

TE3300/02

Pressure Process Training System

For a wide range of practical experiments in pressure control



- Shows automatic control of pressure in an accumulator using proportional, proportional plus integral, and proportional, integral plus derivative (PID) control
- Uses industrial-standard parts to make it ideal for industrial, vocational and academic training
- Shows 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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- An ISO 9001 certified company

TE3300/02

Pressure Process Training System

Description

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

The self-contained unit can do many experiments, but it can also connect to other products in the TE3300 range for extra experiments. For cascade control of flow and pressure, 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 Pressure Process Training system are:

- Industrial controller with auto-tune feature
- Two-channel chart recorder
- Current-to-pressure (IP) converter
- Gauge pressure transmitter
- Pneumatic control valve
- Pressure accumulator
- Three-speed pump
- Reservoir

To perform 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 pressure in the accumulator. A pressure transmitter measures the accumulator pressure and 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) of the accumulator, and the other acts as a flow-bypass valve. A chart recorder shows and logs the changes of the process variable (pressure) 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).

Experiments

- 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
- Cascade control of flow and pressure (when used with the TE3300/03 Flow Process Training System)
- Distributed control (when used with the TE3300/06 Computer Control System)

Standard Features

- Supplied with comprehensive user guides
- Two-year warranty
- Made in accordance with the latest European Union directives

Essential Ancillaries

- Three-Bar Compressor (PN3) **or**
- Service Module (SM3300)* **or**
- Stable supply of 0.5 litres/s of clean, dry, oil-free air at 2–10 bar

***Note:** If you have a single TE3300/02 unit, we recommend you use the Three-Bar Compressor (PN3). If you intend to use two or more TE3300/02, TE3300/03 or TE3300/04 units in the same laboratory (up to four units), the higher specification Service Module (SM3300) is more cost-effective.

Recommended Ancillaries

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

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)

Essential Services

Electrical supply:
Single-phase 230 V at 0.3 A or 110 V at 0.6 A, 50/60 Hz (determined by order)

Compressed air:
(see Essential Ancillaries)

Dimensions and Weights

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

Packed: Approximately 1 m³ and 150 kg

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