

**SALIENT FEATURES :**

- 01 Facilitates easy and safe wiring by students due to use of 4mm sturdy Shrouded banana patch cords & shrouded socket arrangements.
- 02 All machines are mounted on finely painted sturdy base frame with easy machine interchangeability. Use of gear coupling facilitates screwless coupling. interchangeability. Use of gear coupling facilitates screwless coupling.
- 03 With due emphasis on student safety machines operate upto 300W power levels and upto 1500 RPM, without compromising on didactic use. Able to draw all graphs.
- 04 Trunnion mounted DC Integrated machine is used as Dynamometer for loading other machines (Motors / generators both); unlike magnetic powder brake or eddy current brake which can load only coupled Motors and not generators, with facility to measure shaft power using electronic torque / speed Measurement

DC MOTOR COUPLED 3PH. AC MOTOR TRAINER**Name of the Experiments**

- Experiment -01 Speed torque curve of DC shunt motor with 3 phase AC integrated motor
- Experiment -02 Speed torque curve of DC series motor with 3 phase AC integrated motor
- Experiment -03 Speed torque curve of separately excited DC motor with 3 phase AC integrated motor
- Experiment -04 Speed torque curve of DC compound motor with 3 phase AC integrated motor
- Experiment -05 v-i efficiency curve of DC shunt generator with 3 phase AC integrated motor
- Experiment -06 v-i efficiency curve of DC series generator with 3 phase AC integrated motor
- Experiment -07 v-i efficiency curve of separately excited DC generator with 3 phase AC integrated motor
- Experiment -08 v-i efficiency curve of DC compound generator with 3 phase AC integrated Motor
- Experiment -09 v-i efficiency curve of occ of shunt generator with 3 phase AC integrated motor
- Experiment -10 speed torque curve of would rotor induction motor with rotor shorted and with Different rotor resistance
- Experiment -11 DOL starter
- Experiment -12 Star delta starter
- Experiment -13 Rotor resistance starter
- Experiment -14 Application of synchronous motor as pf improvement device-v curves
- Experiment -15 Synchronous generator v-i curves

Panels Provided

- 01 Aluminum Machine trainer Rack
- 02 Input 3 phase DOL Starter panel
- 03 Multifunction Meter (Single Phase/Three Phase AC 50Hz)
- 04 FWD/REV, Star-Delta starter panel
- 05 Rotor Resistor Cum 3Phase Synchronous Motor Control
- 06 DC voltmeter & Ammeter and Torque Measurement Meter
- 07 Variable DC Power Supply
- 08 Input Single Phase DOL Starter Panel AC DC Fix / Variable Supply

Note: Specifications are subject to change.

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- 09 AC Load Resistor
- 10 DC Load Resistor
- 11 Extension Board


Motors Provided

- 01 DC Integrated (Trunion Mounted) Motor
- 02 3 Phase AC Integrated Motor


Accessories Provided

- 01 Hand held digital Tachometer
- 02 Shrouded connecting leads 4mm 50 / 100cm assorted Red & Black


Technical Specification of Motors



DC INTEGRATED (TRUNION MOUNTED) MOTOR
Voltage : $V_{arm} = 180V$ $V_{field} = 180V$
Capacity - 300W/2 Pole m/c, **RPM - 1500, Shrouded Socket - 12**
Rotor Construction: Standard commutator / brush arrangement with laminated stack, brought out on 2 terminals
Stator construction : Separately excited field winding with laminated solid yoke 2 pole and series winding brought out on 4 terminals.
Toque characteristic: Provision of load cells 6 Kg. 2 No. assembly to measure the torque .



3 PHASE AC INTEGRATED MOTOR
Voltage : 415VAC, 50Hz
Capacity - 300W/4 Pole m/c, **RPM - 1500, Shrouded Socket - 18**
Rotor Construction : Star connected, four terminals including star point brought out on 4 slip rings mounted on shaft.
Stator construction : Six terminals to be brought out to start the motor using STAR-DELTA starter.



