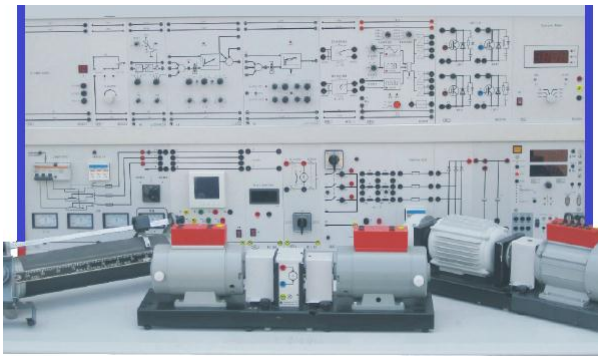


ELECTRICAL TRANSMISSION TRAINING SYSTEM

Model Number : GOTT-ETT-1201



DESCRIPTION

The coverage of electricity in the Electric Power/Controls program is oriented towards providing understanding and knowledge of the machines, circuits and systems used to produce, distribute and control electric power in today's, commercial and industrial settings.

This domestic system also makes it possible for students to observe electrical phenomena through the effects of voltage transients and power oscillations

Motor speed and current control circuits may be investigated with various types of feedback, including armature voltage, armature current, Tacho Generator and a combination of voltage and current, PI controllers. Four quadrant control can be implemented for continuous and discontinuous current operation in single and three phase circuits.




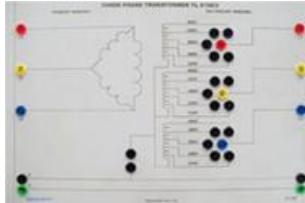

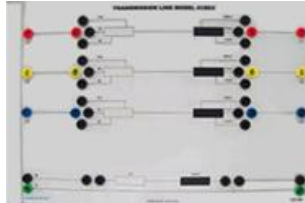
Applicable Courses

"Electrical Transmission Training System" is designed for such courses as "Electric Power and Control" and "AC and DC speed Control System"

Main Technical Parameters

1. Input power supply:	<ul style="list-style-type: none"> • Three phase-five-line, 415VAC \pm 5%
2. Output power supply:	<ul style="list-style-type: none"> • Three phase 0~415V, with voltmeter indication. Single phase 0~250v with voltmeter indication. Three phase 75V/15V/1.8A
3. DC source:	<ul style="list-style-type: none"> • Fixed DC power supply 220V1A, \pm15V/2A, \pm5V/2A, with over current and short circuit protection
4. Experiment instrument	<ul style="list-style-type: none"> • Digital display voltmeter : 500V, 0.5 class • Digital display ammeter : 2A, 0.5 class • Digital display voltage & current meter: voltage measuring range : 5V/50V/500V; current measuring range; 50mA/500mA/5A, 1.5class. • Electrical meter: AC voltage measuring range : 415V phase ,accuracy 0.5 class. • AC current measuring range: 5Vphase, accuracy 0.5 class • Three phase active power measuring range : \pm3.3kW, accuracy 0.5 class • Three phase reactive power measuring range : \pm3.3kW, accuracy 0.5 class. Power factor measuring range: 0~+1, accuracy 0.5 class • Frequency measuring range : 45Hz~65Hz, accuracy 0.05Hz • Active/reactive energy measuring range : 99999999, accuracy 1 class

PRODUCT MODULE

MOVING COIL VOLTMETER	CODE 190-002	MOVING IRON VOLTMETER	CODE 190-003	MOVING COIL AMMETER	CODE 190-004
Type: Moving Coil Mode: AC / DC Range: 0...15V, 0...30V		Type: Moving Iron Mode: AC / DC Range: 0...600V		Type: Moving Coil Mode: AC / DC Range: 0...100mA, 0...1000mA	
					
THREE PHASE TRANSFORMER TL 415 KV	CODE 157-889	INVERTER UNIT	CODE 157-895	TRANSMISSION LINE MODEL 415 KV	CODE 157-891
Transformer for feeding the transmission line model 415 kv. Scale factor 1:1000 for secondary current and voltage. Nominal Power: 800 VA Primary: 3 x 400 V winding with tapping at 230 V, can be switched to star or delta connection Delta stabilizing winding can be connected. Secondary: 3 x 415VAC winding with tap-pings at +5%, -5%, -10%, -15% in star connection, various star Point connections possible		3 ϕ asynchronous motor speed control by PWM technique. The Torque and Speed are able to be constant via the unit to easy control in testing operation during loads change. Input Voltage: 415VAC, 50Hz Output Voltage: 0-380V Out Frequency: 1-300Hz Max Power: 1.5 Kw		Measuring steady state operating conditions. Quad bundle 4 x 240/40, with surge impedance 240 and natural load 600 MW, length 360 km. Resistance: 13 Ohm, 8 Ohm, 5 Ohm Inductance: 290 mH, 174 mH, 116 mH Open Capacity: 5 μ F, 3 μ F, 2 μ F	
					

