Overview

- Let's Flip to the Good Part!
- Flip it Open
- Natural Sound Made Simple
- Flip Through Wireless Possibilities
- Ease of Fitting You'll Flip For
- Model & Feature Summary

SONIC flip SONIC 2

SONIC flip SONIC 3

Let's Flip to the Good Part

The Flip miniRIC will change your expectations about hearing devices.

Flip is compact – yet surprisingly full of the features patients want most:

- Natural sound quality
- Enhanced speech intelligibility
- Simple operation
- Stylish and discreet
- Wireless connectivity

SONIC flip

SONIC

Let's Flip to the Good Part!

- **Great Technology**
  - Outstanding sound processing features for clear, natural sound
  - Effective Noise Reduction strategies to enhance speech intelligibility
  - New Adaptive Feedback Canceller to prevent whistle and squeal before it starts
  - Directional features to provide focus to each soundscape

SONIC flip

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Let's Flip to the Good Part!

- **Wireless Connectivity**
  - Binaural communication makes operation simple
  - SoundGate wireless link for connectivity options to external Bluetooth® audio sources
  - Optional TV and Phone Adapters and remote control

SONIC flip

SONIC 6

Let's Flip to the Good Part!

- **Long-Lasting Battery**
  - Size 13 battery with great battery life and easy to handle
- **Simple Operation**
  - Push buttons are simple to find and easy to use
  - A sizeable wheel makes volume control easy
  - Easy open battery compartment

SONIC flip

SONIC 7

Let's Flip to the Good Part!

- **Small and Discreet**
  - Flip is lightweight, comfortable, and barely visible
  - Available in four color options to match hair and skin tones

SONIC flip

SONIC 8

Let's Flip to the Good Part!

- **Multiple Technology Levels**
  - Available in three technology levels to match individual hearing and budget needs

SONIC flip

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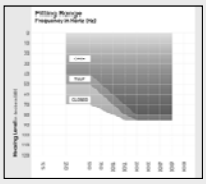
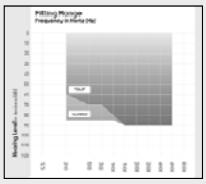
Let's Flip to the Good Part!

- **Fitting Ranges:**
  - Standard Receiver
  - Power Receiver





SONIC flip

SONIC

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Flip it Open

Small in size. Feature packed.
And so easy to operate.

SONIC flip

SONIC

11

Flip it Open

1. **Receiver Unit**
   - No tools, snaps into place
   - Same Receiver Unit as other Sonic RICs
2. **Covered Microphones**
   - Maintains a horizontal plane when worn, for optimal directional performance

SONIC flip

SONIC

12

Flip it Open

3. **Memory Switch**
   - Access up to four listening programs
4. **Volume Control**
   - Large, easy to locate and operate
   - Programmable range
   - Configurable alerting tones provide audible cues as the wheel is turned

SONIC flip

SONIC 13

Flip it Open

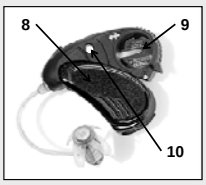
5. **Wireless Connectivity**
   - Allows communication between devices
   - Connectivity to external audio sources
6. **Phone Coil**
   - Optimal sound quality for telephone use
7. **Auto Telephone**
   - Hands-free switching

SONIC flip

SONIC 14

Flip it Open

8. **Battery Door**
   - Easy access design
9. **Battery Compartment**
   - Large, long-lasting size 13 battery
   - Integrated On/Off switch
10. **Right/Left Indicator**
   - Visual cue to indicate right or left orientation



SONIC flip

SONIC 15

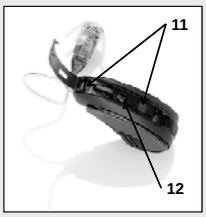
Flip it Open

11. Microphones

- Replaceable membrane protects microphones from debris and moisture

12. Programming Port

- Hidden and protected by port cover panel
- Programming cable connects directly into CS44 port



