

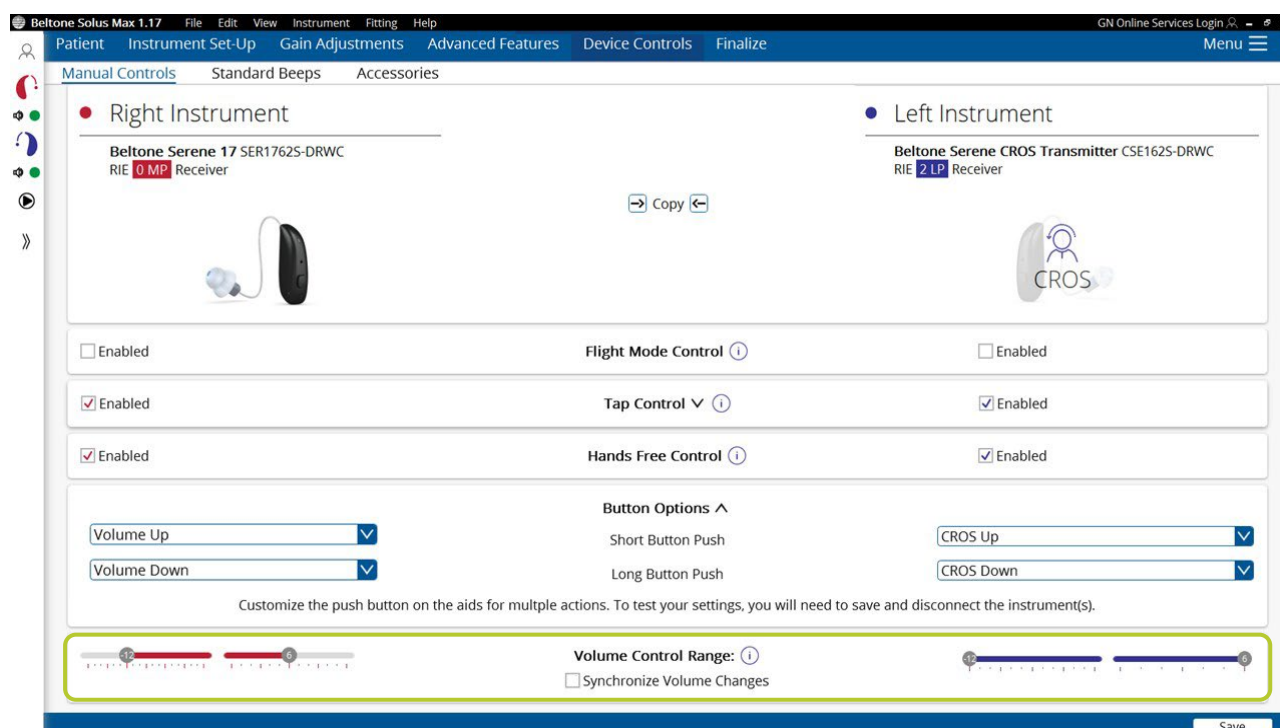
Beltone HearMax

Balance and volume control

Balance is a new adjustment for Beltone CROS and BiCROS fittings. **Balance** control adjusts the sound balance of the Beltone Serene™ CROS Transmitter microphone relative to the hearing aid microphone on the other side. In Beltone Solus Max™, both the overall volume/loudness of the Beltone Serene CROS system and the balance of input between the Beltone Serene CROS Transmitter and the Beltone Serene hearing aid can be adjusted in the Beltone HearMax™ app.

Set-up in the fitting software

In Beltone Solus Max, the **Volume Control Range** determines how many decibels the Beltone Serene CROS/ BiCROS user can manually increase or decrease either overall loudness and/or balance of sound input. For Beltone Serene CROS/BiCROS fittings, volume and balance control are independent of each other and may be adjusted for different reasons.



In this example, volume is controlled by the hearing aid side (right) while the balance of sound input between each device is controlled by the transmitter side (left).

The default **Volume Control Range** is -12 to +6 dB, meaning that the Beltone Serene CROS/BiCROS user can manually increase both their volume and balance by 6 dB or decrease their volume and balance by 12 dB. In other words, they have a **Volume Control Range** of approximately 18 dB ($12+6 = 18$)*. Hearing care professionals have the ability to increase or decrease this range for an individual in Beltone Solus Max.**

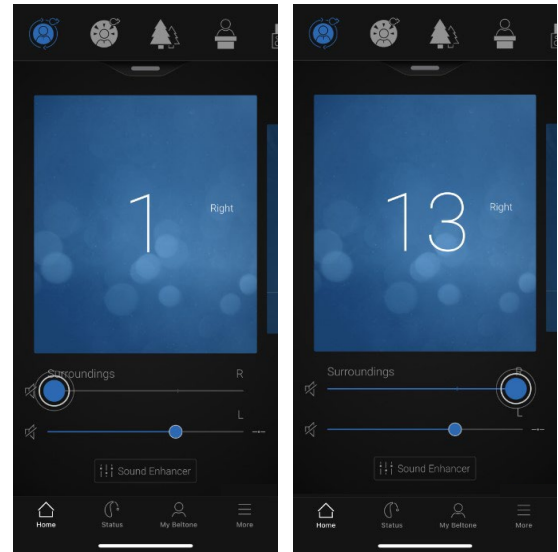
*Approximations are based on individual compression ratios, rounding errors, and audiograms.

**Note that the Volume Control Range of the Beltone Serene CROS Transmitter side cannot increase past default settings.

Estimating decibel change in the app

Volume and balance adjustments in the Beltone HearMax app are more dynamic than the 1:1 dB ratio in the fitting software. Since the app has a fixed number of steps to control volume or balance, changes made by the CROS/BiCROS user in the app may be more than 1 dB of change at a time. This is dependent on how the **Volume Control Range** is set in the fitting software.

Hearing aid and CROS/BiCROS users have a fixed number of 12 steps (1-13) to change between their minimum volume or balance and their maximum volume or balance. This number of available steps never changes.



Note: The sliders in the app are called a **volume slider** but be mindful that in a CROS/BiCROS fitting, the **volume slider** for the poorer ear will act as a balance adjustment.

Therefore, the **volume slider** for the hearing aid side adjusts the volume of the whole system. Both sounds from the hearing aid side and the transmitter side either get softer or louder. While the **volume slider** on the transmitter side is a balance control adjusting the input of sound collected from the CROS microphone. Some may call this 'perceived loudness' for the CROS microphone. However, this adjusts the CROS microphone input without increasing the overall loudness of the system.

$$\frac{(VCR^{\min} + VCR^{\max})}{12}$$

To figure out how much of a decibel change per step in the app, add the CROS/BiCROS user's minimum and maximum **Volume Control Range** settings, found in the fitting software, and divide by the fixed number of steps in the app.

For example, if the minimum and maximum **Volume Control Range** settings are left at default (-12 dB to +6 dB = 18 dB) then you would divide 18 by 12 to get approximately 1.5 dB* change in volume/balance per step in the Beltone HearMax app.

As the **Volume Control Range** increases, the larger the decibel change per step in the app.

VCR: -18 dB to +12 dB = 30 dB range

30 ÷ 12 steps = approximately 2.5 dB* change in volume per step in the app.

The smaller the **Volume Control Range**, the smaller the decibel change per step in the app.

VCR: -6 dB to +6 dB = 12 dB range

12 ÷ 12 steps = approximately 1 dB* change in volume per step in the app.

*Approximations are based on individual compression ratios, rounding errors, and audiograms.

