

## H-ICS-APT Analytic Process Loop

### Purpose

The Hampden **H-ICS "T" Series** Trainers provide experience in setting up, tuning, operating, and troubleshooting actual instrument and control systems of the type used in the power and process industries. Each panel, by simulating a different process loop, provides instruction in the measuring and transducing of such physical variables as pressure, temperature, flow and level. Student trainees learn instrumentation and control techniques of standard commercial manufacturers, such as Yokogawa and Rosemount. Covered are open-loop control, as well as the various types of closed-loop control: on/off, proportional, proportional plus integral, and proportional plus derivative, as well as a variety of final control devices, including electric, pneumatic and electronic.

### Description

The Hampden Instrumentation and Process Control Training System is comprised of seven mobile panels, each containing a single process loop. These panels may be interconnected to form more complex control configurations. Each panel contains, in addition to the principal measuring and transducing device, an independent indication of the value of the physical variable being controlled. Microprocessor-based controllers provide maximum flexibility in setting control parameters, besides providing the computer interface for distributed control. Each panel contains a means of creating a process disturbance, and a recorder for charting the controller's response to changes in setpoint or load.

The Hampden **ICS "T" Series** Trainers are equipped with six instructor inserted faults covering both mechanical and electrical failures. The fault switches are located in a locked compartment located on the side of the unit

### PLC Option

- PLC Control to include (1) Allen Bradley Micrologix **ML-1200** PLC with **H-LTCS** Laptop Control System and Software. Designate **Model H-ICS-APT-PLC**.

### Purpose

The Hampden Model **H-ICS-APT** Analytic Process Loop Trainer is designed to provide instruction on the measurement and control of pH, conductivity, and dissolved oxygen level as well as the temperature of water.

The Analytic Process Loop consists of the following components:

- Single System Microcontroller (PID) with communications port RJ-45
- Electronic Indicating Recorder, two channel
- pH Transmitter
- Conductivity Monitor
- Sample Pump
- Chemical Pump (2)
- pH Meter
- Temperature Meter
- Dissolved Oxygen Meter
- Temperature Transmitter
- Electric Heater
- Thermostat Control
- Chemical Tank (2)
- Main Process Tank
- 4–20mA Power Supply
- Power Supply, 24 VDC
- Patch Cords
- Ground Fault Interrupter



**Model H-ICS-APT**

Dimensions: 75" High x 64" Wide x 37" Deep  
Shipping Weight: 1075 lbs.

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

**Hampden**  
ENGINEERING CORPORATION