

# Distribution Network Trainer

Educational Training Equipment for the 21st Century

Bulletin 180-107

## H-DNT Distribution Network Trainer

### Purpose

The Hampden **Model H-DNT** Distribution Network Trainer provides students and trainees with practical experience in the operation, maintenance and troubleshooting of network systems. The Distribution Network Trainer can also be used as a working model for lecture demonstrations.

### Description

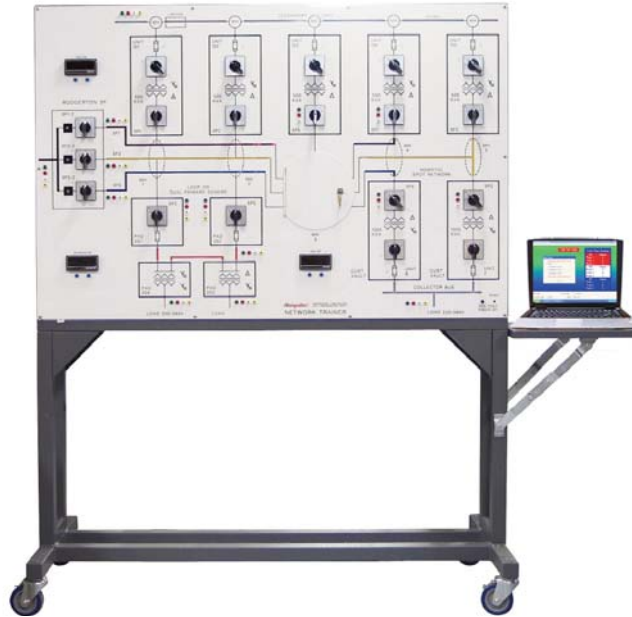
The Hampden **Model H-DNT** Distribution Network Trainer consists of a mobile frame on which a panel and enclosure are mounted. The panel contains switching, instrumentation and graphics depicting a typical network system. Within the enclosure is a computer for control and instructor interfacing to the system. The monitor and keyboard sit on a shelf mounted on the right hand side of the trainer.

Power into the trainer is via a ten foot power cord which feeds into the main circuit breaker. Both are located on the left hand side of the trainer.

The graphics depict a three circuit substation feeding three distribution lines. The three distribution lines feed seven network units and two fused disconnects. Five of the network units feed a low voltage secondary grid. The remaining two networks feed to a spot network with their outputs feeding a collector bus. The two disconnect switches are connected as a dual primary or loop distribution scheme.

### Additional Features

One of the five network units is fed from a man-hole containing the three distribution lines. This network unit can be fed from any of the three distribution lines. Line identification and phase techniques must be used for correct connections.



Dimensions: 72"H x 85"W x 28"D  
Shipping weight: 500 lbs

Three voltmeters are included, two to measure the 120 thru 480 volt circuits and one to measure the 13 KV circuit. The 13 KV circuit is scaled down 1000:1; that is 13,000 volts is actually 13 volts on the trainer. The 120 thru 480 volt circuits are scaled down 10:1; that is 120 volts is actually 12 volts and 480 volts is actually 48 volts on the trainer. On all lines, phase-to-phase and phase-to-neutral voltages can be read.

The major distribution lines and busses are color coded Plexiglas with rear lighting. The lights are on when a line is energized, and off when the line is off. When a fault occurs on a line that still has power the light intensity diminishes by one third. When the faulted line loses power, the light goes out.

The disconnect switches have three positions, open, closed and grounded. The network protectors have three positions, open, automatic

and closed. Each network protector and circuit breaker has a red/green LED which displays red when the circuit is closed and green when the circuit is open. Each fuse or limiter also has a red/green LED to indicate open or blown.

Thirteen realistic faults can be activated by the instructor. Faults include; feeder, secondary grid, collector bus, collector bus ground, primary loop, transformer, and protector faults. Some faults are activated with all equipment working normally, and other faults are activated when a protector fails to open.

Power required: 120/208 volts AC, 3Ø, 4-wire 15 amps, 60 Hz., plus a ground.

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

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