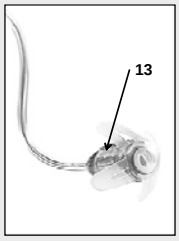
SONIC flip

SONIC 16

Flip it Open

13. Receiver Unit & Wax Guard

- Standard, Power options provide support for losses up to 90 dB
- Color-coded to indicate right or left orientation
- Patient-replaceable wax guard protects against wax, moisture



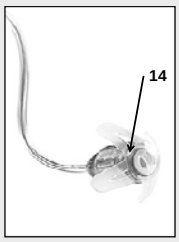
SONIC flip

SONIC 17

Flip it Open

14. Domes

- Same Domes as other Sonic RICs
  - Open (4 sizes)
  - Extended Open (2 sizes)
  - Tulip Dome (1 size)
  - Power Domes (3 sizes)
- Custom earmolds available



SONIC flip

SONIC 18

Flip it Open

- **Moisture Protection**
  - Molecular-level hydrophobic coating of external parts (shell housing, VC, push button, microphone cover, battery door).
  - Internal components are coated during assembly with a conformal silicon coating.

SONIC flip

SONIC 19

Natural Sound Made Simple

With the natural sound Sonic is known for, hearing and speech is clear and comfortable.

- Speech Variable Processing
- Noise Reduction Systems
- Directional Systems
- Adaptive Feedback Canceller

SONIC flip

SONIC 20

Natural Sound Made Simple

- **Speech is a complex and dynamic system with patterns and sounds that vary all the time – components may be quick or slow and have different levels of energy as vocal inflections rise and fall.**
- **Our ears translate these things naturally, but a hearing device requires sophisticated technology to process them.**

SONIC flip

SONIC 21

Natural Sound Made Simple

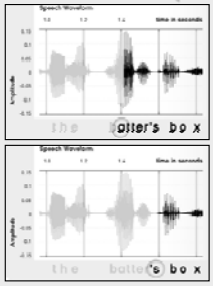
- **To preserve the fine details, a processing strategy must compute tremendous amounts of data – and do it instantaneously.**
- **Enter <u>Speech Variable Processing</u> (SVP), a super-computer in hearing instrument form.**
  - Measures the wideband SPL value and operates on the wideband acoustic signal, thus preserving the spectral contrast inherent in the signal
  - Makes conversations clear and natural in a variety of listening situations

SONIC flip

SONIC 22

Speech Variable Processing Details

- **The smallest sounds of speech can vary greatly in their level of intensity—even within a single word.**
- **Notice how much more energy the 'a' in "batter's" generates than the 's'.**



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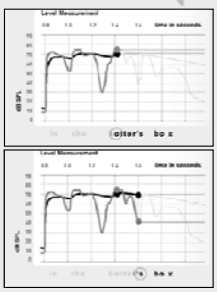
SONIC 23

Speech Variable Processing Details

- **SVP (blue) uses a very rapid sample rate; the incoming sounds are identified in real time.**
- **Slow-acting processing (gray) cannot react quickly to changes in intensity; they fail to identify the amplitude differences.**

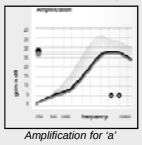


SONIC flip

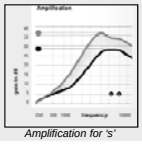
SONIC 24

Speech Variable Processing Details

- **Slow-acting systems miss quick changes in intensity, resulting in a homogenous – and often incorrect – application of amplification.**
- **The super-fast nature of SVP ensures that the correct amount of amplification is always applied, preserving the subtleties of speech.**



Amplification for 'a'



Amplification for 's'

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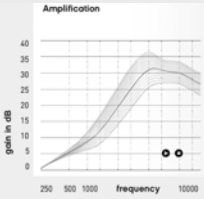
SONIC 25

