

EACH TINNITUS PATIENT IS UNIQUE

- Widex offers five unique and infinitely flexible Zen Styles plus Zen noise
 - Aqua
 - Coral
 - Green
 - Lavender
 - Sand
 - Zen Noise
- For the majority of patients, **Aqua** will be the best choice based on patient ratings for:
 - Relaxation
 - Effectiveness for reducing the annoyance from tinnitus
- Aqua** is the default setting but some patients will benefit from changing styles or making other adjustments within the Zen programs
- Combinations of Zen tones, Zen noise and Amplification are simple to program

WIDEX

ZEN TONES, KEY POINTS

- Fractal tones follow the principles of music that are associated with relaxation, but unlike actual music, the patterns never repeat.
- Presentation levels
 - Based on patient's Sensogram
 - 10% of dynamic range SL presentation
 - Adaptive (treated as a soft input)
 - Most noticeable in quiet environments
 - Less noticeable in moderate to high level environments
- Promotes relaxation
- Promotes habituation through passive listening
- InterEar (or stereo) Zen is Standard in all Dream 440, 330, 220 products.
- Dream 110 comes standard with a non-InterEar (mono) version of Zen.



ZEN NOISE, KEY POINTS

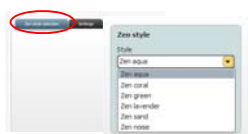
- Zen noise: White noise modified by Sensogram and ear canal acoustics
 - Can be presented in any combination
 - With or without Zen Tones
 - With or without amplification (master program)
 - Zen noise & Zen tones & amplification
- Zen noise shaped
 - Frequency response from 90 – 10,000Hz is controlled by HHP
 - High pass, low pass or narrow notch filter responses
 - Automatic loudness equalization when frequency bandwidth is changed



ACTIVATING ZEN OR ZEN+ PROGRAMS



ADJUSTMENTS IN ZEN ZEN STYLE SELECTION SETTINGS



Settings

- Microphone (master) on/off
- Broadband noise can be added
- Tempo modification
- Pitch modification
- Zen Tone volume adjustment
- Zen Noise volume adjustment

Zen Style Selection

- Choose a Zen tone or Zen Noise
- Aqua is always first default



ADJUSTMENTS IN ZEN+ ZEN+ STYLE SELECTION

- Choice of 5 Zen Tone styles
- Noise
- Noise shaped (Zen+ Dream 440 only)
- "None" option if fewer than three programs needed



ADJUSTMENT IN ZEN+ SETTINGS

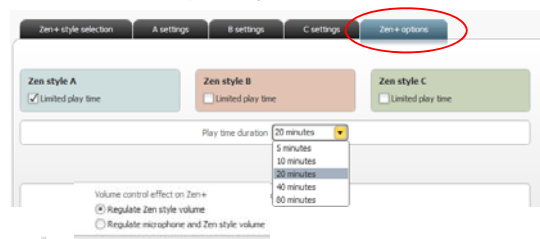
Create Unique Combinations

- Zen A
- Zen B
- Zen C



ADJUSTMENTS IN ZEN+ THERE'S MORE!

- Zen+ options
- Zen program timer
 - Volume control option to regulate Zen and not amplification



ZEN OR ZEN+ THE CHOICE IS YOURS

Choose Zen

- Mild or occasional tinnitus
- Patient needs easy access to Zen program
- Need for a "set it and forget it" Zen program
- Normal Hearing with tinnitus



Choose Zen+

- Patient has severe tinnitus
- Patient needs sense of control
- Fluctuating tinnitus
- Sleep disruption due to tinnitus
- HHP desires shaped noise spectrum.

