

# Transformer Learning System

Educational Training Equipment for the 21st Century

Bulletin 210H

## Purpose

The **Model H-TTC-PIL-1A** Transformer Learning Center provides, in one convenient mobile console, all of the instrumentation, loading, and control apparatus necessary for the analysis of transformer characteristics and circuits.

## Description

The Transformer Learning Center contains three 1KVA transformers with multiple taps on their respective secondaries. Each winding and tap is breaker-protected to provide full overload and short circuit protection. All leads from windings and taps terminate in Hampden HR-2P 25A receptacles.

Input power is 208/120V 3Ø, 4-wire, 10A. An AC circuit breaker with pilot lamp is provided to control input power terminated in four pairs of bussed Hampden HR-2 receptacles. Also provided is a variable autotransformer terminated in three pairs of bussed HR-2 receptacles.



**MODEL H-TTC-PIL-1A**  
Dimensions: 61"H x 60"W x 32"D  
Weight: 925 lbs.

## Instrumentation

At the top of the sloping panel are the following instruments: two digital AC ammeters, two digital AC voltmeters, and two digital wattmeters.

Protected ammeters each 0-10A. Four insertion-type ammeter receptacles are also provided.

Protected voltmeters each 0-300V.

Protected wattmeters each 0-2000 watts.

## H-TTC-PIL-1A Transformer Learning Center

### Loading

Resistive, inductive, and capacitive loads are contained within the Learning Center Console.

**Resistive**—Three 1Ø resistive loads are simultaneously controlled by switches in ten steps of 300 watts each.

**Inductive**—Three 1Ø inductive loads, each with circuit breaker, are simultaneously adjusted by the control knob of a 3-gang variable autotransformer.

**Capacitive**—Three 1Ø capacitive loads are each controlled by toggle switches in six steps (10, 20, 30, 40, 40, and 40 microfarads).

### Accessories

The **Model H-TTC-PIL-1A** is provided complete with patchcord set and manual set.

## Hampden H-TTD-1A Transformer Trainer Demonstrator

### Description

The Hampden **Model H-TTD-1A** consists of:

- Component panel
- Transformers
- Instruments
- Resistance-Inductance-Capacitance loads
- Variable AC power supply
- Mobile stand

All component electrical terminals are Hampden HB-3 color-coded five-way captive head non-jam binding post. Provided are 10 ft. power cord and patch cords.

### Transformers

Three double-wound multi-tapped single-phase transformers, rated 120 volt-amperes at 60Hz. Each tap is circuit breaker protected.

### Computer Data Logging Option

The CDL Option consists of eight digital meters and eight analog inputs which go to microprocessor controlled high-resolution 16 bit sigma-delta A/D converters to acquire the appropriate sensor signal. The digital data is translated into the appropriate format such as engineering units; when the computer requests this data, it is sent over a single USB interface cable.

### Instruments

Eight individual diode-protected metering instruments, complete with graphics.

### Loads

Three individual load modules complete with graphics.

### Power Supply

One 0-240/140V AC-3Ø-4 wire, 9A complete with graphics.

One fixed 208/120V AC-3Ø-4 wire.

### Mobile Stand

Provided with one full-width table top, and swivel casters (two with locks).



**MODEL H-TTD-1A**  
Dimensions: 72"H x 51"W x 30"D  
Weight: 400 lbs.

All Hampden units are available for operation at any voltage or frequency



**Hampden**  
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