Speech Variable Processing Details

SONIC flip

SONIC 26

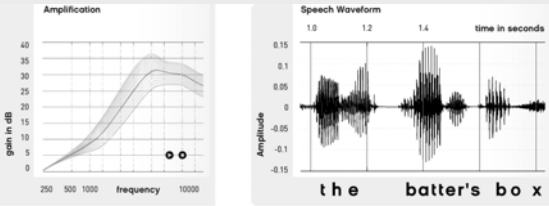
Speech Variable Processing Details



SONIC flip

SONIC 27

Speech Variable Processing Details

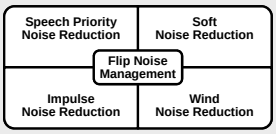


SONIC flip

SONIC 28

Natural Sound Made Simple

- While amplifying speech signals is part of a hearing device's basic function, amplifying annoying and unwanted noise shouldn't be.
- Flip uses multiple strategies to combat different types of noise:



SONIC flip

SONIC 29

Noise Reduction Details

- Maximizing a patient's ability to understand speech can be difficult when speech is mixed with noise.
- Correctly identifying speech vs. noise can be very difficult, and systems often trade comfort for speech intelligibility.
- Flip uses two of its noise reduction systems to combat the speech-in-noise problem and provide maximum intelligibility.

SONIC flip

SONIC 30

Noise Reduction Details

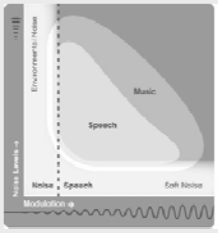
- **What is Speech?**
  - Speech tends to be modulated
  - Speech tends to occur at levels between roughly 50 – 85 dB
- **What is Noise?**
  - Environmental Noise is not modulated, and can occur at any input level
  - Soft Noise falls below the range of speech, regardless of modulation

SONIC flip

SONIC 31

Noise Reduction Details

- **What does the relationship between Speech and Noise look like?**



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SONIC 32

Speech Priority NR Details

- **Dealing with noise in the *Modulation* space**
- **<u>Speech Priority Noise Reduction</u> constantly monitors the input and determines the modulation 'fingerprint' of the signal.**
  - Sounds that are highly modulated are most likely speech and should be preserved
  - Sounds that do not show modulation characteristics are most likely noise and should be reduced

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SONIC 33

Speech Priority NR Details

- **Based on the SNR, noise reduction is applied – high attenuation when the SNR is poor (i.e. high noise) and less or no attenuation when the SNR is good (i.e. low noise).**
- **Because the underlying Speech Variable Processing system is so fast, we can provide appropriate attenuation for even the smallest parts of speech and spaces between words.**
- **The result is a system that provides a more accurate, more useful application of noise reduction, providing both better speech intelligibility and comfort.**

SONIC flip

SONIC 34

Soft Noise Reduction Details

- **Dealing with noise in the *Sound Level* space**
- **<u>Soft Noise Reduction</u> reduces sounds that are quiet, regardless of their modulation characteristics.**
  - Form of speech-weighted expansion

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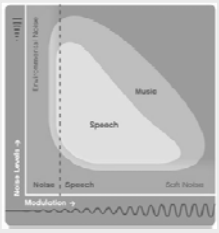
SONIC 35

Noise Reduction Details

- **By reducing the noise and leaving the speech signal intact, these systems provide comfort and preserve underlying speech signals, resulting in increased speech intelligibility.**



SONIC flip

SONIC 36

Impulse Noise Reduction Details

- **Patients often rate the amplification of impulsive sounds – such as the clinking of silverware or the jangling of keys – as one of the most uncomfortable aspects of wearing hearing instruments.**
- **Using the new <u>Impulse Noise Reduction</u> feature, Flip identifies impulsive sounds by examining the input and checking for three key traits.**

SONIC flip

SONIC 37

Impulse Noise Reduction Details

- **What does an impulsive sound look like?**
  - Is the input **unexpected** – does it greatly differ from the average input?
  - Is the input **quick** – is it of a short duration?
  - Does the input have a **high intensity** – is it loud?
- **Once identified, the parts of these sounds outside the identified speech envelope are attenuated using fast-acting output compression.**