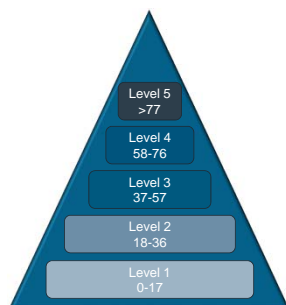


BASICS OF PROGRAMMING ZEN & ZEN+



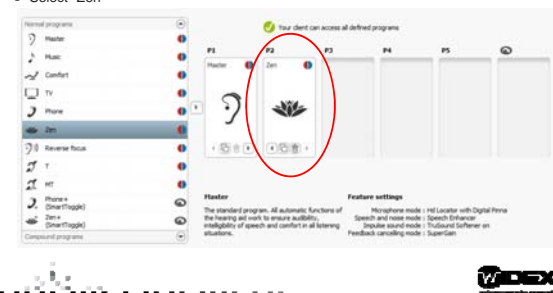
PROGRAMMING A BASIC ZEN PROGRAM

- Mild or occasional tinnitus
- Easy access to Zen program
- "Set it and forget it"
- Normal hearing with tinnitus



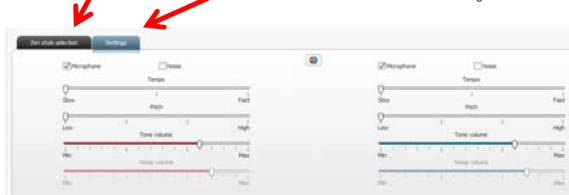
BASIC ZEN PROGRAM STEP 1:

- Program Manager
- Select "Zen"



BASIC ZEN PROGRAM STEP 2: LEAVE ON DEFAULTS

- Zen style selection
 - Aqua
- Settings
 - Mic "on"
 - Default Tempo & Pitch
 - Volume based on Sensogram



VERIFYING ZEN

- 1 • Zen tones should be audible, but relatively soft
- 2 • Zen tones should not interfere with conversational speech
- 3 • Zen tone volume is sufficient to just begin to decrease annoyance level of tinnitus



ZEN INSTRUCTIONS TO PATIENT

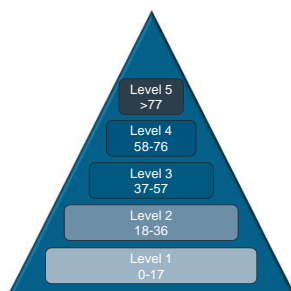


- Switch to Zen program as needed to enhance relaxation and help decrease the negative impact of tinnitus
- Okay to be in Zen program fulltime as long as it doesn't interfere with hearing speech or other important inputs.
- Objective is passive, rather than active listening



PROGRAMMING ZEN+

- Severe tinnitus
- Patient needs sense of control
- Fluctuating tinnitus
- Sleep disruption due to tinnitus
- HHP desires shaped noise stimuli.



RECOMMENDED ZEN+ PROGRAMMING

- Zen A: Aqua & Microphone
- Zen B: Aqua & Microphone & Noise
- Zen C: Microphone & Noise



VERIFYING ZEN

1

- Zen tones should be audible, but relatively soft

2

- Zen tones should not interfere with conversational speech

3

- Zen tone volume is sufficient to just begin to decrease annoyance level of tinnitus



ZEN+ INSTRUCTIONS TO PATIENT

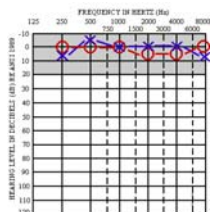


- Two second push will activate Zen+. A one second push will then rotate between Zen A, Zen B, Zen C and then back to Zen A.
- Another two second push will return to Master Program
- Objectives:
 - Passive listening, not masking
 - Zen A: Eventual goal is to be in this setting most of the time
 - Zen B: Useful early in treatment when additional relief needed
 - Zen C: Option for occasions when tinnitus is more severe



NORMAL HEARING ZEN OR ZEN+

- Binaural Zen recommended
- Set Sensogram to a flat 15 or 20dB response, regardless of thresholds
- Uncheck "microphone" in all Zen Settings



