

# Maxi Personal Amplifier

## BE2020



### Features

- 1 Digital signal processing**  
Clear and noise-free sound
- 2 Easy to use**  
Up and running in minutes
- 3 Great ergonomics**  
Robust and user friendly
- 4 Telecoil**  
Works with loop systems
- 5 Flexible**  
Connects to the TV or radio

Maxi is a personal amplifier that will bring out the words so you can hear them loud and clear, even when there is a lot going on in the background.

Use Maxi for example when the family gathers around the dinner table, in the store, or to listen to the radio and TV. Maxi delivers clear and distinct speech and works with headphones/earphones as well as neck loop to hearing aids.

### Easy to use

Maxi is intuitively easy to use and you are up and running within minutes flat. Everything is easily accessible with the simple press of a button and there are no complicated menus to learn. Just connect your earphones or neck loop and adjust the volume to your liking.

### Clear and distinct sound

Maxi is equipped with the latest digital technology and delivers clear and distinct sound of the same quality as modern digital product. It efficiently amplifies speech while filtering out unwanted background noise.

### Great ergonomics

Maxi is very robust and user friendly. It features large tactile buttons, soft grip materials and high contrast indicators that make it very easy to handle. Maxi is a great choice for those with low vision or limited dexterity.



# Technical specifications

Subject to change without prior notice.

## Size and weight

Height: **140** mm (5.5 inches)  
Width: **45** mm (1.8 inches)  
Depth: **27** mm (1.1 inches)  
Weight: **133** grams (4.7 ounces)



## Input signals

- Microphone: Built in omnidirectional electret condenser microphone
- Telecoil pickup for inductive loops
- External sound source input: 2.5 mm stereo jack plug (+6 dBV max input signal)

## Output signals

- Headphone socket: 3.5 mm stereo jack plug
- Distortion: 0.557 % THD (electrical)
- Frequency range: 40-10 kHz (electrical)
- Tone control: 5 pre-set steps
- Volume control: 9 steps (5 dB/step)
- Output power: 125 mW (16  $\Omega$  load)

## In the box

The package includes everything you normally need in order to use your Maxi.

- BE2020 Maxi Personal Amplifier
- Two AA Alkaline batteries
- Belt clip
- BE9135 Lanyard
- User manual
- Quick guide
- Listening accessory (Varies with package and territory)

## Power and battery

- Two AA Alkaline batteries
- Operating time: up to 150 hours

## Acoustic specifications

- Maximum output using BE9122 Headphones  
119 dB (HF Ave. SPL 90)
- Full on gain:  
Using BE9122 Headphones  
(60 dB SPL input signal)  
51.07 dB @ 1.6 kHz
- Full on gain:  
Using BE9124 Earphones  
(60 dB SPL input signal)  
54.54 dB @ 1.6 kHz

## Compliance

This product complies with applicable FCC and ISED Canada regulations.

本機器は日本の電波法に適合しています。

## Buttons and controls



## Environmental requirements

- Operating temperature:  
0° to 35° C, 32° to 95° F
- Relative humidity: 15% to 90%  
(non condensing)

## Accessories

The following accessories are available:

- BE9122 Headphones
- BE9124 Earphones
- BE9159 Neck Loop, long cable
- BE9161 Neck Loop, short cable
- BE9136 Ext. Microphone
- BE9408 Extension Cable ext. mic
- BE9126 Cable Kit, 5m, 16.4ft.
- BE9147 Travel Case

# In-depth technical information

Subject to change without prior notice.

## Features

- Digital signal processing
- Omni-directional electret condenser microphone
- Telecoil pickup for inductive loops
- 10 channel dynamic range compressor
- 10 channel dynamic noise suppression
- Adaptive feed-back manager
- Intuitive user interface
  - LED lightbar for excellent readability
  - 9 step volume control (5 dB/step)
  - 5 step tone control
  - Mic and T-mode indicator
  - Low battery warning indicator
- Auxiliary stereo signal input (2.5 mm telejack)
- Headphones stereo output (3.5 mm telejack)
- Push-To-Listen mode (Int. mic and Aux in mixed)
- Soft-mute when switching between signal sources
- Requires no individual fitting
- Powered by two AA-size alkaline batteries

## Advanced settings



### Balance control

Compensates for example for hearing loss in one ear. 5 dB / step.