SONIC flip

SONIC 38

Impulse Noise Reduction Details

SONIC flip

SONIC 39

Wind Noise Reduction Details

- **With patients living more active and athletic lives, many find themselves spending more time outdoors. A gentle wind may feel great, but it doesn't sound great when amplified.**
- **When wind is detected, the <u>Wind Noise Reduction</u> feature:**
  - Sets the lowest frequencies to an omni directional response
  - Attenuates the low frequencies response for comfort

SONIC flip

SONIC 40

Natural Sound Made Simple

- **Flip employs several directional strategies to keep unwanted noise at bay while preserving important environmental sounds that keep the patient engaged in their surroundings.**
- **Directional Options:**
  - Fixed Directionality
  - Adaptive Directionality
  - Hybrid Directionality

SONIC flip

SONIC 41

Fixed Directionality Details

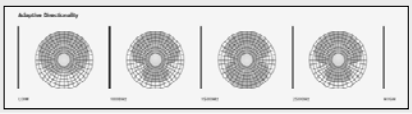
- **<u>Fixed Directionality</u> is useful in scenarios where the soundscape is static or more defined.**
- **Sitting in a restaurant is a great example. In this mode, Flip uses a fixed, hypercardioid directional response to address sounds coming from the sides and behind the listener.**

SONIC flip

SONIC 42

Adaptive Directionality Details

- **Adaptive Directionality is ideal in dynamic, active environments, such as in an office setting.**
  - Manages directionality independently in four frequency regions.
  - In each region, the system selects the polar pattern that will produce the best SNR, given the current environmental characteristics.

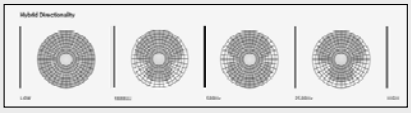


SONIC flip

SONIC 43

Hybrid Directionality Details

- **<u>Hybrid Directionality</u> combines adaptive directionality in the three highest frequency regions with an omni response in the lowest region. *(Flip100)***
- **The result is a system designed to resist wind noise while being effective in lower noise environments than is typical with the Adaptive Directionality setting.**



SONIC flip

SONIC 44

Natural Sound Made Simple

- **Conventional feedback cancellation systems typically react too late to stop feedback before it starts, reacting only once it is a noticeable problem.**
- **With the NEW <u>Adaptive Feedback Canceller</u> (AFC) found in Flip, feedback is proactively attacked, resulting in squeal-free easy listening.**

SONIC flip

SONIC 45

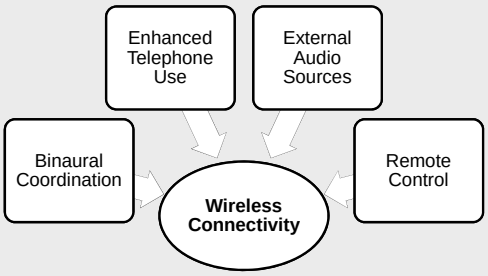
AFC Details

- The characteristics of each incoming signal is classified before applying amplification.
- If a previously classified signal returns to the microphone within a short period of time (~5 msec), the AFC 'recognizes' it as feedback.
- Feedback signals are then passed through an inverse phase cancellation system that quickly removes the offending signal before it becomes audible feedback.

Flip Through Wireless Possibilities

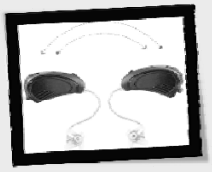
A hearing instrument isn't the only device patients rely on. Cell phones, MP3 players, PCs, and television are integral to everyday life. Flip comes ready to connect to nearly any external device.

Flip Through Wireless Possibilities



Binaural Coordination Details

- **All Flip instruments include <u>Binaural Coordination</u>, allowing the device in one ear to communicate with the other instrument.**
- **Changes to volume levels or program selection made on one device are automatically made in both devices.**



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SONIC 49

Binaural Coordination Details

- **<u>Environmental Classification</u> uses input from both devices to create a 360° analysis of the auditory scene. Based on this info, the devices adjust in unison to select the ideal configuration for the Universal environment.** ***(Flip^{100} & Flip^{80})***
  - Speech always given the highest priority
  - If wind is detected in only one instrument, only that device adapts for wind

