

24V DC/240V AC INVERTER

by

KOUTSIDES GEORGIOS

PROJECT REPORT

Submitted to

the Department of Electrical Engineering

of the Higher Technical Institute

Nicosia, Cyprus

in partial satisfaction of the award

of the diploma of

TECHNICAL ENGINEERING

in

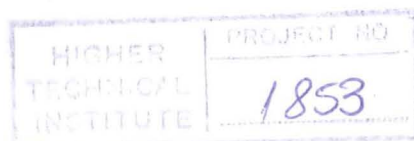
ELECTRICAL ENGINEERING

Project Supervisor: Mr. S. HADJIOANNOU

Lecturer in Electronic Engineering, HTI

EXTERNAL Assessor:

June 1991



ABSTRACT

This project deals with the use of d.c electric source for producing single phase A.C voltage.

The requirements of this project are:

- 1) Design, construct and test a transistor inverter.
- 2) To power the inverter.
- 3) Use the inverter to controll a load of max 600 Walts.

CONTENTS

	PAGE
Acknowledgements -----	1
Abstract -----	2
Summary -----	3
CHAPTER 1: BATTERIES -----	4
1.0 Introduction -----	5
1.1 Battery Characteristics -----	5
1.1.1 Cell life -----	7
1.2 Rules for using lead acid batteries --	8
CHAPTER 2: INVERTERS AND APPLICATIONS -----	10
2.0 Introduction -----	11
2.1 Types of inverters -----	12
2.2 Single phase inverters and Semiconductor Devices -----	12
CHAPTER 3: BLOCK DIAGRAM - OPERATION -----	16
3.0 Operation -----	17
CHAPTER 4: DESIGN and CIRCUIT DIAGRAM -----	18
4.0 Introduction -----	19
4.1 Inverter operation -----	19
4.2 Control Circuit Operation -----	30
4.3 Design Calculations -----	33
CHAPTER 5: TESTING AND PERFORMANCE -----	37
5.1 No load test -----	38
5.2 Testing with resistive load -----	39
5.3 Undervoltage protection -----	39

CHAPTER 6:	CONCLUSIONS -----	42
APPENDICES	-----	44