



LEVEL PROCESS TRAINING SYSTEM

TE3300/04

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



KEY FEATURES

- Demonstrates automatic control of level using proportional, proportional plus integral, and proportional, integral plus derivative (PID) control
- Uses industry-standard parts to make it ideal for industrial, vocational and academic training
- Demonstrates operation, calibration and tuning of controllers, transmitters, converters and valves
- Compact, mobile and fully self-contained
- Connects to the TE3300/03 Flow Process Training System for cascade control
- Connects to the TE3300/06 Computer Control System for distributed control
- Safe, practical and realistic



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DESCRIPTION

The Level Process Training System is a compact and mobile unit for a wide range of experiments in flow control. It gives students a greater understanding of the stability of simple control systems.

The self-contained unit can perform many experiments. By connecting this to other products in the TE3300 range further experiments are possible. For cascade control of flow and level, it can link to the optional Flow Process Training System (TE3300/03). For distributed control, it can connect to the optional Computer Control System (TE3300/06).

The main parts of the Level Process Training system are:

- Industrial controller with auto-tune feature
- Two-channel chart recorder
- Current-to-pressure converter
- Differential pressure transmitter
- Transparent vessel
- Pneumatic control valve
- Three-speed pump
- Reservoir

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 water using a pneumatic valve. This alters the water level in the transparent vessel. The differential pressure transmitter connected to the vessel gives 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.

NOTE: The chart recorder is paperless, so you need a suitable computer and colour printer if you need to print out hard copies of the chart recorder traces.

A socket on the side of the apparatus links to the Computer Control System (TE3300/06, available separately).

STANDARD FEATURES

- Supplied with comprehensive user guides
- Five-year warranty
- Made in accordance with the latest European Union directives
- ISO9001 certified manufacturer

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
- Wet and dry leg operation of a differential pressure transmitter
- Operation of a level control system
- Cascade control of level and flow (when used with the TE3300/03 Flow Process Training System)
- Distributed control (when used with the TE3300/06 Computer Control System)

ESSENTIAL ANCILLARIES

- Service Module (SM3300)

RECOMMENDED ANCILLARIES

- Flow Process Training System (TE3300/03)
- Computer Control System (TE3300/06)

ANCILLARY FOR

- Flow Process Training System (TE3300/03)

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory environment

STORAGE TEMPERATURE RANGE:

-25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE:

+5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

SOUND LEVELS

Less than 70 dB (A)

≡ LEVEL PROCESS TRAINING SYSTEM

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ESSENTIAL SERVICES

ELECTRICAL SUPPLY (SPECIFY ON ORDER):

Single-phase, 220–240 VAC, 50/60 Hz, 0.3 A

OR

Single-phase, 110–120 VAC, 50/60 Hz, 0.6 A

COMPRESSED AIR:

Stable supply of 0.5 litres/s of clean, dry oil free air at 2–10 bar

WATER

Approximately 20 litres of clean water

SPECIFICATIONS

TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

DIMENSIONS AND WEIGHTS:

Nett: 700 mm x 800 mm x 1750 and 120 kg

Packed: Approximately 1 m³ and 150 kg