SONIC flip

SONIC 50

Enhanced Telephone Use Details

- **<u>Non-Telephone Ear Control</u> automatically attenuates the input on the opposite device when the Telephone program is manually engaged.**
- **The <u>AutoTelephone</u> feature engages a pre-defined Telephone program when the phone is placed next to Flip.**
  - When the call is finished, Flip returns to the previous listening program
  - The opposite device can be configured to automatically attenuate when the AutoTelephone program is engaged *(Flip^{100})*

SONIC flip

SONIC 51

External Audio Sources Details

- SoundGate is a 'gateway' providing wireless communication between Flip and external audio sources that use Bluetooth® transmission.
- You can also plug external audio sources into SoundGate for a direct audio input connection.
- SoundGate also functions as a remote control to change the volume level and listening program.

SONIC flip

SONIC 52

External Audio Sources Details

- Connect the TV Adapter to a television, and SoundGate streams audio directly to Flip hearing instruments.
- With binaural wireless reception, movies and TV shows have never sounded clearer.

SONIC flip

SONIC 53

External Audio Sources Details

- The Phone Adapter provides a binaural wireless link between landline phones and SoundGate, making even non-mobile phone use simple and clear.

SONIC flip

SONIC 54

Remote Control Details

- The RC-P Remote provides basic control for volume control, program changes, and mute.

SONIC flip

SONIC 55

Ease of Fitting You'll Flip For

With all the technology packed into Flip, it's amazing how easy it is to fit, fine tune, and operate.

Flip offers features specifically designed to help get satisfied patients quickly fit, fine-tuned, and on their way.

SONIC flip

SONIC 56

Ease of Fitting You'll Flip For

- Flip provides pre-configured Environments for simple device configuration.
- Environments combine features and amplification ideal for the specific listening scenario.

SONIC flip

SONIC 57

Ease of Fitting You'll Flip For

- **The <u>Universal</u> environment delivers accurate, hands-free operation, giving patients a seamless listening experience all day long.**
- **The Universal environment:**
  - Examines the incoming signal
  - Analyzes the signal to determine the listening situation
  - Adjusts features and amplification to best manage the situation while preserving speech intelligibility
  - Synchronizes configurations in a binaural fitting *(Flip100 and Flip80)*

SONIC flip

SONIC 58

Environment Details

Environment	Flip100	Flip80	Flip60	Notes
Universal	•	•	•	Optimized for Speech in Noise; Directionality
Quiet	•	•	•	No auto features;Optimized for Speech in Quiet;Omni
Telephone	•	•	•	Mic; Phone Coil, or Mix; Trigger: PB, ISG or RC-P
Low Noise	•	•		Fixed Directionality
High Noise	•	•	•	Directionality
Television	•	•	•	No automatic features; Omni
Classroom	•	•		Response optimized for speech; Omni
Music	•			Decreased compression; Omni
Automobile	•			Configurable directionality
Movie / Theater	•			Decreased compression; Omni or Fixed Directionality
SG Phone	•	•	•	SoundGate/Mic Mix; Trigger: SoundGate
SG Entertainment	•	•	•	SoundGate/Mic Mix; Trigger: SoundGate
AutoTelephone	•	•	•	Mic; Phone Coil, or Mix; Trigger: Magnetic field ONLY

SONIC flip

SONIC 59

Ease of Fitting You'll Flip For

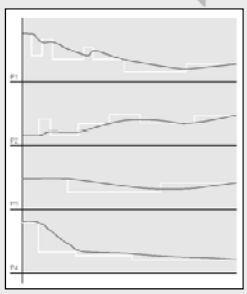
- **The <u>Data Logging</u> system records usage information about patient listening behaviors.**
- **By analyzing this information, you can make fine-tuning decisions based on historical data.**
- **Data Recorded:**
  - Total and average wear time
  - Time in each listening program
  - Volume adjustments