WHEN TO FINE TUNE

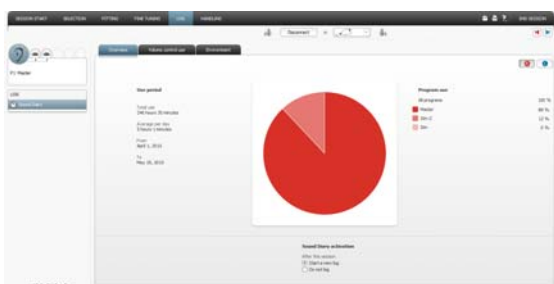


WHEN TO FINE TUNE ZEN PROGRAMS

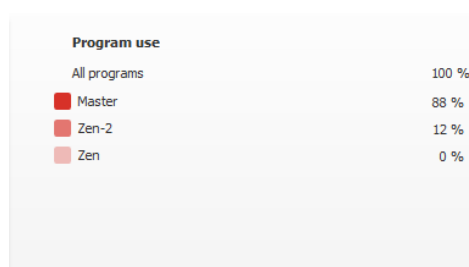
- Initial fitting
 - Zen volume
 - Turn mic off for relaxation or sleep
 - Focus should be more on counseling than fine tuning
- Follow up visit
 - Based on patient reports & datalog
 - Remove or add Zen programs
 - Add relaxation program
 - Change Zen style
 - Turn Microphone "on" or "off"
 - Add Noise
 - Change pitch or tempo Change bandwidth of noise



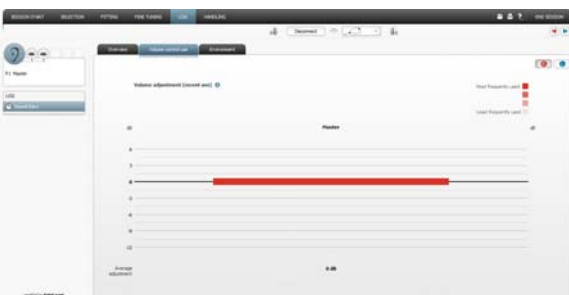
DATALOG PROGRAM USAGE



DATALOG CERTAIN ZEN PROGRAMS NOT USED



DATALOG VOLUME USE



PATIENT COMPLAINTS CALLING FOR FINE TUNING



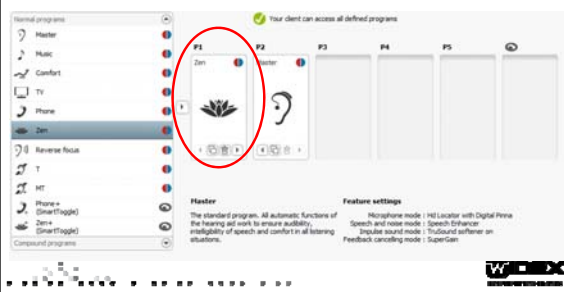
EXTENSIVE USE OF VOLUME ADJUSTMENTS

- Change volume in software
- Counsel on importance of passive listening
- Consider a set it and forget it Zen program in P1



PATIENT HAS TROUBLE CHANGING SETTINGS PATIENT CONTINUES TO FOCUS ON TINNITUS

- Choose Zen and move into Program 1 slot



SLEEP ISSUES DUE TO TINNITUS

- Uncheck microphone
- Add Sleep timer (Zen+ Settings)



ZEN TONES ARE NOT PROVIDING ENOUGH RELIEF

- Consider change of Zen style
- Add Zen Noise
- Counsel on realistic expectations and timelines



FLUCTUATING TINNITUS

- Activate Zen+
- Add RC DEX
- Instruct re: onboard volume control



HIGH STRESS OR TOO RELAXED (FALLING ASLEEP)

- Increase tempo to enhance alertness
- Decrease tempo to enhance relaxation



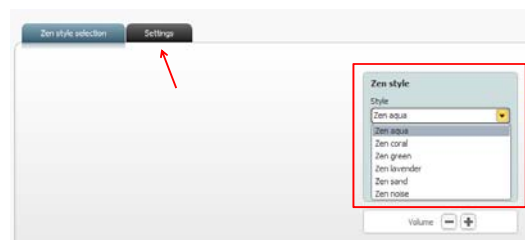
ZEN TONES ARE TOO SHARP

- Lower pitch
- Change to another Zen Style



AQUA IS NOT DECREASING TINNITUS ANNOYANCE

- Evaluate effectiveness of other Zen styles
- Change to another style
- Add Noise



CHOOSING ALTERNATE ZEN STYLES

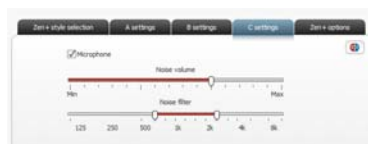
- Have patient listen to all Zen styles for 30 seconds each.
- Rate accordingly

Zen style	Tinnitus Awareness Score	Relaxation Score
Aqua		
Coral		
Lavender		
Green		
Sand		
Noise		



ZEN NOISE IS TOO LOUD

- Replace Zen Noise with Zen Noise Shaped



TINNITUS SHIFTS TO OPPOSITE EAR

Binaural Fitting Considerations

Tinnitus and HL in both ears	Tinnitus in one ear, HL in both	Tinnitus in both ears, HL in one	Tinnitus but no HL	Tinnitus and HL in one ear
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- Monaural only appropriate when there is a dead ear.
- No matter where tinnitus originates, it almost always becomes a central nervous system issue.



