# Understanding the HDA Parametric Zone EQ

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URC HDA devices and software provide countless options to configure and optimize audio settings to achieve performance and flexibility for almost any application.

One of those features is a Custom 5-Band Parametric Zone EQ.

This article provides a better understanding when using**Parametric Equalizers in HDA**, and details the procedure for adjusting the HDA Parametric Zone EQ settings when using Accelerator 3.

Select Device with O	Audio Settings: Zone2LR, Bar 8100Z2 Connect To Zone	
HDA-8100(Office	HDA Parametric EQ (Zone2LR)	
HDA-130 #1(Ktch HDA-1600-70V(Be	Parametric EQ Settings	
HDA-4100(LivRm HDA-IO (Output)(	Band 1 Band 2 Band 3 Band 4 Band 5	
HDA-130 #2(Foye	Frequency         63 Hz         •         125 Hz         •         630 Hz         •         10 kHz         •         12.5 kHz         •	
	Gain 2 • 1 • -2 • 2 • 3 •	
	Quality Factor (Q) 0.5 • 0.7 • 0.9 • 0.7 • 0.5 •	
	Reset to Defaults	
		<b>-</b>
Available Zone Outpu	OK Cancel	
Output Room	Add Note Filter	

HDA Parametric EQ in Accelerator 3 Step 9e, TC-Flex 2 Step 7e

Also available with the "Connect To Zone" Tool to set live

The HDA **Parametric EQ**, is a professional and clean sounding 5 band equalizer. A high quality EQ is one of the most important tools when "tuning" the sound of an HDA zone, indoor or outdoor, residential or commercial.

**Parametric EQ** goes far beyond basic EQ and basic Bass and Treble tone controls available on our user interfaces. The word "parametric" means something that has a set of independent variables that express the coordinates of a point. In terms of audio equalization, this translates to parameters such as center Frequency, bandwidth (Q) and amplitude, or "Gain". The system programmer can adjust these parameters to determine exactly how the equalization is applied, thereby tuning the sound of an HDA zone or room.

The most important feature of the HDA parametric equalizer is that it allows you to select a specific frequency to adjust. For example, instead of having a simple mid-range adjustment which boosts or reduces a pre-set range of frequencies, you can specify exactly which mid-range frequency to boost or reduce. This offers far greater flexibility and accuracy.

The HDA **Parametric EQ** is designed to provide greater and more accurate control over tone and frequency – a significant leap beyond just simple bass and treble tone controls. They can raise (boost) and lower (cut) the decibel output of specific bands (frequencies of sound).

Every HDA zone in an installation has different "room acoustics" which affect the sound in that room. Based on room building materials, location (indoor or outdoor) and room size.

The HDA **Parametric EQ** is designed to help shape the sound of a zone to compensate for all of the abovementioned factors.

A good resource on the affect of Room Acoustics can be foundhere.

## Setting up the HDA Zone Parametric EQ

### **Frequency Value**

Each band allows you to set the band's frequency position by clicking and an selecting the frequency value. (see image below)

Н	IDA Paramet	ric EQ (Z	one2L	R)							
ſ	Parametric EQ	Settings -									
		Band	1	Band 2		Band 3		Band 4		Band 5	
	Frequency	63 Hz	*	125 Hz	Ŧ	630 Hz	7	10 kHz	*	12.5 kHz	•
	Gain	2	-	1	•	-2	*	2	٣	3	*
	Quality Factor (Q)	0.5	-	0.7	•	0.9	*	0.7	•	0.5	*
									Res	set to Defau	lts
				ОК		Ca	ncel				

### Gain Value

The middle row allows you to set the gain value of the band, which is by how much you boost or cut the selected frequency of the band.

Gain values range from -20dB to 6dB. (see image below)

HDA Parametr	ic EQ (Zone2l	_R)			
-Parametric EQ	Settings				
	Band 1	Band 2	Band 3	Band 4	Band 5
Frequency	63 Hz 🔹	125 Hz *	630 Hz *	10 kHz	т 12.5 kHz т
Gain	2 *	1 *	-2 *	2	× 3 ×
Quality Factor (Q)	6 5 4	0.7 *	0.9 *	0.7	× 0.5 ×
	2				Reset to Defaults
·	-1 0 -1 -2	ОК	Cancel		
Add Not	-3 -4	ilter			
8100 8100	-5 -6 -7	© Off ◯ ŀ	High Pass 🔘 I	Low Pass	
00Z2	-8	High Pass Filter	Setting	Low	v Pass Filter Setting —

