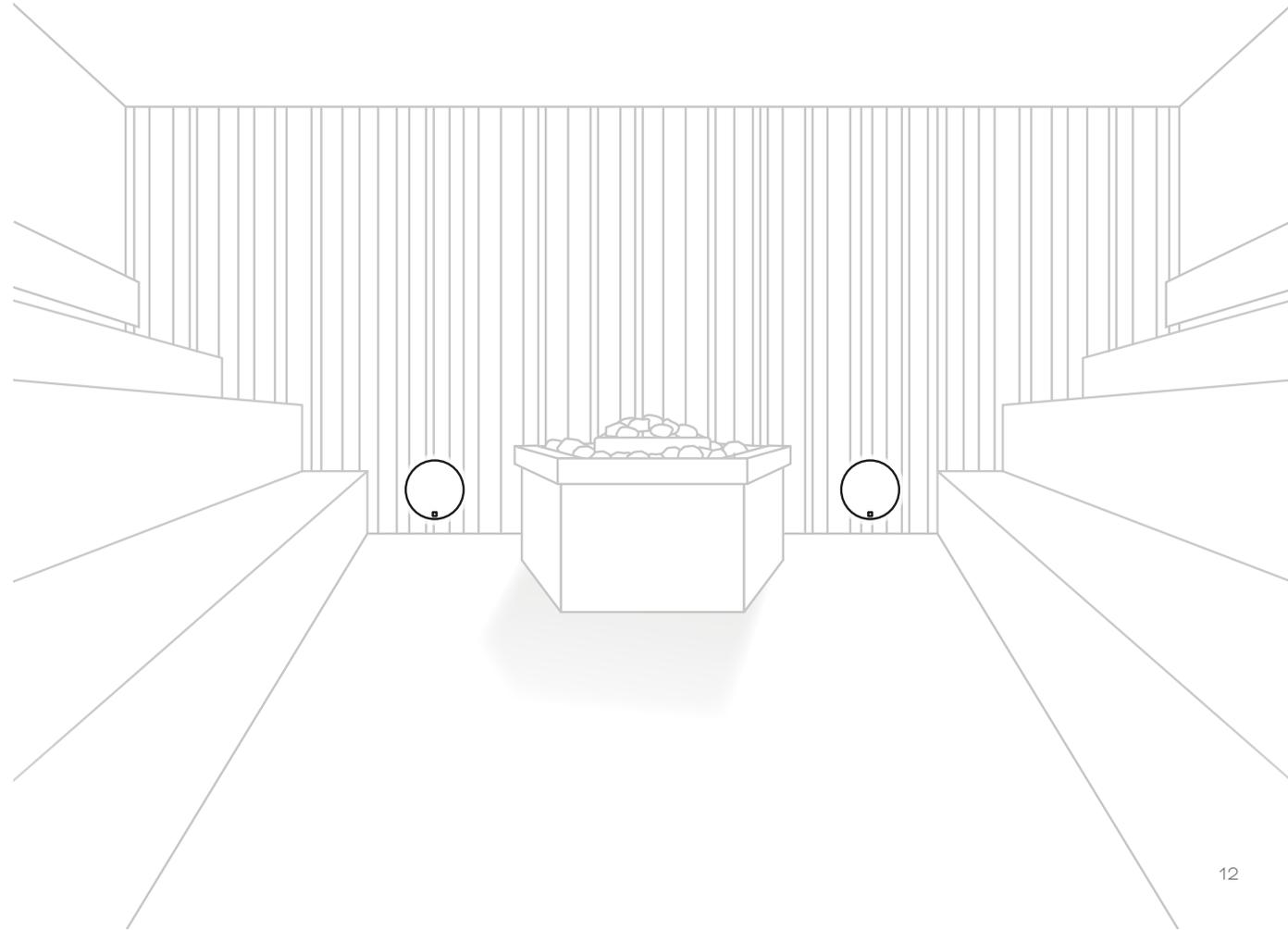


## Saunas and Steam Rooms

Although the E-60 WR and E-80 WR are primarily intended as in-ceiling loudspeakers, they can also be installed in-walls. The in-wall option potentially provides further installation versatility in terms of stereo coverage in pool and spa seated areas, but it is also very strongly advised for E-60 WR and E-80 WR loudspeakers installed in saunas and steam rooms where ceiling temperatures can become very high. Sauna and steam room installation of E-60 WR and E-80 WR loudspeakers should be in-walls, relatively close to the floor where temperatures are lowest. The loudspeakers should be rotated in their mounting apertures so that their output is directed upwards.

### Important note!

When installing speakers in saunas or steam rooms, always mount them close to the floor, not directly exposed to water. Both to protect the speakers from high temperatures and from excessive water exposure.





## Outdoor Dining and Cooking

Cooking, eating and relaxing outdoors is one of the great pleasures of summer evenings and great sound can add immeasurably to the pleasure. The E-60 WR and E-80 WR are perfect for covered or sheltered spaces such as roofed open deck, dining or barbecue areas. There are however some installation factors to consider.

In-ceiling locations above barbecue or other cooking areas can become hot, so in these situations E-60 WR and E-80 WR loudspeaker should be installed as far as possible from cooking heat sources. Fitting extraction hoods or chimneys above cooking heat sources will enable the loudspeakers to be brought closer.

Cooking unavoidably results in hot oil splatter from frying and barbecuing, so E-60 WR and E-80 WR loudspeaker installation locations should be chosen with this in mind. Select locations where the loudspeakers are likely to be shielded from cooking splatter, and always install the loudspeakers with their grilles fitted.

## Outdoor Relaxing, and Listening

Away from the cooking or barbecue areas, where relaxing, eating, drinking and listening are the primary activities, E-60 WR and E-80 WR loudspeakers are most appropriately installed in stereo pairs either in-ceiling or in-wall. In either case the loudspeakers should be rotated in their mounting apertures so that their output is directed towards the primary listening positions.

Outdoor locations tend to be acoustically less reverberant and reflective than indoor spaces consequently high frequency sounds can become attenuated, so it is likely to be useful to switch the E-60 WR and E-80 WR High+ level control to its boosted position.