CASE STUDY



PETER

- 70 year old retired bus driver with HL and bilateral tinnitus
- Recently very depressed
 - Notices tinnitus all day
 - Trouble sleeping
 - Fears he has a serious illness
 - Loss of interest in hobbies and grandchildren
- Peter and his wife are fighting a lot because she is unsympathetic about tinnitus
- Medical clearance and referral to audiologist



AUDIOMETRY

- Moderate to severe SNHL
- Speech discrimination is 76%, AU
- Tinnitus matching completed
 - Tone played for his wife to hear



FIRST FOLLOW-UP

- Peter reports he is wearing the hearing aids all day, although wife disagrees
- Sound Diary reveals minimal use of hearing aids
- He is afraid they will make the tinnitus worse
- Peter still feels desperate for help but isn't sure this is the solution



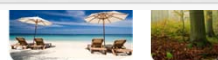
ACTION TAKEN

HEARING AID ADJUSTMENTS

- Peter is asked to rate to all Zen tones plus noise.
 - Best results with Zen Lavender + noise
- Noise was increased in both B and C to a point that he just heard the tinnitus
- Instructed to increase usage 2 hours every day until he is wearing them full time.
- Instructed to use C during intense periods of tinnitus

ADDITIONAL RECOMMENDATIONS

- Peter is referred to a psychiatrist



1 MONTH FOLLOW-UP

- Hearing aid usage now 5 hours a day. Using all Zen programs
- Reports that he is experiencing some relief from his tinnitus
 - Less stressed and fatigued
- Working with his psychiatrist on cognitive behavioral intervention
- Doing the breathing exercises to combat stress
- Still experiencing some trouble falling asleep at night



ACTION TAKEN

- The Audiologist instructed him to start using Zen C less and Zen B more often
 - Use the VC if he needs more relief
- Acclimatization increased to level 3
- Given a Zen program on timer and with the microphones off to help him sleep at night



2 MONTH FOLLOW-UP

- Full time hearing aid use. Reports they are helping him hear his family
- Feels that he has control over his tinnitus for the first time since it started
- Sleeping much better but still has trouble staying asleep
- Wearing Zen primarily in the B program



ACTION TAKEN

- TFI score has decreased to 45
- Acclimatization was changed to level 4
- Patient was instructed to start using Zen A most of the day and Zen B when needed
- Referred to a sleep specialist
- Continue relaxation exercises
- Continue seeing his psychologist



6 MONTH FOLLOW-UP

- Peter reports that he is doing much better
- Data logging reveals
 - Master 65% of the time
 - Zen A 25%
 - Zen B 5%
 - Zen C 5%
 - Does not care for Zen C anymore, he feels it is "too much"
- His relationship with his family has gotten significantly better and he and his wife have planned a vacation together to celebrate
- His Psychologist has discharged him



ACTION TAKEN

- TFI score decreased to 16
- Zen C was changed to noise shaped
- Scheduled for a follow-up in 6 months.



SUMMARY

- Each tinnitus patient is unique
- Widex Settings offer an almost infinite combinations
 - 5 adjustable Zen tone styles
 - Tempo
 - Pitch
 - Zen noise (broadband)
 - Master program with low compression kneepoint and expanded bandwidth.
 - Zen noise shaped (Dream 440)
- Rely on patient reports and datalog to guide fine tuning
- Sound therapy is most effective when combined with counseling and relaxation



TAKE HOME POINTS



- Counseling or Widex amplification alone may be sufficient for many tinnitus patients.
- Minimize fine tuning of Zen at initial fit
- Use Datalog as a guide for fine tuning
- Widex Zen Therapy protocol includes many counseling & stress management tools