



VERITAS Engineering

Catalog
Of

**Power Transmission-Distribution &
Electrical Installation Trainer**

Brand: VERITAS

Model: VTDT-02



Picture : Power Transmission Distribution & Electrical Installation Trainer

Features

- Ideal for engineering, electrical installation and measurement in simulation.
- Training on electrical installation:
 - 1-Phase, 3-phase, 3-phase 4-wire (R/S/T/N)
 - Earth-to-earth and earth-to-neutral (insulation-to-installation)
- Training on electrical safety measurement:
 - AC voltage, DC voltage, earth resistance, ground voltage, phase insulation resistance, phase test, line status test, resistance by leakage current, and capacitance by leakage current
- Fault simulation:
 - ELCB practices, circuit breaker practices, variable tests on leakage current. variable tests on earth resistance and battery voltage tests
- Complying international electrical installation and safety standards: IEC 364 and EN 61010-1

Introduction

- The Trainer Should have Power Transmission-Distribution & Electrical Installation Trainer is designed to help the user understand both power transmission system from a power plant and power distribution system through high-voltage transmission and transformation of electric energy
- It is equipped with comprehensive metering displays in single-phase and three-phase sections.
- Comprehensive electrical measurement
- The Trainer Should have Power Transmission-Distribution & Electrical Installation Trainer is an integrated simulation equipment for measuring AC voltage. DC voltage, earth resistance, insulation resistance and leakage current in single-phase AC circuit, 3-phase AC circuit, and 3-phase 4 -wire AC circuit and performing an electric leakage shutoff test.
- Versatile training purposes for private sector and public sector

- As a multi-purpose equipment, the Trainer Should have Power Transmission- Distribution & Electrical
- Installation Trainer enables private companies to train their staffs on electricity safety and measuring methods. Also, it helps to train school teachers in high school or vocational school. It also helps college professors teach basic principles of electricity and measurement methods for their students. The user can make a best use of it with Multifunctional Digital Electric Meter
- To practice field simulations
- The Trainer Should have Power Transmission-Distribution & Electrical Installation Trainer allows the user to measure insulation resistance, earth resistance, effect of ground voltage, and ground resistance as it comprises single-phase AC circuit and 3-phase AC circuit.
- To perform AC load experiment
- When measuring the single-phase leak current, the user can test by charging load as there is a socket for load. The user can charge load through sockets for single-phase load and 3-phase load in a 3-phase line.

Experimental Contents

- Power generation, transmission and distribution
- Prevention of electric accidents and safety of electric equipment
- Electromagnetic interference and prevention
- Electrostatic interference and prevention
- Safety training on thunder stroke damages
- 1-phase / 3-phase voltage measurement (AC and DC)
- Measurement of AC current and frequency
- Measurement of R/S/T phase and live line voltage
- Measurement of insulation resistance and leakage current
- Measurement of ground resistance (2-point/3-point) and line to ground voltage
- Performance testing on electrical circuit breaker

Specification:

Digital meter for monitoring power transmission and distribution	Accuracy: IEE687 Class 1.0 Communication: RS-485 MODBUS/DNP30/Lon works Measurement: Phase voltage, line voltage, current, power, active power, reactive power, apparent power, power factor and frequency 3-phase indication: 4-digit digital meter (3a) 1-phase indication: 4-digit digital meter (3ea)
Insulation resistance	1-phase power line: 0.08MΩ, 0.1MΩ, 0.2MΩ, 1MΩ, 10MΩ, 100MΩ, 200MΩ, OPEN 3-phase power line: L1: 0.2MΩ, 0.5MΩ, 1MΩ, 10MΩ, 100MΩ, 200MΩ, 500MΩ, OPEN, L2: 0.3 MΩ, 0.75MΩ, 2MΩ, 20MΩ, 150MΩ, 300MΩ, 400MΩ, OPEN, L3: 0.09 MΩ, 0.1MΩ, 0.2MΩ, 1MΩ, 10MΩ, 100MΩ, 200MΩ), OPEN
Ground resistance	2-point earth test Water pipe:7.5Ω , heater:10Ω, gas pipe:3Ω, radiator:100Ω, motor:10Ω 3- point earth test 1Ω, 2Ω, 3Ω, 5Ω, 7.5Ω, 10Ω, 30Ω, 110Ω
Auxiliary earth resistance	0-10KΩ variable: 2 ea
Ground rod	PE1 / PE2 / P1 / P2 / P3 / C1 / C2
Ground voltage	0V/6V/9V (selectable)
Phase test point	U(L1), V(L2), W(13)

