



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 1PH. SYNCH. MOTOR TRAINER NAME OF THE EXPERIMENTS

- | | |
|---------------|--|
| Experiment-1 | speed torque curve of DC shunt motor with 1 phase synchronous motor |
| Experiment-2 | speed torque curve of DC series motor with 1 phase synchronous motor |
| Experiment-3 | Speed torque curve of separately excited DC motor with 1phase synchronous motor |
| Experiment-4 | Speed torque of DC compound motor with 1 phase synchronous motor |
| Experiment-5 | v-i efficiency curve for DC shunt generator with 1 phase synchronous motor |
| Experiment-6 | v-i efficiency curve for DC series generator with 1 phase synchronous motor |
| Experiment-7 | v-i efficiency curve for DC separately excited generator with 1phase synchronous motor |
| Experiment-8 | v-i efficiency curve for DC compound generator with 1 phase synchronous motor |
| Experiment-9 | v-i efficiency curve for occ of shunt generator with 1 phase synchronous motor |
| Experiment-10 | Speed torque curve of synchronous motor |

Continues-1/3

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- Experiment-11 Efficiency and input power factor measurement of 1ph. synch. Motor.
- Experiment-12 Study of 'V' curve of 1ph. synch. Motor.
- Experiment-13 Out volt-amp charACteristics of synchronous motor
- Experiment-14 Efficiency of synchronous generator.
- Experiment-15 Performance with R, L and C load.

Panels Provided

01	Aluminum Machine trainer Rack.....	20300	Qty.1
02	Multifunction Meter (Single Phase/Three Phase AC 50Hz).....	20302	Qty.1
03	1 Phase Motor, Alternator & Sync. Motor.....	20305	Qty.1
04	DC voltmeter & Ammeter and Torque Measurement Meter.....	20306	Qty.1
05	Variable DC Power Supply.....	20307	Qty.1
06	Input Single Phase DOL Starter Panel AC DC Fix / Variable Supply.....	20308	Qty.1
07	AC Load Resistor.....	20309	Qty.1
08	AC Load Inductor.....	20311	Qty.1
09	Capacitive (C) Load.....	20312	Qty.1
10	Lamp Load.....	20313	Qty.1
11	Extension Board.....	20315	Qty.1

Motors Provided


01	DC Integrated (Trunion Mounted) Motor.....	20501	Qty.1
02	1 Phase. Synchronous Motor.....	20504	Qty.1

Accessories Provided


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



Technical Specification of Motors



DC INTEGRATED (TRUNION MOUNTED) MOTOR - TYPE-20 501
Voltage : Varm= 180V Vfield = 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 .



1 PHASE. SYNCHRONOUS MOTOR - TYPE-20 504
Voltage : 230 VAC, 50Hz
Capacity -300W/4 Pole m/c, RPM - 1500, Shrouded Socket - 8
Rotor Construction : Single phase wound rotor with terminals brought out on two slip rings mounted on shaft.
Stator construction : One winding will be used to configure synchronous motor & Alternator output when used as single phase generators.

Continues-2/3

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**DC MOTOR COUPLED
1PH. SYNCH. MOTOR TRAINER
OMEGA TYPE -20 604**

Technical Specification of Panels



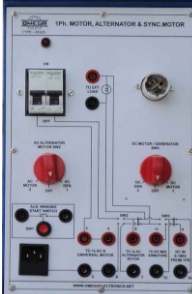
**MULTIFUNCTION METER (Single Phase/ Three Phase AC 50Hz)
TYPE-20 302**

- 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 RESISTOR
TYPE-20 309**

- 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.




**1 PH. MOTOR, ALTERNATOR &
SYNC. MOTOR
TYPE-20 305**

- 1 1 ph. MCBs of 4A/1.6A 1 each.
- 2 2 no. 2P2W selector switches to run as 1ph. Alternator then as synchronous motor.
- 3 2A push button switch to simulate as centrifugal switch.
- 4 1 Lamp load holder with lamp
- 5 Shrouded socket 14Nos.



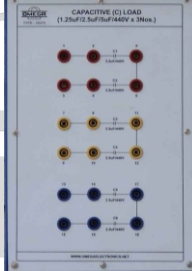
**AC LOAD INDUCTOR
TYPE-20 311**

- 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
TYPE-20 306**

- 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
TYPE-20 312**

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




**VARIABLE DC POWER SUPPLY
TYPE-20 307**

- 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
TYPE-20 313**

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



**INPUT SINGLE PHASE DOL
STARTER PANEL AC DC FIX /
VARIABLE SUPPLY
TYPE-20 308**

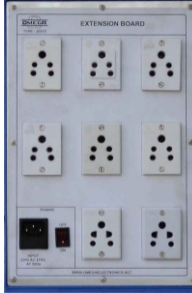
- 1 MCB 2 pole 10A with indicator
- 2 Emergency Switch
- 3 Push button switch for Stop/Start
- 4 DOL 9A Contactor with 230V /
50 Hz / 11VA Coil .
- 5 Shrouded socket 4Nos.

Variable AC Supply (0-200V)

- 1 Shrouded socket 6Nos.

Fix/Variable DC Supply (0-200V)

- 1 Shrouded socket 4Nos.



**EXTENSION BOARD
TYPE-20 315.**

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

Continues-3/3

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