### **Q** Value

The bottom row is the **Q value** and controls the width of the band or simply put how many frequencies are affected by the band. A high Q value will give you a wide band and affect more frequencies. A low Q value will

give you a more narrow band and is great to cut or boost more specific frequencies. (see image below)

1	HDA Parametric EQ (Zone2LR)											
	Parametric EQ Settings											
	Band 1 Band 2 Band 3 Band 4									Band 5		
	Frequency	63 Hz	*	125 Hz	-	630 Hz	Ŧ	10 kHz	Ŧ	12.5 kHz	*	
	Gain	2	*	1	*	-2	Ŧ	2	Ŧ	3	*	
	Quality Factor (Q)	0.5	*	0.7	*	0.9	*	0.7	Ŧ	0.5	-	
									Re	set to Defau	ilts	
	OK Cancel											

## Parametric EQ Sample Settings

Here is a starting point when using the HDA Parametric EQ to enhance the sound of some speakers. You can adjust these settings in **Accelerator Step 9e**, T**C-Flex 2 Step 7e**. (see image below)

Step 9 URC Au	dio Setup: Zone	Audio Settings	
a.Inputs b	Input Settings	c.Permanent Zor	ne Groups d.Zone Assignment e.Zone Settings f.Sounds g.Room Link Groups
- Select Devi	ce with Outputs		Audio Settings: Zone 1L Mono, Lanai Connect To Zone
HDA-8100 HDA-130 = HDA-1600 HDA-4100	(Office 810021R) #1(Ktch 130#1 Z -70V(Bed 1600Z) (LivRm 4100Z1,2	11R) 11R) 1R) 1R)	Zone Type:     Stereo      Mono
HDA-IO (C HDA-130 ;	output)(Lake IOZ #2(Foye'r 130#2	1) Z1LR)	Zone Output:     Variable     Fixed
			CInput Change Fade In
			Time: 1.5 sec   Apply Global
			Volume:
			Max Volume: 100 %  Apply Global
			Turn On Volume: O Last Used O Preset 53 %
Available Zon	e Outputs		Turn On Vol. Ramp Rate: 1.5 sec
Output	Room	Add Note	
Zone 1L	Lanai 8100		
Zone 1R	Office 8100		◎ Off ○ High Pass ○ Low Pass
Zone2LR	Bar 8100Z2		Low Pass Filter Setting
Zone3LR	Den 8100Z3		Slope
Zone4LR	Porch 8100Z4		
Zone5LR	Pool 8100Z5		○ 24 dB/oct. Gain: 0.0 dB ▼ ○ 24 dB/oct. Gain: 0.0 dB ▼
Zone6LR	Spa 8100Z6		
Zone7LR	Grouped-M		CRoom EQ:
Zone8LR			Off Treble Boost Bass Boost OParametric EO

HDA Parametric EQ (Zone1L Mono)										
Parametric EQ	Settings -									
	Band	1	Band 2		Band 3		Band 4		Band 5	
Frequency	50 Hz	Ŧ	63 Hz	*	80 Hz	*	160 Hz	*	16 kHz	*
Gain	2	-	2	*	1	٣	-1	*	1	*
Quality Factor (Q)	1.0	*	1.0	*	1.0	*	1.0	Ŧ	1.0	] •
								Re	set to Defau	ults
OK Cancel										

Architectural 8" Speakers: (see image below)

HDA Paramet	ric EQ (Zone1L	Mono)				
-Parametric EQ	Settings					
	Band 1	Band 2	Band 3	Band 4	Band	5
Frequency	40 Hz 🔹	63 Hz 🔻	80 Hz	* 160 Hz	▼ 16 kHz	*
Gain	2 •	2 *	1	· -1	· 1	-
Quality Factor (Q)	1.0 *	1.0 -	1.0	• 1.0	× 1.0	-
					Reset to Def	faults
		ОК	Cano	el		

Box Outdoor Speakers: (see image below)

HD.	HDA Parametric EQ (Zone1L Mono)										
r P	Parametric EQ Settings										
		Band	1	Band 2		Band 3		Band 4		Band 5	
	Frequency	63 Hz	Ŧ	80 Hz	Ŧ	160 Hz	Ŧ	1 kHz	*	16 kHz	*
	Gain	2	Ŧ	2	*	-1	Ŧ	0	*	1	*
	Quality Factor (Q)	1.0	Ŧ	1.0	٣	1.0	Ŧ	1.0	٣	1.0	*
									Re	set to Defa	ults
					_						
				ОК		Car	ncel				

Additional Information & Resources:

To learn more about HDA products and programming, please see the HDA Programmers Guide or the Accelerator 3 online Programming Guide.

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