

Series 100 Motor Controllers

Educational Training Equipment for the 21st Century

Bulletin 226-101C

H-REM-ACDC-MC Motor Controller

Purpose

The Hampden Model H-REM-ACDC-MC Motor Controller has been developed to provide students with the basic understanding and principles of AC and DC motor control. The student will gain practical experience in both application and electrical interfacing of components and their reaction to each other.

Description

The trainer consists of a mobile support enclosed frame with mounting panels. The panels are silkscreened with nomenclature and graphics identifying each component. Component connections are brought out to Hampden HR-1S color coded socket receptacles. The instructor's fault system consists of 22 switch injected faults located in a locked compartment.

Specifications

Upright Enclosure Frame

12 gauge furniture stock steel, finished in gray hammertone.

Lower Base Frame

12 gauge furniture stock steel, finished in gray hammertone.

Equipment Panels

14 gauge furniture stock steel, finished in instrument light blue gray enamel.

Casters

Four swivel, two with locks, 4".

Components – Commercial Grade

- Pushbuttons, N.O./N.C. contacts (4)
- Contactor, AC forward-reverse
- Contactor, DC forward-reverse
- Resistors, variable with knobs (9)
- Relay, CEMF (2)



Hampden Model H-REM-ACDC-MC Motor Controller
Dimensions: 81 cubic feet • Weight: 450 lbs.

- Relay, current acceleration (2)
- Relay, DC time delay (2)
- Relay, AC time delay (2)
- Relay, field loss
- Relay, overload (4)
- Contactor with AC auxiliary contacts (2)
- Contactor, DC field
- Pilot lights, DC (2)
- Pilot lights, AC (3)
- Circuit breaker, DC, 2 pole
- Circuit breaker, AC, 3 pole (2)
- Rectifier
- Autotransformer (2)
- Hampden HR-1S color coded socket receptacles (246)
- Switches, toggle (22)
- Motor interface socket receptacles
- DC motor, 1/3 HP
- AC squirrel cage induction motor, 1/3 HP, 3 lead

Interconnection Cord Set

Stacking cords in various lengths (78)

Power Cord

5/C #14, 8 ft. long with 2511 plug

Services Required

120/208VAC, 3Ø, 5 wire

All Hampden units are available for operation at any voltage or frequency



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Experiments

The experiments covered in the Hampden student *Experiment Manual* are as follows:

AC Control

- Full Voltage Starter for a Squirrel Cage Motor
- Full Voltage Reversing Starter for a Squirrel Cage Motor
- Full Voltage Starter for a Squirrel Cage Motor with Overload Protection
- Reduced Voltage Resistor Type Starter for a Squirrel-Cage Motor – Two Step
- Reduced Voltage Autotransformer Type Starter for a Squirrel Cage Motor – Two Step
- Reduced Voltage Reversing Starter for a Squirrel Cage Motor – Two Step
- Reduced Voltage Three Step Resistor Type Starter for a Squirrel Cage Motor
- Full Voltage Starter for a Squirrel Cage Motor with Dynamic Braking
- Two Step Resistor Type Starter for a Wound Rotor Motor
- Two Step Resistor Type Reversing Starter for a Wound Rotor Motor
- Three Step Resistor Type Starter for a Wound Rotor Motor
- Full Voltage Starter for a Synchronous Motor
- Reduced Voltage Resistor Type Starter for a Synchronous Motor
- Full Voltage Starter for a Synchronous Motor with Dynamic Braking

DC Control

- Full Voltage Starter for a Shunt Motor
- Full Voltage Reversing Starter for a Shunt Motor
- Full Voltage Reversing Starter for a Compound Motor
- Reduced Voltage Starter for a Shunt Motor with Series Current Relay Acceleration – Two Step
- Reduced Voltage Starter for a Shunt Motor with CEMF Accelerating Relay – Two Step
- Reduced Voltage Starter for a Shunt Motor with Definite Time Acceleration – Two Step
- Reduced Voltage Starter for a Shunt Motor with Series Current-Relay Acceleration – Three Step
- Reduced Voltage Starter for a Shunt Motor with CEMF Acceleration Relays – Three Step
- Reduced Voltage Reversing Starter for a Shunt Motor with Definite Time Acceleration – Two Step
- Full Voltage Starter for a Shunt Motor with Overload Protection
- Full Voltage Starter for a Shunt Motor with Field Failure Protection
- Full Voltage Starter for a Shunt Motor with Dynamic Braking
- Full Voltage Starter for a Shunt Motor with Field Accelerating Relay
- Two Step Reduced Voltage Starter for a Shunt Motor with Definite Time Acceleration, Dynamic Braking, Field Accelerating Relays, Overload and Field Failure protection

This unit comes with one student *Experiment Manual* and one instructor's *Fault Guide*.

The Hampden **MODEL H-REM-ACDC-MC** Motor Controller requires a variable 0–125VDC 6 ampere source, which is not provided.

Hampden has the following power supplies available:

- BPS-103A or BPS-103A-50
- BPS-101

Optional Motors

- SM-100-3 Synchronous Machine
- WRM-100-3A Wound Rotor Motor

Prices are available from your Hampden Representative.



Rear view of the Hampden H-REM-ACDC-MC with standard DC Motor and AC Squirrel Cage Induction Motor

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