

Indiana University – Purdue University Fort Wayne
Opus: Research & Creativity at IPFW

Computer and Electrical Engineering Technology &
Information Systems and Technology Senior Design
Projects

School of Engineering, Technology and Computer
Science Design Projects

4-27-1989

The Digitally Programmable Graphic Equalizer

Matthew R. Severin

Indiana University - Purdue University Fort Wayne

Follow this and additional works at: http://opus.ipfw.edu/etcs_seniorproj



Part of the [Computer Sciences Commons](#), and the [Engineering Commons](#)

Opus Citation

Matthew R. Severin (1989). The Digitally Programmable Graphic Equalizer.
http://opus.ipfw.edu/etcs_seniorproj/215

This Senior Design Project is brought to you for free and open access by the School of Engineering, Technology and Computer Science Design Projects at Opus: Research & Creativity at IPFW. It has been accepted for inclusion in Computer and Electrical Engineering Technology & Information Systems and Technology Senior Design Projects by an authorized administrator of Opus: Research & Creativity at IPFW. For more information, please contact admin@lib.ipfw.edu.

To: Professor O. R. Detraz
Electrical Engineering Technology Department
Indiana/Purdue University at Fort Wayne

From: Matthew R. Severin
Electrical Engineering Technology Department
Indiana/Purdue University at Fort Wayne

Subject: Senior Design Project - Phase II Final Report

Date: April 25, 1989

Dist: Professor T. Laverghetta
Professor R. Ramsey

Abstract

from

The Digitally Programmable Graphic Equalizer

Matthew R. Severin - Senior Design Phase II - Final Report

April 24, 1989

The Digitally Programmable Graphic Equalizer (DPEQ) is a ten band digitally programmable graphic equalizer that is capable of varying phase-frequency and amplitude-frequency characteristics of an audio system. The device does not have any manual controls and instead, uses a computer interface to control the gain of each audio frequency band. This creates many advantages over a conventional graphic equalizer such as remote control and memory. The device can handle stereo signals up to 7 volts peak and operates without a significant overall gain to the system. There are eight possible levels of gain for each band ranging from -20db to +20db. Each band has a corresponding 8 level LED bar graph display that shows the gain at which it is operating. The total cost of parts for the DPEQ was only \$149.83.

Table of Contents

Section 1....	Foreword
Section 2....	Project Background and Overview
Section 3....	Problem/Solution Statements
	3.1 Statement of the Problem
	3.2 Solution to the Problem
Section 4....	Design Criteria
Section 5....	Discussion of the DPEQ
	5.1 Basic Description
	5.2 Technical Description
	5.3 Analysis of Design
Section 6....	Calculations
Section 7....	Testing the DPEQ
Section 8....	Cost Analysis
Section 9....	Conclusion
Section 10....	Bibliography
Appendix A...	Schematic Diagrams
Appendix B...	Calculations and Graphs
Appendix C...	Technical Data Sheets
Appendix D...	User Software