ALUMINUM FRAME - MODULAR PANELS
Electrical motor trainer rack madeup aluminium profile size 40×40mm, foldable and light in weight 10 panel setup can be interchange conveniently to perform experiments. Dimention Length 1100×Hieght 1000×Depth 350mm.

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Technical Specification of Panels



INPUT 3 PHASE DOL STARTER PANEL

- 1 MCB 4 pole 4Amp.
- 2 DOL 9A Contactor with 415V / 50 Hz / 11VA COIL .
- 3 RYB Indicator
- 4 Emergency Switch
- 5 Shrouded socket 8Nos.
- 6 Push button switch for Stop/Start



VARIABLE DC POWER SUPPLY

- 1 Half bridge SCR based 0V-200V / 3 Amp cosine firing with linear characteristics, 3 Nos. Switch SPDT to On/Off with indication
- 2 Three Nos. of these supplies required for DC Armature, DC motor field and AC generator field.
- 3 Shrouded socket 8Nos.



MULTIFUNCTION METER (Single Phase/ Three Phase AC 50Hz)

- 1 Bidirectional Multifunction Meter
- 2 3 Phase 4 wire, 440V, Current 5A
- 3 LED display,
- 4 Aux supply 230V, 45-65Hz, 5W
- 5 To measure parameters ie Voltage Current., KVA, Frequency, Power factor, Active Power (W), Reactive Power (vary) etc.
- 6 Shrouded socket 08Nos. etc.



INPUT SINGLE PHASE DOL STARTER PANEL AC DC FIX / VARIABLE SUPPLY

- 1 MCB 2 pole 10A with indicator
 - 2 Emergency Switch
 - 3 Push button switch for Stop/Start
 - 4 DOL 9A Contractor with 230V / 50 Hz / 11VA Coil .
 - 5 Shrouded socket 4Nos.
- Variable AC Supply (0-200V)**
- 1 Shrouded socket 6Nos.
- Fix/Variable DC Supply (0-200V)**
- 1 Shrouded socket 4Nos.



FWD/REV AND STAR-DELTA STARTER PANEL

- 1 FWD/REV, 3 pole 3 way Switch with centre OFF, 10A/ 440V.
- 2 Star/Delta switch 3 pole, 3 way with centre OFF, 10A/ 440V.
- 3 Shrouded socket 12Nos.



AC LOAD RESISTOR

- 1 AC Resistors 10K/5K/3.5K/2.5K/2K/1.5K/OFF 200W x 3 phases/ 6 taps
- 2 Load Resistance switch 3 POL 7 Way/10Amp.
- 3 Cooling Fan size 4" 230V Operated
- 4 Shrouded socket 12Nos.



ROTOR RESISTOR CUM 3PHASE SYNCHRONOUS MOTOR CONTROL

- 1 Rotor resistors of 30E/5A with 3 taps of 15E, 21E, 30E each - 3 Nos.
- 2 Rotor resistor selector switch, 3 pole. 6 Way 10A/440V.
- 3 DC Rotor excitation with circuit breaker (3Amp)
- 4 Shrouded socket 8Nos.



DC LOAD RESISTOR

- 1 750E/600E/300E/212E/162E/125E/112E/100E/400W /8 taps + OFF + separate 60E tap For DC series Gen.
- 2 Load Resistance switch 3 POL 7 Way/10Amp.
- 3 Cooling Fan size 4" 230V Operated
- 4 Shrouded socket 6Nos.



DC VOLTMETER & AMMETER WITH TORQUE MEASUREMENT METER

- 1 TWO DPM DC voltmeter (0-1000V)
- 2 TWO DPM DC Ammeter (0-20A)
- 3 Torque Measurement Meter
- 4 Shrouded socket 16Nos.

EXTENSION BOARD

Order Code - 69715.

- 1 Operating Voltage 230VAC \pm 10% at 50Hz
- 2 ON OFF Switch with indicator
- 3 Eight Nos. five pin 5 Amp Electrical Sockets

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