### Basic attenuation

Limits the maximum output level Useful for e.g. a child. 3 dB / step.



### Tone control blocking

Makes it easier for some end users to handle the personal amplifier.



### Tone control preset

Select preset tone. Used together with Tone control blocking.



### Disable T-coil

Makes it easier for some end users to handle the personal amplifier.

## Technical specifications

- Dimensions: 140 x 45 x 27 mm (L x W x T)
- Weight: 133 g (including batteries)
- Battery type: Two AA-size Alkaline batteries
- Battery life: Up to 150 h
- Ext. mic./Aux in connector: 2.5 mm stereo telejack
- Headphones connector: 3.5 mm stereo telejack
- Volume control: 9 steps (5 dB/step)
- Tone control: 5 pre-set steps, push-buttons
- Power switch: On/off toggle button
- Mic and T-mode: Separate mode select buttons
- Ext. mic / Aux in accessories
  - Automatically selects Aux in or external microphone when plugged in
- R/L-channel balance setting
  - 0-20 dB programmable attenuation (in steps of 5 dB)
- Maximum volume setting
  - 21 dB programmable attenuation (in steps of 3 dB)
- Dynamic compressor
  - 10 channels
  - Dynamic gain range: 0-35 dB
  - Compression: 3:1 Expansion: 1:1.5
  - Attack time: 25 ms
  - Release time: 250 ms
- Dynamic noise reduction
  - 10 channels Adaptive frequency domain noise reduction
- Feedback cancellation
  - Adaptive time domain feedback cancellation
- Digital signal processing
  - 19,948 kHz sampling frequency
  - 16-bit resolution in stereo

## Acoustic specifications

- Full-on gain with BE9122 headphones
  - 51.07 dB @ 1.6 kHz(60 dB input signal)
- Ref. test gain with BE9122 headphones
  - 29.21 dB (SPL70)

## Electrical specifications

- Output power: 125 mW/channel (@ 16 Ohm load)
- Impedance, headphones: 8 - 72 Ohm
- Distortion: 0.557 % THD (electrical)
- SNR: 82 dB
- Frequency range
  - 40 Hz – 10 kHz
  - Tone, high: +10dB@3.15 kHz, -6dB@250Hz
  - Tone, mid: flat
  - Tone, low: -10dB@3.15 kHz, No bass boost
- Aux in sensitivity (max input lvl.): +6 dBV

## Noise cancellation

Noise cancellation operates in frequency-domain and uses ten channels to continuously analyse and attenuate stationary noise. The noise cancellation dynamically adjusts the gain for each frequency band to give an optimal dynamic range, thus suppressing noise without affecting speech or other interesting information. Noise is suppressed with 5 dB without sacrificing resolution or introducing sound artefacts, which increases the listening comfort.

## Dynamic range compression

The dynamic range compressor operates in the frequency-domain and is implemented as 10 channels, logarithmically. Each channel has individual attack/decay, expansion, compression and saturation distance parameters, which have been trimmed to reduce microphone noise, emphasise speech or other interesting information and still offer a natural sound.

## Feedback manager

The adaptive feedback manager is especially designed for use in sound environments where the listening conditions changes. It is automatically activated when the internal microphone is selected and will quickly adapt, for example, if a user moves or the position of the headphones are changed relative the internal microphone. It continuously analyses the input signal to detect feedback and eliminates it by changing the phase and amplitude of the output signal. This normally occurs even before the user experiences a buildup of feedback.

## Battery level supervision

The supervision of the battery voltage level is continuously operating in the background, making a measurement every 10th second. The result is presented on the Low Battery indicator. The battery supervision indicates a Battery Low condition when the estimated remaining battery time is around 10 hours.

## Output using BE9122 Headphones

