VERITAS Engineering

Catalog
Of

AC DC Motor Generator Training System

Brand: VERITAS

Model: VMGT-8001

Features:

- Modular design provides flexible experimental requirement.
- Each Module panel height compatible with DIN A4 standard
- Using 4 mm safety sockets and plugs
- Each DC/AC power supply equipped with overload protection
- Rotary machine and brake with overheating protection
- Adopting digitized and microprocessor-based measuring instrument to provide high-accuracy measurement.
- Brake with constant speed/constant torque function, easy to operate
- Drawing complete T/N curve
- Connecting to PC, measuring and drawing characteristic curve available
- 250W-grade designed equipment suitable for learning the theory and characteristics of electrical machines
- Stand-alone machine design equipped with two shaft ends and aluminum alloy base for coupling to other machines
- Training panel uses 5 mm isolation Bakelite, printed component symbol, value and function, easy to connect
- Fully protected system safe to connect various kind of machines
- Providing powerful computer measuring software for saving graphic file, drawing and printing characteristic curves
- For the sake of safety, the system normally operates at three-phase 220V. Different line voltages can be adjusted by system transformer.

Technical Specification:

1. **DC Multifunction Machine – Model: 8101**
   As a shunt wound motor
   Rated Voltage: 220 Vdc (± 5 %)
   Rated Current: 1.65 Amp (Maximum)
   Rated Speed: 1770 rpm (± 5 %) Rated
   Power: 0.25 KW (Minimum)
   As a separately excited generator
   Rated Voltage: 170 Vdc (± 5 %)
   Rated Current: 1.2 Amp (Minimum)
   Excitation Voltage: 200V dc(± 5 %)
   Excitation Current: 0.1Amp (Maximum)
   Rated Speed: 2000 rpm (± 5 %)
   Rated Power :0.20 KW (Minimum)

2. **Single Phase Induction Motor– Model: 8200**
   With Starting and operating capacitors Rated
   Voltage : 220 Vac, 50 Hz
   Rated Current: 2.37 A
   Rated Speed: 1430 rpm (50Hz)
   Rated Power: 0.3 Kw
   Power Factor: 0.89
   Starting Capacitor: 100uF Operating Capacitor: 16uF

3. **Three Phase Salient Pole Synchronous Machine– Model: 8300**
   Rating for motor operation:
   Rated Voltage: Delta 220 Vac (± 5 %)
   Rated Current: 1.17 Amp (Maximum)
   Excitation Voltage:66 Vdc (Maximum)
   Excitation Current: 0.35 Amp
   Rated Speed: 1500 rpm (50Hz)
   Rated Power: 0.3 KW (Minimum)
   Power Factor: 1.0
   Rating for Generator operation:
   Rated Voltage: Delta 220 Vac (± 5 %)
   Rated Current: 0.8 Amp (Maximum)
   Excitation Voltage: 66 Vdc (Maximum)
   Rated Speed: 1500 rpm (50Hz)
   Rated Power: 0.3 KW (Minimum)
   Power Factor: 1.0

4. **Three Phase Rotor Winding Motor– Model: 8301**
   Rated Voltage : Delta 220 Vac (±5%)
   Rated Current: 2.0 Amp (Maximum)
   Rated Power: 0.34 Kw (Minimum), 0.35Kw (Maximum)
   Rated Speed: 1410 rpm (50 Hz)
   Power factor:0.7 Lagging (± 5 %)

5. **Three Phase Squirrel-Cage Motor– Model: 8201**
   Rated Voltage : Delta 220 Vac (±5%)
   Rated Current: 1.4 Amp (Maximum)
   Rated Power: 0.29 Kw (Minimum), 0.3Kw (Maximum)
   Rated Speed: 1420 rpm (50 Hz)
   Power factor:0.82 Lagging (± 5 %)

