

Electrical Machines Teaching System – Overview

An overview of the complete Electrical Machines Teaching System

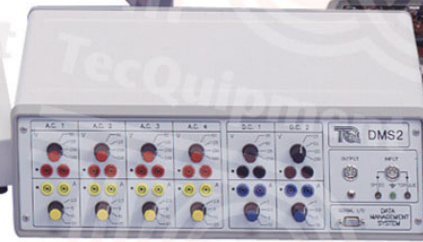


The Instrument Frame (FH3) with some instrument modules

The FH2 Test Bed



The Data Management System (DMS2) (computer not supplied)



The Variable Frequency Inverter (MPM1015)



- Range of products to allow students to study different electrical machines
- Works with the needs of your training course
- Ideal for academic courses and vocational training
- Modular, cost-saving system – you only buy the parts you need for your experiments
- Includes manually controlled tests, with standard instruments, and also a system for computer-control and data acquisition
- Shows students the advantages and disadvantages of different electrical machines
- Includes user guides with suggested experiments
- Shows why different machines do different jobs

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- An ISO 9001 certified company

Electrical Machines Teaching System – Overview

Description

TecEquipment's Electrical Machines Teaching System meets the needs of many colleges and training courses. It gives practical support for teaching electrical machines technology at all academic levels: from vocational training to postgraduate research.

The modular format gives flexibility and keeps costs to a minimum – you only have to buy the parts that you need. The modular format also allows colleges to update the system when the needs of the course change or when extra funding becomes available. You simply buy extra modules.

Schools and colleges around the world have bought and still use this popular system since the first unit was sold over 40 years ago. It satisfies the practical machines content in most electrical engineering courses. It includes both traditional and modern electrical machines products and tests.

The Electrical Machines Teaching System starts with the Test Bed (FH2) and an optional selection of fractional horsepower (FH) machines. It includes a wide variety of instruments and motor drives, and an instrument support frame (FH3).

All parts work with each other. The instruments and motor drives fit into the instrument frame, except for the Variable Frequency Inverter (MPM1015). The instrument frame fits around the test bed. The machines fit into the test bed.

The product selection matrix attached to this datasheet gives full details of what products you need for each experiment.

Test Bed (FH2)

A test bed that gives electrical power and a variable load to test the optional Fractional Horsepower (FH) Electrical Machines.

Fractional Horsepower (FH) Electrical Machines

Refer to the Fractional Horsepower Electrical Machines datasheet for full details.

- D.C. Compound Motor (FH50)
- Shaded Pole Motor (FH60)
- Split-Phase Motor (FH70)
- Capacitor Start/Run Motor (FH80)
- Cage Rotor Induction Motor (FH90)
- Wound Rotor Induction Motor, Synchronous Motor, Synchronous Generator (FH100)
- A.C. Series Motor (FH110)
- Cage Rotor Induction Motor, Two Speed (FH130)
- Synchronous Reluctance Motor (FH140)
- Stepper Motor (FH150)

Instrument Frame (FH3)

A metal frame that fits around the Electrical Machines Test Bed (FH2) and holds the optional instruments and motor drives, except for the Variable Frequency Inverter (MPM1015).

Motor Drives

Refer to separate datasheets for full details.

Variable Frequency Inverter (MPM1015):

An electronic drive that gives a pulse width modulated (PWM) variable frequency output for a.c. machine speed control.

Thyristor Drive System (TDS2):

An electronic drive that shows how to use thyristor circuits to drive d.c. machines.

Stepper Motor Drive System (SMS2):

An electronic drive that works with the Stepper Motor (FH150) to show how a stepper motor works and how to drive it.

Instrument Modules

Refer to separate datasheet for full details.

Meters:

Meters to measure a.c. and d.c. currents, voltages, power, motor slip, frequency, synchronism of currents and other electrical properties.

Loading modules:

Variable loads of resistance, capacitance and inductance.

Starters, control modules and switch:

Work with selected machines to start them and control their speed.

Transformer modules:

Work with the supplies of the FH2 to give variable a.c. voltages and transformer tests and experiments.

Data Management System (DMS2)

Refer to separate datasheet for full details.

Multiple 'virtual' electrical instruments in one box which work with software and a suitable computer (not supplied) to allow real-time display and data acquisition from machine tests. Works in place of several instrument modules. Also includes remote load (torque) control for machine performance tests.

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	Test Machine	Prime Mover (FH50)	GH2	FH3	A2	A3	A30	C1	F1	FII200	FII200/R	FH201	GH202	FH203	FII210	L10	PF1	R1	R2	R3L	R5L	S1	SY1 (or SY2)	IR1	V2	V3	W1	TDS2	SMS2	MPM1015	DMS2	VTM1	E32C		
D.C. Experiments																																			
Motor	FH50	1	●	●	●	●																													
Generator	FH50	●	●	●	●																														
Single-Phase Experiments																																			
Shaded Pole Motor	FH60		●	●	●																														
Split Phase Motor	FH70		●	●	●																														
Capacitor Start Motor	FH80		●	●	●																														
A.C. Series Motor	FH110		●	●	●																														
Three-Phase Experiments																																			
Cage Rotor Induction Motor	FH90		●	●	●																														
Wound Rotor Induction Motor	FH100		●	●	●																														
Synchronous Motor	FH100	●	●	●	●																														
Synchronous Generator	FH100	●	●	●	●																														
Two-Speed Cage Rotor Motor	FH130		●	●	●																														
Synchronous Reluctance Motor	FH140		●	●	●																														
Transformer Experiments																																			
Power Electronic Experiments																																			
Thyristor Drives	FH50	2	●	●	●																														
Stepper Motor Drives	FH150	2	●	●	●																														
Variable Frequency Inverter	FH90	2	●	●	●																														
Data Management System	ALL		●	●																															

● Essential
● Recommended
¹ For Hopkinson back-to-back test
² Additional inertia load

