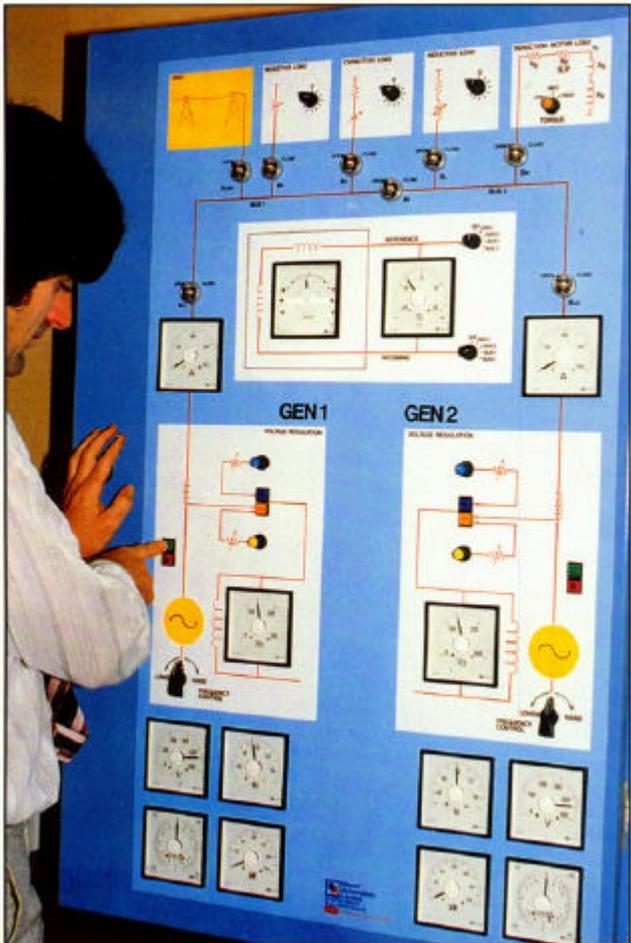


ELECTRICAL POWER GENERATION SIMULATOR



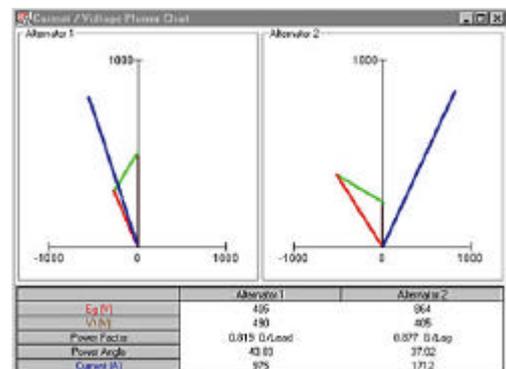
INTRODUCTION

MDQ-100 unit is designed to assist in the teaching and training of electrical power generation theory and practice. It offers the benefits of mathematical simulation with dynamic graphics and instructor-variable system characteristics, as well as providing “hands on” experience in the operation and control of “real” generator sets under various electrical load conditions.

MDQ-100 simulates and represents a grid supply and two three-phase diesel driven generator sets rated at 1200 kVA which can supply electrical power along a common bus to one of four load centres representing R, C, L and induction, motor type loads. Panel mounted real controls and instrumentation allow generator excitation, current, voltage, frequency, power and power factor to be monitored, whilst generator performance is real time displayed graphically in various text-book formats on a computer monitor.

This combination of conventional instrumentation and real-time graphic displays PC managed enables a wide range of exercises to be conducted, including the study of real/reactive power, paralleled generator load sharing, excitation control and power factor.

The **MDQ-100** system is a stand alone unit and may simulate also synthesised sound effects and allows the print out of all main electrical parameters. The package is supplied complete with full installation, operation and exercise documentation. The software run under Windows 95/98/2000.



TECHNICAL INFORMATION

INSTRUMENTATION

- 240 dig 96mm gauges for each generator Voltage, Current, Power (kW), Power Factor, Frequency and Excitation.
- Synchroscope and differential voltmeter also available .

CONTROLS

- OPEN/CLOSE/NULL position illuminated circuit breaker controls
- Manual/Automatic (AVR) Voltage Regulation
- Generator Speed RAISE/LOWER
- Generator ON/OFF
- Variable Resistive, Capacitive, & Inductive Loads
- Induction Motor Load Torque Selection (optional)

GENERATOR SECTION

- 2 off 3 phase 1200kW 0.8PF 440V 50Hz (250V-60Hz also available)
- Manual/Automatic Voltage Control

GRID SECTION

- 3 phase 440V 50Hz (250/60Hz also available)

CONFIGURABLE FEATURES

- Prime Mover Frequency Droop
- AVR Voltage Droop
- Grid Voltage & Frequency
- Maximum Value of R C L
- Value of R in series with C and L
- Enable/Disable digital display of all analog values

GRAPHIC DISPLAYS

- Dynamic representation of bus bar & generator status
- Graphic relationship of kW, kVA and kVAR for both generators and load
- Graphic relationship between generated and terminal voltage and current for either generator
- Print of Current, Torque and PF vs Slip for Induction Motor on load (optional)

SIZE & WEIGHT

- 114 x 71 x 50 cms - 60 kg approx.

POWER SUPPLY

- 110-240/110V, 50/60Hz single phase 3A

COMPUTER REQUIREMENTS

- Pentium PC or compatible with SVGA graphics,

ACCESSORIES

- Synchroscope and V-V% indication
- Induction Motor Load
- Synthesised Sound Effects of:
 - . Generator Noise: Variable speed & Loading
 - . Circuit Breaker: Open Close, Spring Rewind
- Out of Phase Synchronisation