6. **DC Permanent magnet Machine– Model: 8102**
   Rated Voltage : 180 Vdc
   Rated Current 2.7 A
   Rated Speed: 2500rpm
   Rated Power: 0.4KW

7. **DC Compound Wound Machine – Model: 8103**
   Ratings for motor operation
   Rated Current: 1.65 A (Maximum)
   Rated Voltage: 220 Vdc (± 5 %)
   Rated Speed: 1800 rpm (± 5 %)
   Rated Power: 0.24 Kw (Minimum), 0.25Kw (Maximum)
   As a separately excited generator
   Rated Voltage: 170 Vdc (± 5 %)
   Rated Current: 1.2 Amp (Minimum)
   Excitation Voltage: 200V dc(± 5 %)
   Excitation Current: 0.1Amp (Maximum)
   Rated Speed: 2000 rpm (± 5 %)
   Rated Power :0.20 KW (Minimum)

8. **DC Shunt Wound Machine – Model: 8104**

Ratings for motor operation
Rated Current: 1.65 A (Maximum)
Rated Voltage: 220 Vdc (± 5 %)
Rated Speed: 1800 rpm (± 5 %)
Rated Power: 0.24 Kw (Minimum), 0.25Kw (Maximum)
As a separately excited generator
Rated Voltage: 170 Vdc (± 5 %)
Rated Current: 1.2 Amp (Minimum)
Excitation Voltage: 200V dc(± 5 %)
Excitation Current: 0.1Amp (Maximum)
Rated Speed: 2000 rpm (± 5 %)
Rated Power :0.20 KW (Minimum)

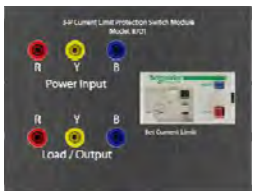
9. **Magnetic Powder Brake Unit – Model: 8501**

-Power Supply:110/220Vac
-Type: forced air-cooling magnetic powder brake
-Braking Torque: 0.999 kg-m (9.999 N-m) Max
- Speed Sensing: Photoelectric type, 60 pulses/rev.
-Torque Sensing: Strain-gage torque transducer, torsion bar
-Temperature Sensing: thermal switch
-Base Unit: integral, aluminum alloy
-Connecting to controller via the dedicated cable.
-Cooling Fan : 12 Vdc, 0.29 A
Analog DC Output:
-Torque Output (1 V/1 kg-m)
-Speed Output (1 V/1000 rpm)
- Power Output (1V/1 KW)

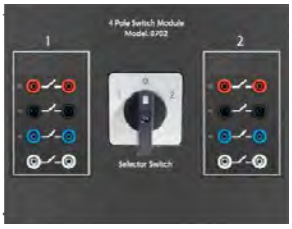
10. **Brake Controller – Model: 8502**

-Power Supply:110/220 Vac
-Connecting to magnetic powder unit via dedicated cable.
-4-digit 7-segment LED Display :2 sets
-Display speed (S), torque (T) and power (P) of the motor under test
-Display control voltage (V) and current (I) applied to Magnetic Powder Brake Unit
-LCD Character Display (20 x 2) & Buttons for command control for entry and display
-LCD Graphic Display (128 x 64)
-Graphically display Characteristics of brake and motor
-Display, record and save various values presenting on LED display.
-Display range: Torque : 0 to 9.99 N-m Speed: 0 to 9999 rpm Power: 0 to 9.999 Kw Voltage: 0 to 24 V Current: 0 to 0.999 A
Control Mode: Open loop control mode
- Manual on loading and unloading power , brake automatic loading and unloading power, brake selectable initial power Wi and max power Wm : 0 ~ 0.999 kg-m Selectable loading time: 1 ~ 15 sec Closed loop control mode - Constant-torque mode -Constant-speed mode Fault detection and indication - Main indicator for controller fault. - BRAKE indicator for brake fault. - MOTOR indicator for motor fault. -Communicating with PC through RS-232 (Standard) port -Dedicated hardware and software allow processing and displaying data on PC such as full-screen displaying, tracing, recording, printing motor speed, motor torque, motor power, brake voltage and brake current