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PRODUCT MODULE

THREE PHASE POWER SUPPLY	CODE 157-896	RESISTIVE LOAD	CODE 157-897	INDUCTIVE LOAD	CODE 157-898
<p>Fixed and variable AC supplies. Provided with start stop/stop push bottom EMO. Three Phase AC Adjustable Output : 3 x 0-415V: 6A Three Phase AC Fixed Output: 240/415V: 10A Power Requirement: 415V, 50Hz</p> 		<p>Compose of three resistances with possibility to connect in star/delta or parallel, controlled by three switches with 7 steps variable per phase. Max Power: 1200 watt Voltage: 415Volt (Star/Delta)</p> 		<p>Compose of three inductances with possibility to connect in star/delta or parallel, controlled by three switches with 7 steps variable per phase. Max Power: 900 VAR Voltage: 415Volt (Star/Delta)</p> 	
<p>EARTH FAULT COMPENSATION</p> <p>Inductance with 20 tappings for earth fault compensation in the 380 kV transmission line model (Petersen coil). Inductance L: 0.005....2 H Rated voltage: 240VAC , 50 Hz Rated current: 0.5 A</p> 	<p>CODE 157-893</p>	<p>MOVING IRON AMMETER</p> <p>Type: Moving Iron Mode: AC / DC Range: 0...2.5A</p> 	<p>CODE 190-006</p>	<p>CAPACITIVE LOAD</p> <p>Compose of three capacitances with possibility to connect in star/delta or parallel, controlled by three switches with 7 steps variable per phase. Max Power: 900VAR Voltage : 415Volt (Star/Delta)</p> 	<p>CODE 157-899</p>
<p>POWER FACTOR METER</p> <p>Range: 0.5 Lag...1...0.5 Lead Accuracy: Class 1.5 Protection Fuse 1A</p> 	<p>CODE 456-013</p>	<p>POWER METER</p> <p>Range: 0...100 VAR Accuracy: Class 1.5</p> 	<p>CODE 720-515</p>	<p>TACHOMETER</p> <p>RPM Range: 0...9999rpm Input: AC 240V</p> 	<p>CODE 192-008</p>
<p>TRANSMISSION LINE CAPACITOR TL 415 KV</p> <p>3-phase in star connection, 2.5 μF each, corresponds to 50 % of the operating capacitance of transmission line model 415 Kv</p> 	<p>CODE 157-891</p>	<p>SINGLE PHASE SYNCHRONOUS MOTOR</p> <p>Power: 250W Voltage: 240VAC Current: 2.2A Speed: 1725rpm</p> 	<p>CODE 610-002</p>	<p>THREE PHASE SYNCHRONOUS MOTOR</p> <p>Rated power: 100W Rated voltage: 415V(Y) Rated current: 0.6A Rated speed: 1400rpm Insulation class: E</p> 	<p>CODE 060-108</p>

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<p>STALLING EQUIPMENT</p> <p>CODE 060-302</p> <p>Used for motor to stall roller</p> 		<p>PULLEY</p> <p>CODE 439-000</p> 		<p>U-LINK</p> <p>CODE 159-019</p> <p>A unit which is wed to link the unit together</p> 
<p>SAFETY CONNECTING LEAD</p> <p>CODE 237-001</p> <p>4mm connecting leads</p> 		<p>VERTICAL FRAME</p> <p>CODE 297-000</p> <p>High Level: Din Standard A4 with two shelves Material: Aluminium Side Frame: T shape Size: 3-Layer 1450mm Length</p> 		<p>EXPERIMENT MANUAL</p> <p>CODE 720-515</p> 

EXPERIMENT TOPICS :

- Transformer Vector Group
- No-load performance
- Short-circuit performance
- Load performance
- Zero impedance
- Asymmetric load
- Auto transformer
- Series connection of two lines (without capacitor)
- Parallel connection of two lines (without capacitor)
- Series connection of two lines (with capacitor)
- Parallel connection of two lines (with capacitor)
- Transmission Line Model 415V
- Electrical Meter
- Power Circuit Breaker

Manuals :

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

General Terms :

- (1) Accessories will be provided where applicable
- (2) Manuals & Training will be provided where applicable
- (3) Designs & Specifications are subject to change without notice
- (4) We reserve the right to discontinue the manufacture of any product

Warranty :

2 Years

ORDERING INFORMATION:

ITEM	MODEL NUMBERS	CODE
ELECTRICAL TRANSMISSION TRAINING SYSTEM	GOTT-ETT-1201	720-000

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