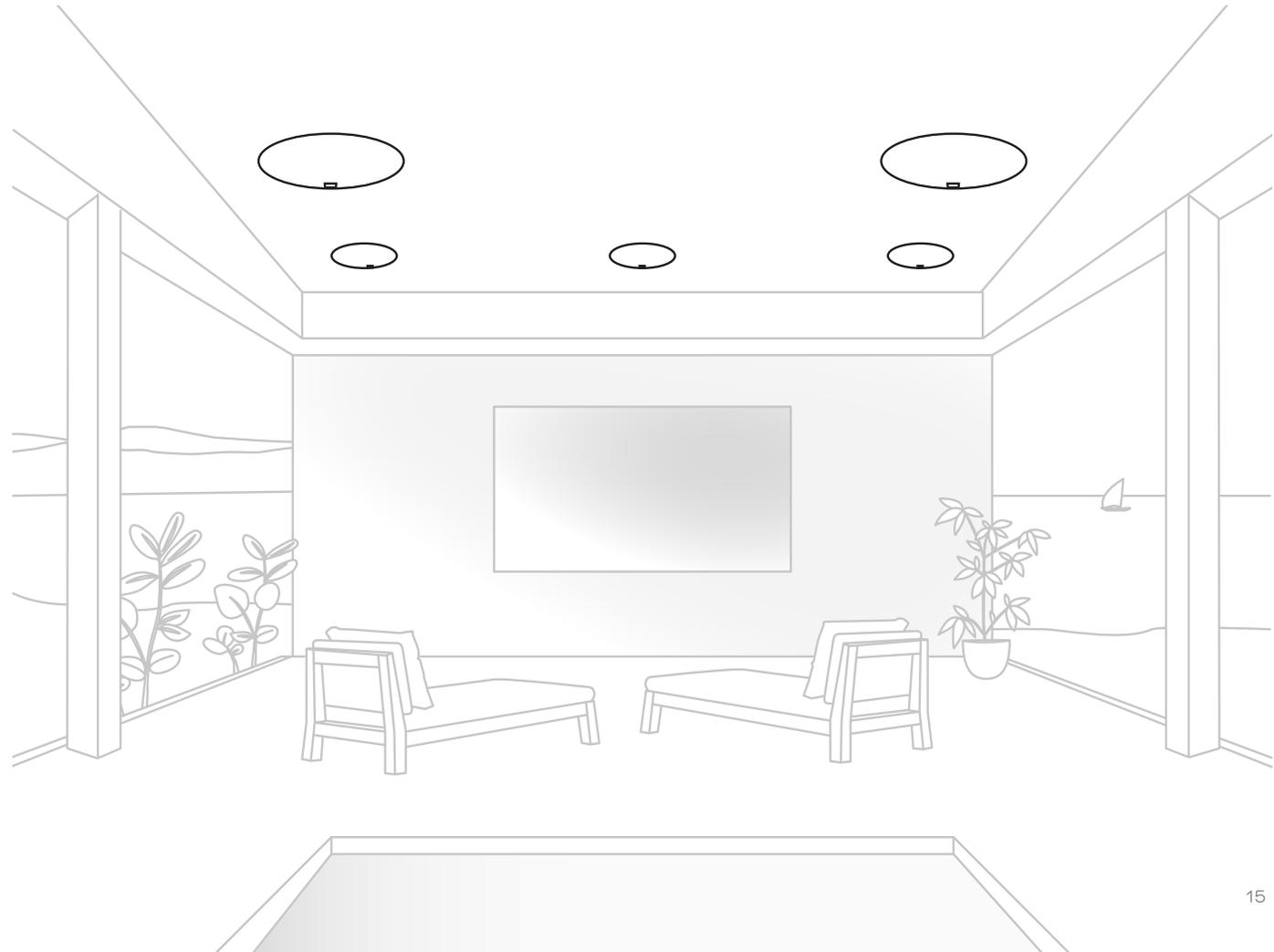


## Outdoor Home Theatre

The PHANTOM E-60 WR and E-80 WR loudspeakers are perfectly suited for use in covered outdoor Home Theatre setups as well. They can be used for front, centre or surround channels, mounted either into the ceiling or in-wall.

All DALI speakers are designed around the principle of wide dispersion. The off-axis optimisation helps deliver the music or movie audio to the largest possible parts of the room.

The slightly tilted drivers can be aimed towards the main listening position by rotating the loudspeakers in their mounting apertures. If the loudspeakers are mounted more than 25 degrees off-axis from the main listening position, we recommend enabling the High+ and Mid+ option to compensate for the wide off axis listening angle.



## Outdoor Pools and Decks

Outdoor pool and deck areas are all about relaxation and fun, and music can add an extra element to both. With tolerance for both high and low temperatures and even water spray, the E-60 WR and E-80 WR are perfectly suited to covered or sheltered outdoor pools and decks.

Outdoor locations, even when sheltered, may be subject to direct sunlight and it is important that E-60 WR and E-80 WR are shaded for the majority of the time. Continuous direct sunlight will potentially result in temperatures beyond the specified tolerance of the loudspeakers.

The E-60 WR and E-80 WR are fully capable of withstanding occasional water spray, however continual soaking is likely to result in damage or failure.

Outdoor locations tend to be acoustically less reverberant and reflective than indoor spaces consequently high frequency sounds can become attenuated, so it is likely to be useful to switch the E-60 WR and E-80 WR High+ level control to its boosted position.

