# Using the ARPEC™ system


On the top rear of the speaker, you find the ARPEC™ adjustment panel with two dials. Both can be used to easily adjust the active powered bass section. Together they solve most room and placement afflicted problems that normally impair good balance between lower, middle and upper bass, and getting proper general bass output relative to the rest of the audible frequency range. The simple and purely analogue adjustment system on each speaker provides users two intuitive dials. The left one to can be used to overcome the typical compromise of needing a speaker that has a low frequency extension to fit the room size: often smaller speakers sound best in smaller rooms, and bigger ones in larger rooms. Next to it, the right dial, solves issues encountered when choosing the placement relative to room boundaries: farther or closer to walls or even close into a corner.  Normally with other loudspeakers, the bass balance only sounds right when choosing the exact position relative to walls, whilst the listener's layout preferences or the soundstage performance calls for something entirely different. There are rare analogue solutions on the market relying on equalizers and phase controls that are hard to get right and often compromise sound quality when put in the signal path, and have therefore quickly lost traction in Hifi after the 1980's. This day, DSP based digital counterparts -often automated-  based on measurements can be applied to solve problems, however it comes with conversion (A/D+D/A) losses and is difficult to implement without unnatural results. Also, the risk of doing adjustments the system was not designed for originally, can easily result in damage or distortion. For you, none of these issues applies. Not anymore.

## Room Size

From turned all the way left (counter-clockwise) to all the way right (clockwise) you can choose the extension of the lowest notes to be in balance or best matching with the rest of the music, regardless of having a very small or very large room from XXS to XXL, as indicated around the dial. Each room adds bass in the lowest frequencies, depending on size and construction. Without looking to individual room modes, there is a clear general difference related to room size. With the dial more left, you will have less deep bass extension, matching smaller rooms that can rapidly become too pressurized. Turning right, you make the speakers go lower, increasing output towards 20 Hz and below, to match the larger space to fill. The same is useful when having to deal with thinner walls or wooden structures: less room gain, so turn more to the right.

## Placement

From turned all the way left (counter-clockwise) to all the way right (clockwise) you can choose the emphasis of all bass notes to be in balance or best matching with the rest of the music regardless of placing the speakers from direct into a corner to further from walls or even in open space, as indicated around the dial. Any wall in the proximity of a sound source introduces boundary gain that adds especially low frequency sound to the perceived output. This means that many speakers sound "boomy" when placed too close to walls, or too light when placed too far from them. The Ensium provides linear bass output down to the lowest organ notes, regardless of being placed straight into a corner or in the middle of a big hall, and everything in between.

## Individual Adjustments

Each speaker can be individually adjusted to overcome bass problems inflicted by asymmetry of the room. The placement setting is often the best way to overcome differences as distance to walls (or open space). In some cases, the construction of the room can be so different between left and right, such as when having a thick concrete wall left and not more than a thin wooden wall or roofing on the right, that ask for some differences in room size adjustment as well.  Feel free to play with different settings. For instance, turning room size to the right means more and deeper bass, while using placement for just more or less bass without deeper extension. In goal of overcoming non-symmetry the result can be evaluated by considering not just the overall bass balance (which is hard to differentiate between left and right), but also the realistic soundstage and imaging of deep male voices, drums and many musical bass instruments or a grand piano played over its entire key-range. Usually only small individual differences in the ARPEC™ settings between left and right speakers are the most satisfying.