11. **DC Power Supply Module – Model: 8001**
    Working Voltage: 3 phase, 220 Vac (50Hz)
    Fixed Output Voltage : 200 Vdc/6A Max
    Adjustable Output Voltage: 0 to 240 Vdc/10A max
    With current limiting and start functions Fuse Protection
    Terminals: 4mm safety socket
12. **Three Phase Power Supply Module – Model: 8000**
    Working Voltage: 3-Phase 220 Vac, 50Hz
    Rated Output: 3-Phase 220Vac/10A
    Fuse Protection
    Terminals:4mm safety sockets
    Temperature Indicator
13. **Synchronous Machine Exciter Module – Model: 8002**
    Working Voltage: 220 Vac, 50 Hz
    Output Voltage: AC 0 to 220 V/0.8 A (Minimum) 0 to 120 V/1.6 A (Minimum) 0 to 400 V/2.5 A (Minimum)
    Output Voltage: DC 0 to 220 V/0.8 A (Minimum) 0 to 120 V/1.6 A (Minimum) 0 to 400 V/2.5 A (Minimum)
    Terminal: 4 mm safety socket
14. **AC/DC Power Supply – Model: 8003**
    Bench top Design
    Working Voltage:3 Phase 220Vac (50Hz)
    AC Output Voltage: 3 Phase 0 to 260 Vac/5Amp
    DC Output Voltage: 0 to 230V/5Amp
    Power Switch: Yes
    Power Indicator: 01 no
    Safety Fuse Protection: 3 Nos
    Terminals: 4mm safety sockets



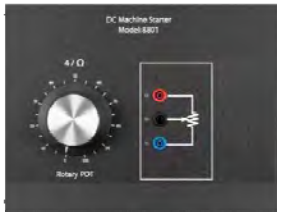
15. **3-P Current Limit Protection Switch Module– Model: 8701**
    Switch Load: 400 Vac/10A
    Current Setting Range : 2.5 to 4.0 A (Adjustable current limiting)
    Terminals: 4mm safety sockets
16. **Four Pole Switch Module – Model: 8702**
    Switch Load: 400V/15 Amp
    Terminal: 4mm safety socket



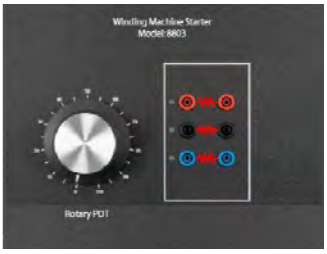
17. **Reversing Switch Module – Model: 8703**
    Switch Load: 400 Vac/10 A
    Switch Positions: FOR - STOP - REV
    Terminals: 4 mm safety sockets

18. **Y /Δ Starting Switch Module – Model: 8704**
    Switch Load: 400 Vac/15 A

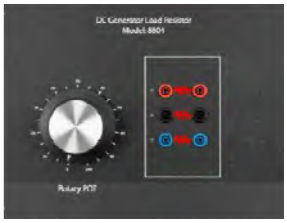
    Switch Positions: 0 - 1 - 2 (0 - Y- Δ)
    Terminals: 4 mm safety sockets



19. **DC Machine Starter – Model: 8801**
    Resistance:47ohm circular rheostat,
    adjustable Current: 1.4 A
    Rated Power: 100 W
    Fuse Protection Terminal : 4 mm safety sockets

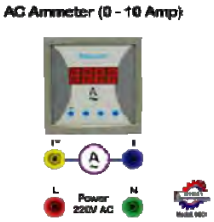


20. **DC Generator Field Regulator – Model: 8802**
    Resistance:2.2K ohm circular rheostat,
    adjustable Current: 150 mA
    Rated Power: 50 W
    Fuse Protection
    Terminal : 4 mm safety sockets
21. **Winding Machine Starter – Model: 8803**
    Control Three- Phase motor Starting
    Starting Impedance: 5 Steps, 3 resistors, 0 to 1.65 ohm each
    Rated current: 3 Amp
    Terminals: 4mm safety sockets



