FLOW PROCESS TRAINING SYSTEM

TE3300/03

A self-contained, mobile module for flow process control experiments to illustrate the principles of single-loop control and the calibration and tuning of controllers, transmitters, converters and valves.

- Demonstrates automatic control of flow using proportional, proportional plus integral, and proportional plus integral plus derivative (PID) control

- Uses industry-standard parts making it ideal for industrial, vocational and academic training

- Demonstrates operation, calibration and tuning of controllers, transmitters, converters and valves

- Connects to the Pressure Process (TE3300/02) and Level Process (TE3300/04) Training Systems for cascade control

- Connects to the Computer Control System (TE3300/06) for distributed control

To carry out experiments, students fill the reservoir with clean water and prime the system. They then set the controller to regulate the flow of the water using a pneumatic valve. The gap-type flow meter gives a visual indication of flow. The fixed orifice and pressure transmitter give feedback to the controller. For a realistic experience, the equipment has industrial-standard instrumentation and parts.

The apparatus includes two gate valves. One valve controls the flow at the output (drain) and the other acts as a flow-bypass valve. A chart recorder shows and logs the changes of the process variable (level) and the controller output.

The self-contained unit can perform many experiments. By connecting this to other products in the TE3300 range further experiments are possible.

ESSENTIAL ANCILLARIES:

- Service Module (SM3300)

RECOMMENDED ANCILLARIES:

- Pressure Process Training System (TE3300/02)   82
- Level Process Training System (TE3300/04)   84
- Computer Control System (TE3300/06)   86

ANCILLARY FOR:

- Pressure Process Training System (TE3300/02)   82
- Level Process Training System (TE3300/04)   84

ALTERNATIVE PRODUCTS:

- Process Trainer (CE117)   81
- Control and Instrumentation Study Station (TE37) 87

LEARNING OUTCOMES:

- Proportional, integral and derivative control

- Setting up and demonstrating automatic control

- The principles of loop control and the calibration and tuning of controllers, transmitters, converters and valves

- Calibration of an orifice flow meter with a differential pressure transmitter

- Quadratic flow laws and square root extraction

- Cascade control of pressure and flow, and level and flow (when used with the TE3300/02 and TE3300/04)

- Distributed control (when used with the TE3300/06 Computer Control System)

PROCESS CONTROL

PROCESS CONTROL ENGINEERING