

Basic Electrical Machines Learning System

85-MT2



85-MT2 Learning System



Optional Interactive Multimedia

Learning Topics:

- Rotating Electric Motors
- Electric Motor Safety
- DC Shunt and Compound Motors
- Motor Speed Measurement
- Motor Torque Measurement
- Motor Performance
- Split-Phase AC Motors
- Characteristics of Alternating Current
- Capacitor-Start AC Motors
- Bleeder Resistor Application
- Permanent-Capacitor Motors
- Two-Capacitor Motors
- Three-Phase AC Induction Motors

Amatrol's Basic Electrical Machines Learning System (85-MT2) teaches electric machines commonly found in industrial, commercial, and residential applications: single phase AC motors, three-phase AC electric motors, and DC electric motors. Learners practice industry-relevant skills including operation, installation, analyzing performance, and selecting electric machines for various applications.

Amatrol's 85-MT2 features a number of industrial machines, including an AC multipurpose single phase motor, a split phase motor, a DC motor/generator, and a 3-phase induction motor. This learning system also includes an integrated base test unit, phototachometer, lead set, prony brake, handheld clamp-on multimeter, handheld digital multimeter, world-class curriculum, and a student reference guide. This system uses industrial quality components both to help learners become better prepared for what they will encounter on the job and to withstand frequent use.



Technical Data

Complete technical specifications available upon request.

Integrated Base Test Unit

- Heavy duty steel enclosure
- Dual motor mounting base
- 3-phase circuit breaker with On/Off Switch
- Emergency stop pushbutton with keyswitch
- Variable DC power supply 0-120 volts, 8 amps
- Variable AC power supply, 1-phase, 0-140 volts, 8 amps
- Fixed AC power supply, 3-phase, 208 volts, 5-wire
- Field DC power supply, 0-0.5 amps
- Integral motor connectors (2)
- Arrays of 8 binding posts for motor interconnections (2)
- Coupling spider and guard

Phototachometer

- LED display, handheld
- 10000 RPM, memory

Prony Brake

- Torque range, 0-3.05 N-M, manual torque adjustment
- Spring gauge force readout
- Load drum with coolant chamber

Leads, Plug-in type (15)

Handheld Multimeter

- Clamp-on type
- Analog scale
- Voltage range, 0-600 volts
- Current range, 0-300 amps

DC Motor/Generator

- Dual function motor and generator
- 1/3 Hp rating
- NEMA 56 frame
- Shaft modified for tachometer reading from rear
- Multi-pin power lead connector
- Configurable to shunt, series and compound operation
- Coupling half

AC Multipurpose Single Phase Motor

- 115 VAC/60 Hz, 1/3 Hp rating, 1725 RPM
- NEMA 56 Frame
- Shaft modified for tachometer reading from rear
- Multi-pin power lead connector with all windings accessible
- Configurable to capacitor start, permanent capacitor, and cap
- Coupling half

Split Phase AC Motor

- 115 VAC/60 Hz, 1/3 Hp Rating, 1725 RPM
- NEMA 56 frame
- Shaft modified for tachometer reading from rear
- Multi-pin power lead connector with all windings accessible
- Coupling half

Three Phase AC Motor

- Squirrel cage induction type
- 115 VAC/60 Hz, 1/3 Hp rating, 1725 RPM
- NEMA 56 frame
- Shaft modified for tachometer reading from rear
- Multi-pin power lead connector with all windings accessible
- Coupling half

Student Curriculum (BB862)

Instructor's Guide (CB862)

Install Guide (DB862)

Student Reference Guide (HB862)

Optional Interactive Multimedia (MB862)

Additional Requirements:

- Hand Tool Set (41201)
- Amatrol Workstation or equivalent (82-609, 82-610, or 82-611)
- Optional Multimedia Requires Computer <http://www.amatrol.com/support/computer-requirements/>

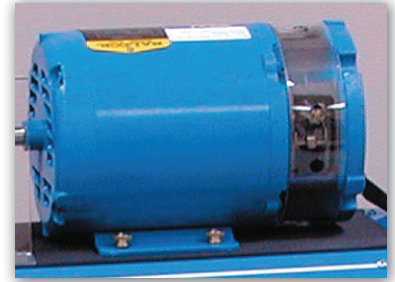
Utilities

- Electrical power: 3-phase, 208 VAC, 5 wire, 60 Hz, 12 amps

Industrial Standard Machines and Wiring Terminology

The 85-MT2's electrical machines are off-the-shelf industrial units that provide learners with real world experience in installation and alignment of industrial motors. Each unit is rated at 1/3 Hp, which is the minimum size at which motor performance data models the performance of larger motors. Units are connected to load devices through an industrial standard flexible coupling that allows for learning of shaft alignment techniques.

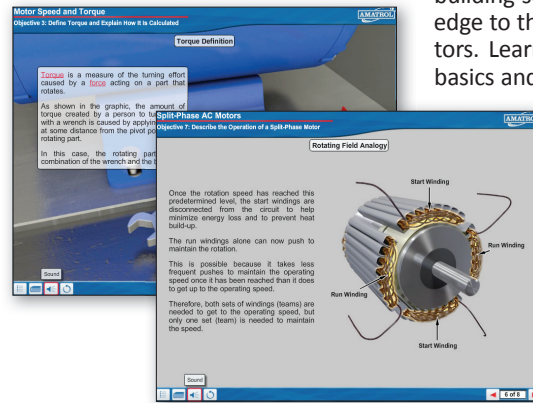
Each machine's power connections use industrial standard wiring terminology (e.g. T numbers) so that learners study how to connect electric machines in the same manner as they would on the job. The 85-MT2 uses replaceable wiring diagram panels for learning evaluation.



1/3 Hp Industrial Motor

World-Class Electrical Machine Curriculum and Optional Interactive Multimedia

The 85-MT2 features a stunning depth and breadth of electrical machine topics within Amatrol's world-class curriculum. This curriculum marries machine theory with hands-on, real world skill building so that learners can directly apply this knowledge to the operation and installation of electrical motors. Learners will begin by studying electrical motor basics and safety, then move on to more advanced applications such as performance analysis, torque and speed measurement, and motor configurations.



Optional Interactive Multimedia

Additionally, Amatrol offers this curriculum in an optional interactive multimedia format. This multimedia features all of the topics and skills from our traditional printed curriculum and adds audio, spectacular full-color graphics, and 3D animations to fully engage learners.

Hand-Held Digital Multimeter

The hand-held digital multimeter allows learners to analyze the performance of each machine in a realistic setting just as they would in the field. Built-in variable AC and DC power supplies enable learners to study the operation of AC and DC machines under a variety of conditions. Its unique switching system has an 11-position switch that allows learners to read current and voltage in all three legs of power without disconnecting leads.



Industrial Loads with Safety

The integrated test unit has provisions for mounting a prony brake to load motors so learners can observe their operation under real world conditions. The unit also mounts two coupled machines to demonstrate generator operation. Safety devices include a 3-phase circuit breaker and a keyed emergency stop pushbutton.

Student Reference Guide

A sample copy of the Rotating Electric Machines Student Reference Guide is also included with the system for your evaluation. Sourced from the system's multimedia curriculum, the Student Reference Guide takes the entire series' technical content contained in the learning objectives and combines them into one perfect-bound book. Student Reference Guides supplement this course by providing a condensed, inexpensive reference tool that learners will find invaluable once they finish their training making it the perfect course takeaway.