22. **DC Generator Load Resistor – Model: 8804**
    Resistance:1K ohm circular rheostat,
    adjustable Rated Power: 300 W
    Fuse Protection
    Terminal : 4 mm safety sockets
23. **Fuse Set – Model: 8705**
    4 D-Type Fuses, 4A/500V
    Terminals: 4 mm safety sockets

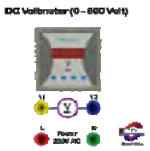
24. **Digital Power Factor Meter – Model: 9005**
    Measurement Range : -0.50 to 1.00 to +0.50 (240V/5A) (Maximum)
    Display: 3 ½ digits 14.2 mm
    LED Accuracy: ±1% ±1 digit
    Resolution:0.01V (Maximum)
    Input Impendence: ≤ 0.1 Ohm
    Power Source: 220 Vac, 50 Hz
    Terminals: 4mm safety sockets



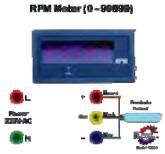
25. **Digital ACA Meter – Model: 9001**
    Measurement Range : AC 0 to 10A (Maximum)
    Display: 3 ½ digits 14.2 mm
    LED Accuracy: ±0.3% ±1 digit
    Resolution:0.01A (Maximum)
    Input Impendence: ≤ 0.1 Ohm
    Power Source : 220 Vac, 50 Hz
    Terminals: 4mm safety sockets

26. **Digital DCA Meter – Model: 9002**
    Measurement Range : DC 0 to 10A (Maximum)
    Display: 3 ½ digits 14.2 mm
    LED Accuracy: ±0.3% ±1 digit
    Resolution:0.01A (Maximum)
    Input Impendence: ≤ 0.1 Ohm
    Power Source: 220 Vac, 50 Hz
    Terminals: 4mm safety sockets
27. **Digital ACV Meter – Model: 9003**
    Measurement Range: 0 ~ 600 Vac
    Display: 3 ½ digits 14.2 mm LED Accuracy: ± 0.2% ± 1 digit Resolution: 1 V Input Impedance: 1 MΩ Power Source: 220 Vac, 50/60 Hz Terminals: 4 mm safety sockets

28. **Digital DCV Meter – Model: 9004**
    Measurement Range: 0 ~ 600 Vdc
    Display: 3 ½ digits 14.2 mm
    LED Accuracy: ± 0.2% ± 1 digit
    Resolution: 1 V
    Input Impedance: 1 MΩ
    Power Source: 220 Vac, 50/60 Hz
    Terminals: 4 mm safety sockets



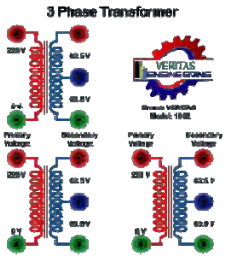
29. **Digital RPM Meter – Model: 9006**
    Measurement Range: 0~ 99999 rpm
    Display: 5 digits -Accuracy:±0.1%, ±1 digit
    Power Source:220Vac, 50/60 Hz
    Terminals: 4mm safety sockets.

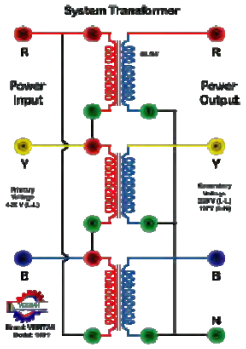


30. **DIGITAL WATTMETER – Model: 9007**
    Power: single/Three Phase,0~2 kw (240V/5A)
    Display:4 ½ digits 14.2 mm LED.
    Accuracy:±0.2%, ±1 digit
    Resulation:1V
    Input Impedance:≥1MΩ
    Power Source:220Vac
    Terminals: 4mm safety sockets.

