

## Process Control Trainer (Temperature, Pressure, Flow and Level) (EDC-PCT-100)

### EXPERIMENTAL DATA:

- Study of the Level Sensor
- Study of the Flow Sensor
- Study of the Pressure Sensor
- Study of the Temperature Sensor
- P, PI, PD and PID Closed Loop Control of the Flow.
- ON-OFF, P, PI, PD and PID Closed Loop Control of the Level.
- ON-OFF, P, PI, PD and PID Closed Loop Control of the Temperature.
- ON-OFF, P, PI, PD and PID Closed Loop Control of the Pressure.



### DESCRIPTION:

Process Control technology has greatly expanded the variety of tasks performed by instrument technicians at industrial plants. They must calibrate, troubleshoot, and repair instruments ranging from pneumatic booster relays to microprocessor-based automatic controllers. To successfully perform these tasks without adversely affecting plant production and maintenance costs, effective training is essential.

The EDC-PCT-100 Process Control system is designed for hands-on training in the measurement, control and troubleshooting of industrial processes. The trainers can operate independently, or be combined together in different configurations to simulate more-complex processes. The Flow, Level, Temperature and Pressure use water as the process media. Student courseware starts with an introduction to the basic characteristics of main process variables, and proceeds progressively to the study of process fundamentals, calibration of sensing devices and transmitters, and the operation of microprocessor-based controllers. Closed-loop control of processes and troubleshooting exercises are an integral part of the training program, and computer-based training and simulation software provides flexibility when adding to or upgrading existing programs.

Process Control Trainer contains an educational board with a pressurized vessel and a set of sensors and actuators for level, pressure, temperature and flow. A control module, containing the sensors and the actuators and the ON/OFF, proportional, integral and derivative control circuits (PID).

## TECHNICAL DATA:

- **Process Tank 1:** 28 Liter approx. for flow, level and temperature PID control experiments.
- **Process Tank 2:** 5 Liter approx. for Pressure PID Control experiments with overflow and over-pressure safety.
- **Sump Tank:** 30-liter approx.
- **Heater Element:** 400W
- **Water Circulation Pump:** 10 l/min
- **Piping:** Plastic
- **Thermal Sensors:** LM35.
- **Pressure Sensor:** Manometer Direct Reading, Strain Gauge.
- **Level Sensor:** Capacitive type, Float Switch for overflow safety
- **Flow Sensor:** Digital-hall effect type
- **Valves:** Motor Driven with feedback, Gate valve, ball valve, needle valve, solenoid valve.
- **PID Controller:** LCD Controlled PID
- **Accessories:** Power Cord, Experiment Manual.
- Data Acquisition Unit / Interface Software.
- **Features:**
- **Flow Control:** User can control flow of liquid through Close Loop using PID control
- **Level Control:** User can maintain level of liquid by open loop through ON/OFF & Close Loop using PID control
- **Temperature Control:** User can control temperature by open loop through ON/OFF & Close Loop using PID control
- **Pressure Control:** User can control pressure of liquid by open loop through ON/OFF & Close Loop using PID control

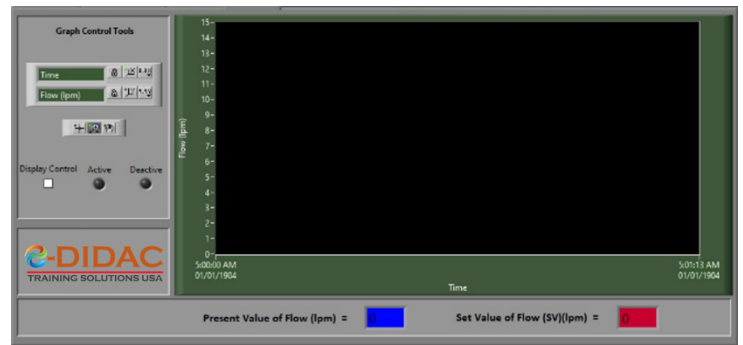
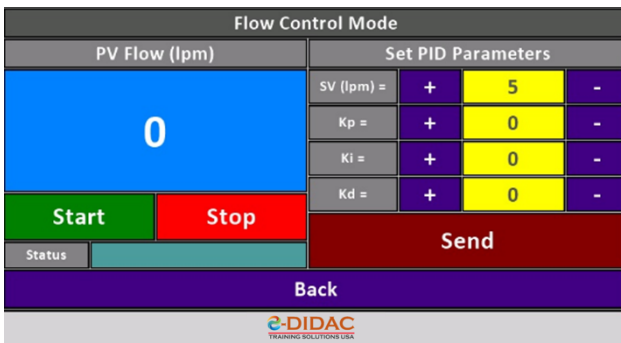


