**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:  Three phase five-line, 415VAC ± 5%
2. Output power supply:  Three phase 0~415V, with voltmeter indication. Single phase 0~250V with voltmeter indication. Three phase 75V/15V/1.8A
3. DC source:  Fixed DC power supply 220V/1±15V/2A, ±5V/2A, with over current and short circuit protection
4. Experiment instrument:  
   - 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, 1.5 class.
   - Electrical meter: AC voltage measuring range: 415V phase, accuracy 0.5 class.
   - AC current measuring range: 5V phase, accuracy 0.5 class
   - Three phase active power measuring range: ±3.3kW, accuracy 0.5 class
   - Three phase reactive power measuring range: ±3.3kW, 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: 9999999, accuracy 1 class

**PRODUCT MODULE**

<table>
<thead>
<tr>
<th>MOVING COIL VOLTOMETER</th>
<th>CODE 190-002</th>
<th>MOVING IRON VOLTOMETER</th>
<th>CODE 190-003</th>
<th>MOVING COIL AMMETER</th>
<th>CODE 190-004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: Moving Coil</td>
<td></td>
<td>Type: Moving Iron</td>
<td></td>
<td>Type: Moving Coil</td>
<td></td>
</tr>
<tr>
<td>Mode: AC / DC</td>
<td></td>
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</tr>
<tr>
<td>Range: 0...15V, 0...30V</td>
<td></td>
<td>Range: 0...600V</td>
<td></td>
<td>Range: 0...100mA, 0...1000mA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THREE PHASE TRANSFORMER TL 415KV</th>
<th>CODE 157-889</th>
<th>INVERTER UNIT</th>
<th>CODE 157-895</th>
<th>TRANSMISSION LINE MODEL 415KV</th>
<th>CODE 157-891</th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
<td>30 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<del>380V Out Frequency: 1</del>300Hz Max Power: 1.5 Kw</td>
<td>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</td>
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</tr>
<tr>
<td>PRODUCT MODULE</td>
<td>CODE</td>
<td>RESISTIVE LOAD</td>
<td>CODE</td>
<td>INDUCTIVE LOAD</td>
<td>CODE</td>
</tr>
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<tr>
<td>THREE PHASE POWER SUPPLY</td>
<td>157-896</td>
<td>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: 415Volts (Star/Delta)</td>
<td>157-897</td>
<td>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)</td>
<td>157-898</td>
</tr>
<tr>
<td>EARTH FAULT COMPENSATION</td>
<td>157-893</td>
<td>Inductance with 20 tapings 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</td>
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</tr>
<tr>
<td>MOVING IRON AMMETER</td>
<td>190-006</td>
<td>Type: Moving Iron Mode: AC / DC Range: 0…2.5A</td>
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</tr>
<tr>
<td>CAPACITIVE LOAD</td>
<td>157-899</td>
<td>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)</td>
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</tr>
<tr>
<td>POWER FACTOR METER</td>
<td>456-013</td>
<td>Range: 0.5 Lag…1…0.5 Lead Accuracy: Class 1.5 Protection Fuse 1A</td>
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</tr>
<tr>
<td>POWER METER</td>
<td>720-515</td>
<td>Range: 0…100 VAR Accuracy: Class 1.5</td>
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<tr>
<td>TACHOMETER</td>
<td>192-008</td>
<td>RPM Range: 0…9999rpm Input: AC 240V</td>
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</tr>
<tr>
<td>TRANSMISSION LINE CAPACITOR</td>
<td>157-891</td>
<td>3-phase in star connection, 2.5 µF each, corresponds to 50 % of the operating capacitance of transmission line model 415 Kv</td>
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<tr>
<td>SINGLE PHASE SYNCHRONOUS MOTOR</td>
<td>610-002</td>
<td>Power: 250W Voltage: 240VAC Current: 2.2A Speed: 1725rpm</td>
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<tr>
<td>THREE PHASE SYNCHRONOUS MOTOR</td>
<td>060-108</td>
<td>Rated power: 100W Rated voltage: 415V(Y) Rated current: 0.6A Rated speed: 1400rpm Insulation class: E</td>
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**Model Number:** GOTT-ETT-1201

**ELECTRICAL TRANSMISSION TRAINING SYSTEM**

**POWER FACTOR METER**
- Range: 0.5 Lag…1…0.5 Lead
- Accuracy: Class 1.5
- Protection Fuse 1A

**POWER METER**
- Range: 0…100 VAR
- Accuracy: Class 1.5

**TACHOMETER**
- RPM Range: 0…9999rpm
- Input: AC 240V

**TRANSMISSION LINE CAPACITOR TL 415 KV**
- 3-phase in star connection, 2.5 µF each, corresponds to 50 % of the operating capacitance of transmission line model 415 Kv

**SINGLE PHASE SYNCHRONOUS MOTOR**
- Power: 250W
- Voltage: 240VAC
- Current: 2.2A
- Speed: 1725rpm

**THREE PHASE SYNCHRONOUS MOTOR**
- Rated power: 100W
- Rated voltage: 415V(Y)
- Rated current: 0.6A
- Rated speed: 1400rpm
- Insulation class: E
ELECTRICAL TRANSMISSION TRAINING SYSTEM
Model Number : GOTT-ETT-1201

STALLING EQUIPMENT  | CODE  | PULLEY  | CODE  | U-LINK  | CODE  
---------------------|-------|---------|-------|---------|-------
Used for motor to stall roller | 060-302 |  | 439-000 |  | 159-019 |

SAFETY CONNECTING LEAD  | CODE  | VERTICAL FRAME  | CODE  | EXPERIMENT MANUAL  | CODE  
------------------------|-------|-----------------|-------|---------------------|-------
4mm connecting leads | 237-001 | High Level: Din Standard A4 with two shelves Material: Aluminium Side Frame: T shape Size: 3-Layer 1450mm Length | 297-000 | EXPERIMENT MANUAL | 720-515 |

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:

<table>
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<tr>
<th>ITEM</th>
<th>MODEL NUMBERS</th>
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* Proposed design only, subject to changes without any notice.