31. **Digital Power Analysis Meter – Model: 9009**
    Display: 4 digits (9999),0.4?
    LED indicators (V, A, W, PF, Hz, Var) 5 digits (99999),0.4? LED indicators (WH, VarH)
    Input range:
    Voltage: 35 ~ 600V(L~L)
    Current: 0.05 ~ 5A
    Frequency: 45Hz ~ 65Hz
    Accuracy: (at 23 ± 5°C sine wave)
    Voltage: ±0.1% of reading ; ±0.15% of range
    Current: ±0.1% of reading ; ±0.15% of range
    Watt: ±0.2% of reading ; ±0.3% of range
    Var: ±0.2% of reading ; ±0.3% of range
    Power factor: ±0.5% of range
    PF polarity: ?+? lagging, ??? leading
    Watt hour: ±0.25% of reading ; ±0.05% of range
    Var hour: ±0.25% of reading ; ±0.05% of range
    Hz: ±0.2% of reading
    CT. PT scaling: 1 ~ 9999 Factors: Setting for REF: 0.800 ~ 1.200, Power supply: 220 Vac
    Communication Port: RS-232(Standard), RS-485(Option) Terminals: 4 mm safety sockets

32. **Single-phase Transformer Unit – Model: 1003**
    Input Voltage: 0 ~ 110 ~ 190 ~ 220 Vac
    Output Voltage: 0 ~ 12 ~ 24 V/5A
    0 ~ 110 ~ 190 ~ 220 V/1A
33. **Three-phase Transformer Unit – Model: 1002**
    Rated Power: 250VA
    Input Voltage: 3 Phase 220Vac
    Output Voltage: 63.5Vac*6





34. **System Transformer – Model: 1001**
    Transformer:
    3 Phase (Δ-Y)
    Safety Fuse: 6 Nos
    Power Switch: Yes
    Output Indicator: 03 nos
    Rated Power : 1.5 KVA (Minimum)
    Primary: 3 Phase 420Vac
    Secondary: 3 Phase 220Vac
    Frequency:50/60Hz
35. **Coupling**
    Materials: Rubber
    Coupling sleeve for mechanical connection Between two electrical machines
36. **Coupling Guard**
    Material: Plate coating
    Attachable guard for contact-proof with electrical machines rotating parts
37. **Shaft End Guard**
    Material: Plate coating
    Attachable guard for avoiding to contact with electrical machines rotating parts
38. **Connecting Leads Set**
    4mm safety plugs with leads Max. Rating Current: 19A Consists of:
    Connecting leads (25cm), Red/Black/Yellow/Blue/White.
    Connecting leads (50cm), Red/Black/Yellow/Blue/White/ Green.
    Connecting leads (100cm), Red/Yellow/Blue/White /Green.
    Connecting leads (150cm), Red/Yellow/Blue/White/ Black.
    Connecting leads (100cm), Green. Connecting leads (150cm), Black
39. **Safety Bridging Plugs Set**
    4mm safety bridging plugs 19 mm spacing Max. Rating Current: 19 A
    Consists of: KCN-419A safety bridging plug KCN-419B safety bridging plug
40. **Experimental Frame – Model: FRM-01**
    The side pieces consist of rectangular tube steel, 60x30x2mm, protected against corrosion.
    Horizontal sections contains of anodized-aluminum H profiles.
    Frames dimension:
    1800(W) x 730(H) x 250(D)mm ± 5% (EM-3380-2A)
    1800(W) x 1060(H) x 250(D)mm ± 5% (EM-3380-2B)

Accessories:

1. Module of Trainer : 38 Item
2. Frame : 2 Pcs
3. 4mm safety Jack : 1 set
4. User Manual: 1 Nos
5. Standard Accessories along with the goods.