# Software Specifications

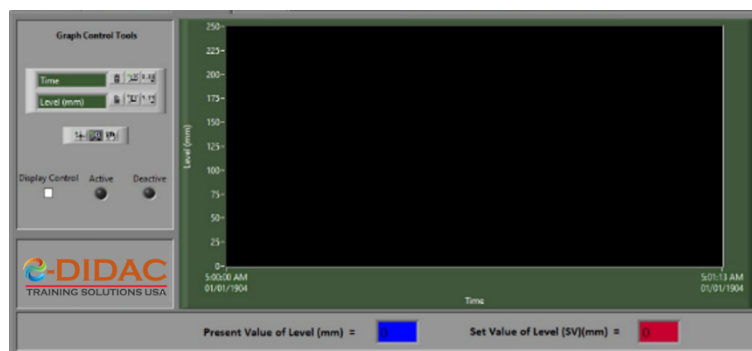
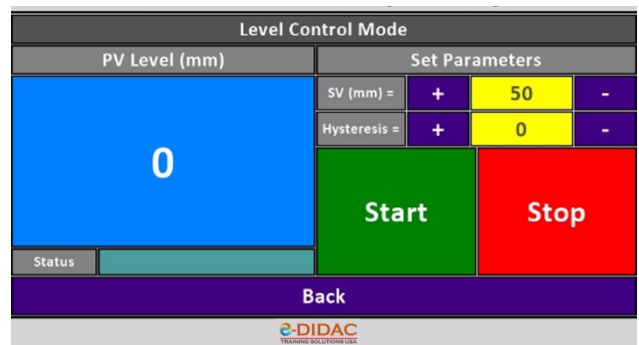
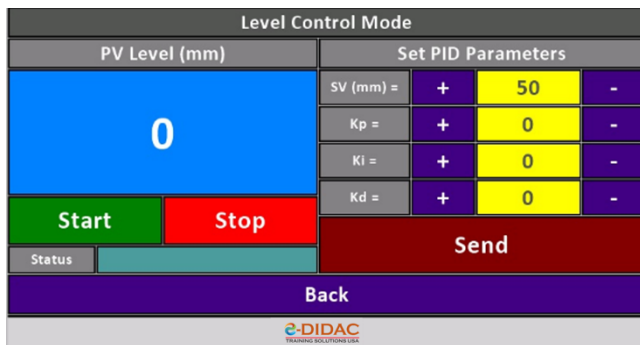
## Process Control Trainer 4 in 1 (EDC-PCT-100)

The Process Control Trainer provides user ability to control four processes of same liquid. These are: i) Flow Control, ii) Level Control, iii) Temperature Control, and iv) Pressure Control. Further details are as follow

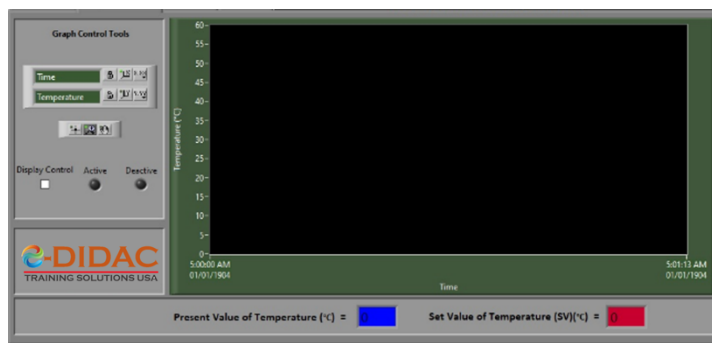
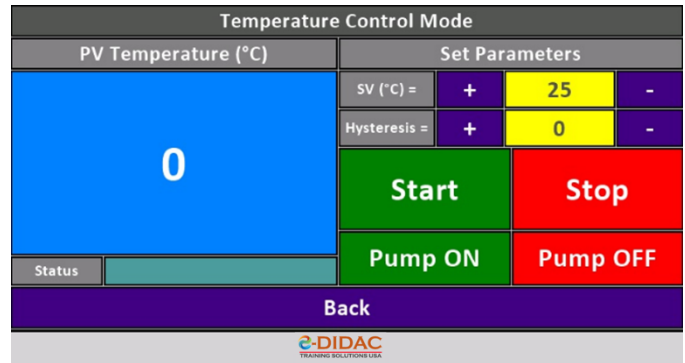
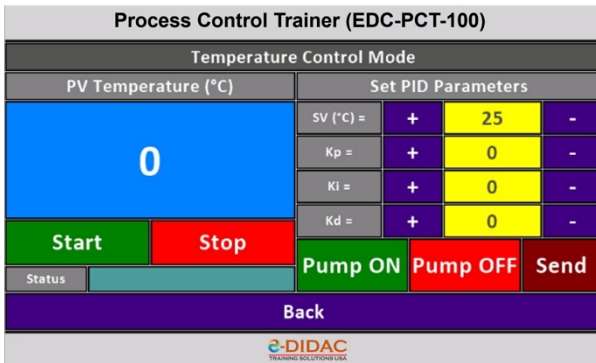
- **Features:**
- **Flow Control:** User can control flow of liquid manually using touch LCD, and through software PID control algorithm.