Leakage current load	R-Load 1: 1K Ω , 10K Ω , 100K Ω , 200K Ω , 300k Ω , OPEN Leakage current (R-load2): 30mA, 15mA, 2mA, 1mA, 0.4mA, 0.2mA, 0.1mA, OPEN Leakage C-load: 0.0033, 0.01, 0.001, OPEN
DC voltage output	0V, 5V, 12V, 24V (max. 1A)
Electric leakage circuit breaker	1-phase 15A / 30mA : 3ea
Circuit breaker	3-phase 4-wire 10A : 1ea 3-phase 3-wire 10A : 1ea
AC output socket	1-phase: 2ea (outlet 1 & 2) 3-phase 4-wire + PE: 1ea (outlet 3)
Input voltage	1-phase 220V \pm 15% (50/60Hz) 3-phase 380V \pm 15% (50/60Hz) 4-wire (L1/L2/L3/N)

Standard Accessories:

- Power cord: 1-phase (2 meters) x 1 ea,
3-phase (4 meters) x 1 ea,
- Angle stand: 1 ea,
- Experimental lead wire: 1 set,
- User's guide & experimental manual: 1 ea

Digital Multifunctional Meter

- ACV: 00-750.0V True RMS
- DCV: 0.0-999.9V
- PHA: ACIIOV-750V LCD Display
- HOT: AC70V-750V Buzzer.
- LCD Display ACA: 0-9999A. True RMS
- For: 0.00-9.99mA. True RMS
- Communication: Bluetooth 4.0

3D Simulation Software for Electrical Works Learning creation (production tool) function

- 1) It should be possible to directly create learning materials for lecture in the slide format.
- 2) Should easily create audiovisual materials by inserting images, 3D modeling, video, sound, text, and animation effects.
- 3) The animation function makes it possible to create materials for step-by-step practices.
- 4) 3D modeling type parts should be inserted, so it should be easy to explain the shape and operation method of the actual components.

Theory study function

- Easily learn about electrical circuits through essential data on basic circuits
- It should provide the same questions and drawings from the previous electrician qualification tests (total 7 test examples), thus increasing the adaptability to your test.
- Basic learning materials: 26 types in total



Sequence control basic theory: 6 types

- Sequence control
- Electrical wiring tools
- Protective device
- Operation switch
- Detection switch
- Operation device
- Output device (load)

Sequence control circuit practice: 9 types

- Basic circuit
- Indication circuit
- Logic circuit
- Self-holding circuit (memory circuit)
- Alarm circuit
- Timer circuit
- New input-priority circuit
- Sequential control circuit
- Interlock circuit

Previous questions from the electrician qualification tests (2008 - 2019):7 types

3D parts library

- Circuit breaker and fuse: 4 types
- Terminal block: 7 types
- (rotatable) Control box: 4 types
- (rotatable) Pushbutton switch: 5 types
- Lamp type switch: 5 types
- Selector switch and toggle switch: 4 types
- Other switches (limit, emergency): 2 types
- Indicator lamp: 5 types
- Other devices (emergency bell, emergency light, buzzer): 3 types
- Relay: 13 types
- Electric motor: 6 types

Should be supplied VR device to practice virtual reality and obtain the same effect as practicing using the real-life components. VR device and PC should work together. Circuit create in PC should be implemented on the VR device.

Should be supplied following PC

- 1) OS: Windows 11, 64bit
- 2) CPU: Intel is 13 generation or Higher
- 3) HDD: ITB
- 4) RAM: 16GB
- 5) Graphics card: Built in
- 6) Monitor: 18.5 Inch
- 7) Other Parts & Accessories: As Required/ Standard

3. Accessories

1. User manual: 1 ea
2. USB memory stick (with the installation software): 1 ea