

**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 WITH UNIVERSAL MOTOR TRAINER**NAME OF EXPERIMENTS**

- Experiment -1 Speed torque curve of DC shunt motor with universal motor.
- Experiment -2 Speed torque curve of DC series motor with universal motor.
- Experiment -3 Speed torque curve of separately excited DC motor with universal motor
- Experiment -4 Speed torque of DC compound motor with universal motor.
- Experiment -5 v-i efficiency curve for DC shunt generator with universal motor.
- Experiment -6 v-i efficiency curve for DC series generator with universal motor.
- Experiment -7 v-i efficiency curve for DC separately excited generator with universal motor
- Experiment -8 v-i efficiency curve for DC compound generator with universal motor.
- Experiment -9 v-i efficiency curve for occ of shunt generator with universal motor.
- Experiment -10 Speed torque curve of universal motor when operated with 180VDC.
- Experiment -11 Study of efficiency of universal motor for various loading condition.

Panels Provided

- 01 Aluminum Machine trainer Rack
- 02 Multifunction Meter (Single Phase/Three Phase AC 50Hz)
- 03 DC voltmeter & Ammeter and Torque Measurement Meter
- 04 Variable DC Power Supply
- 05 Input Single Phase DOL Starter Panel AC DC Fix / Variable Supply
- 06 DC Load Resistor
- 07 AC Load Inductor
- 08 Capacitive (C) Load

Note: Specifications are subject to change.

Tesca Technologies Pvt. Ltd.

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- 09 Lamp Load
- 10 Extension Board

Motors Provided


- 01 DC Integrated (Trunion Mounted) Motor
- 02 Universal Motor

Accessories Provided

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

Technical Specification of Motors

	<p>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 .</p>
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	<p>UNIVERSAL MOTOR Voltage : 230 VAC, 50Hz / 150VDC Capacity - 300W/4 Pole m/c, RPM - 1500, Shrouded Socket - 8 Rotor Construction : Standard commutator brush arrangement brought out on 4 terminals Stator construction : Stator brought out on 4 terminals to facilitate AC/DC operation and direction change. Built in compensating winding to minimize AR and sparking.</p>
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Technical Specification of Panels

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.

AC LOAD INDUCTOR



- 1 Inductive load =0.15H/0.3H/ 0.45H/0.6H/0.75H/1.5H/3H/ 400mA X 3Nos.
- 2 Load inductor switch 3 Pole 7 Way/10Amp.
- 3 Shrouded socket 12Nos.

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.

CAPACITIVE (C) LOAD



- 1 Capacitive load =1.25mF /2.5mF/5mF/440VX 3Nos
- 2 Shrouded socket 18Nos.

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.

LAMP LOAD



- 1 3 Nos. Lamp 100W with Holder & switch
- 2 Shrouded socket 12Nos.

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 Contactor 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.

EXTENSION BOARD

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

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.

ALUMINUM FRAME - MODULAR PANELS



Aluminium Trainer Rack made up aluminium profile size 40×40mm, foldable and light in weight 10 panel setup can be interchange conveniently to perform experiments. Dimension Length 1100×Height 1000×Depth 350mm.

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