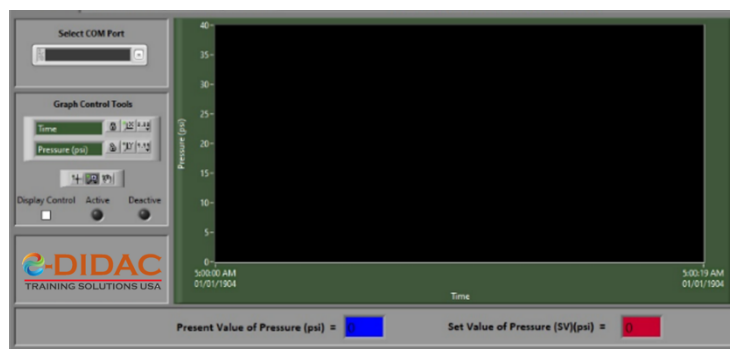
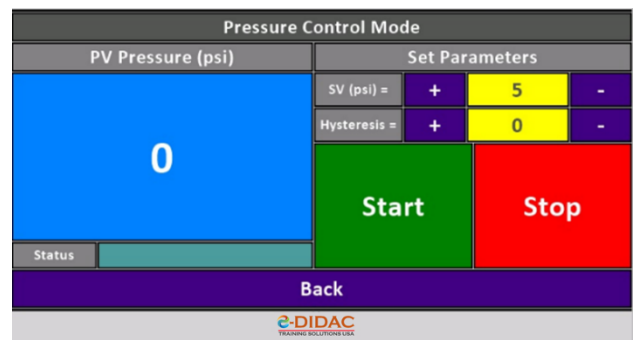
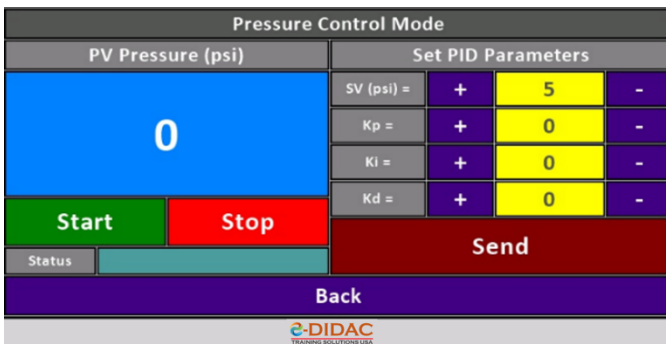
- **Level Control:** User can maintain level of liquid manually, through ON/OFF control or through software PID control algorithm.



- Temperature Control:** User can control temperature level manually, through ON/OFF control or through software PID control algorithm.



- Pressure Control:** User can control pressure of liquid manually or through software PID control algorithm.



- Others:** PID parameters are controllable and graph plotting is also available. Control of parameter related to flow, level, and temperature and pressure process.

## **DIMENSIONS AND WEIGHT:**

L x W x H (mm): 1400 x 900 x 500 Approx.

Weight: 80 kg Approx.

## **SCOPE OF DELIVERY:**

- 1 x EDC-PCT-100
- 1 x Instructional Manual