POWER TRANSMISSION & DISTRIBUTION EXPERIMENT SYSTEM
Model Number : DDC-PTD-169M

Description

This unit is specially developed for use in electrical teaching laboratory for the purpose for Various experiments can be are carried out on this power transmission system, no load operation with natural load, asymmetrical and asymmetrical short circuit, parallel and series compensation of the transmission line as well as neutral-point connection.

Using the Power Transmission Line trainer set it will be possible to assemble an absolute power transmission system. From a transformer with tapping switch to the power circuit breaker and 415V power transmission line model, including line termination with surge impedance.

GENERAL SPECIFICATIONS

The equipment covers the learning objective via experiment such as:
-Symmetrical load and unsymmetrical load connection.
-Voltage and frequency control by inverter unit.
-Characteristic of transformer feeder.
-RL circuits in transmission line.
-RC circuits in transmission line.
-RLC circuit in transmission line.

TECHNICAL SPECIFICATIONS

Three Phase Transformer Module

i. Transformer for feeding the transmission line model 415V
ii. Scale factor 1:600 for secondary current and voltage.
iii. Nominal power: 600~800VA
iv. Primary: 3 x 400 V winding with tapping at 220~240V, can be switched to star or delta connection
v. Delta stabilizing winding can be connected
vi. Secondary: 3 x 380 V winding with tapping at +5%, - 5%, - 10%, -15% in star connection, various star Points connection possible

Transmission Line Module

i. Measuring steady state operating condition
ii. Quad bundle 4 x 240/40, with surge impedance 220~240 and natural load 200~600MW, length 200~360Km
iii. Resistance: 15 ohm, 10 ohm, 5 ohm, 13 ohm
iv. Inductance: 200~300mH, 125~150mH, 75~100mH open.
v. Capacitance: 5µF, 3µF, 2µF

Inverter Module

i. 3Ø asynchronous motor speed control by PWM technique.
ii. The Torque and Speed are able to be constant via the unit to easy control in testing operation during loads change.
iii. Input Voltage: 380~415V 50/60 Hz
iv. Output voltage: 0~380/415V
v. Output frequency: 1~500Hz
vi. Power: 1.0~1.5 KW

Three Phase Power Supply Module

i. Fixed and variable AC supplies.
ii. Provided with start stop/stop push bottom EMO
iii. Three Phase AC Adjustable Output: 3 x0~380/415V: 6A
iv. Three Phase AC Fixed Output: 240/415V: 10A
v. Power Requirement 240/415V, 50 Hz

Resistive Load Module

i. Compose of three resistances with possibility to connect in star/delta or parallel, controlled by three switches with 3~7 Steps variable per phased
ii. Power 600~1500 watt
iii. Voltage: 415/240V (Star/Delta)

Inductive Load Module

i. Compose of three inductances with possibility to connect in star/delta or parallel, controlled by three snitches With 3~7 steps variable per phase
ii. Power:500~1000VAR
iii. Voltage: 415/240 volt (Star/Delta)

Power Circuits Breaker Module

i. 3-phase ON-OFF switch with auxiliary contact (NC) for transmission line Module.
ii. Can be controlled manually using ON/OFF pushbutton or externally via switches contact, 4-mm sockets.

Designed by Didasco in Germany
Assembled in Malaysia

Earth Fault Compensation modules

i. Inductance with 10-20 tappings for earth fault compensation in the transmission line module (Petersen coil).
ii. Inductance: L 0.005…5 H
iii. Rated voltage: 220~240V, 50/60 Hz
iv. Rated current 0.25~2.5 A

Capacitive Load module

i. Compose of three capacitances width possibility to connect in star/ Delta or parallel, controlled by three switches with 7 steps variable per phase
ii. Max Power: 500~1000VAR
iii. Voltage: 415/240volt (Star/Delta)

Transmission Line Capacitor Module

i. 3 phase in star connection, 2.5 ~5.0μF each, corresponds to 25~50 % of the operating capacitance of the transmission line module.

Excitation Voltage Controller Module

i. DC power supply unit suitable to supple 0~240VDC, 0~5A adjustable for excitation voltage in synchronous as generator operation

Three Phase Contactor With Overload Relay Module

i. Voltage: 415 VAC
ii. Range: 0~5A
iii. Coil: 220~240 VAC

Safety connection lead

i. 4 mm connection leads

Vertical Frame workstation

i. High level: DIN standard A4 with two shelves
ii. Material: Aluminum profile size 8

Electrical Meter:

i. Measurement V, KV, Hz, A, KA, S, KW, KVAR, KVA, KWH, KVRH.

Kilowatt Hour Meter

i. Speed: Min: 1000 turn/ 1kW/hour
ii. Accuracy: Class 1.5 or better

Simulate Switch Board Module

i. Rated Voltage: 220~240VAC
ii. Pushbutton x 3 units

AC Voltmeter & AC Ammeter

i. Measurement mode: AC
ii. Voltage range: 5V, 50V, 250V, 1000V
iii. Current ranges: 1A, 5A, 25A.

Three Phase Induction Motor

i. Power: 170~400W
ii. Voltage: 415VAC
iii. Current: 0.5~2.5A
iv. Speed: 1400~2500rpm
v. Connection: Δ & Y

Single Phase Synchronous Generator Module

i. Power: 180~400W
ii. Voltage: 220~240VAC
iii. Current: 0.5~2.5A
iv. Speed: 1400~2500rpm

Three Phase Synchronous Generator Module

i. Power : 170~400W
ii. Voltage: 415VAC
iii. Current: 0.5~2.5A
iv. Excitation voltage 12~24 VDC
v. Excitation current 6~20A
vi. Speed: 1400~2500rpm
vii. Connection: Y

Manuals :
(1)All manuals are written in English
(2)Model Answer
(3)Teaching Manuals

General Terms :
(1)Accessories will be provided where applicable.
(2)Manual & Training will be provided where applicable.
(3)Design & specifications are subject to change without notice.
(4)We reserve the right to discontinue the manufacturing of any product.

Warranty :
2 years

* Proposed design only, subject to changes without any notice.

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