SONIC flip

SONIC 60

Ease of Fitting You'll Flip For

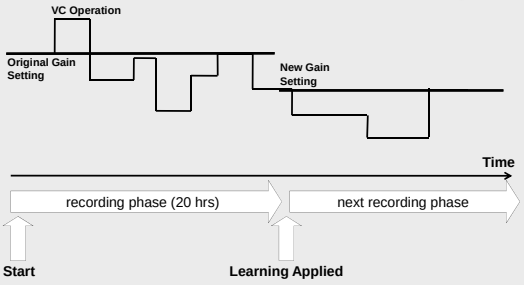
- **The <u>Data Learning</u> feature allows Flip to learn your patient's preferred volume settings over time, and adapts the default amplification settings to match their preferences.**



SONIC flip

SONIC 61

Data Learning Details



SONIC flip

SONIC 62

Data Learning Details

- **When are adjustments applied?**
  - After 20 hours AND
  - Program change OR power cycle
- **How much will gain be adjusted?**

Avg VC Change	Gain Adjustment
<1 dB	No Change
1 dB – 2 dB	±1 dB
>2 dB	±2 dB
	MAX Adjustment: ±6 dB

Note: Learning adjustments are NOT synchronized between aids in a binaural fitting

SONIC flip

SONIC 63

Data Learning Details

Connect Flip to EXPRESS*fit* – HCP is asked to:

ACCEPT Learning

Result:
- Same gain performance as was learned at the end of the recording period
- Device gets new VC range more / less headroom for future learning
- Program specific

REJECT Learning

Result:
- Device returns to original gain settings

SONIC flip

SONIC 64

Ease of Fitting You'll Flip For

- **The nEARcom programming unit allows wireless programming between Flip and your fitting system computer.**
- **Attach the nEARcom adapter to NOAHlink, then place it around the patient's neck.**

SONIC flip

SONIC 65

Model & Feature Summary

Available in three technology levels to match individual hearing and budget needs.

SONIC flip

SONIC 66

Model Summary

- **Flip uses the same Standard Receiver unit as other Sonic RIC products.**
- **Wireless connectivity capability is standard on all Flip products.**

Model overview

Hardware	
Program Button	■
Volume Control	■
Directionality	■
Phonecoil	■
Auto Telephone Detection	■
Power Receiver Unit	●
Battery	13
Estimated Battery Life	238 hrs.
Accessories	
SoundGate Wireless Link	●
RC-P Remote Control	●
TV Adapter	●
Phone Adapter	●

■ STANDARD
● OPTIONAL

SONIC flip

SONIC Everyday Sounds Better 67

Feature Summary

	flip100	flip80	flip50
Sound Quality			
Signal Processing	← Speech Variable Processing →		
Frequency Bandwidth	10 kHz	8 kHz	6 kHz
Noise Management			
Adaptive Feedback Canceller	■	■	■
Wind Noise Reduction	■	■	■
Soft Noise Reduction	■	■	■
Speech Priority Noise Reduction	4 levels	3 levels	2 levels
Impulse Noise Reduction	■	■	
Directionality			
Fixed Directional	■	■	■
Adaptive Directional	■	■	
Hybrid Adaptive Directional	■		

■ STANDARD ● OPTIONAL

SONIC flip

SONIC Everyday Sounds Better 68

Feature Summary

	flip100	flip80	flip50
Binaural Coordination			
Binaural Volume & Program Change	■	■	■
Binaural Environment Classification	■	■	
Non-Telephone Ear Control	■		
Programming Options			
Universal Program	■	■	■
Manual Listening Programs	4	4	3
Environments	13	10	8
Data Logging	■	■	■
Data Learning	■		
mEARcom Wireless Programming	●	●	●

■ STANDARD ● OPTIONAL

SONIC flip

SONIC Everyday Sounds Better 69

Feature Summary

	flip100	flip80	flip60
Patient Conveniences			
Push Button Mute	■	■	■
Audible Performance Indicators	■	■	■
Start-Up Delay	■	■	■
Auto Telephone Detection	■	■	■

■ STANDARD ● OPTIONAL

SONIC flip

SONIC Everyday Sounds Better 70

SONIC
Everyday Sounds Better