

Industrial Process Trainer

34-250



Description

The Industrial Process Trainer has been designed to teach a methodical approach to fault diagnosis in industrial processes. The methodologies taught within the system are equally relevant to any student or trainee studying fault diagnosis.

Faults can be introduced by the instructor via switches concealed behind a locked compartment, to which the student does not have access. These switches provide both short circuits and open circuits and can also switch in or out circuit elements to simulate a variety of fault conditions. Additional faults can be inserted into the process through the replacement of working components with faulty ones, e.g. faulty flow switches; faulty relays; faulty solenoid coils and faulty control valve electronic circuit board.

The process involves initially filling a header tank with water and then cycling the level between a set upper and lower limit, whilst simultaneously creating a demand from the header tank via two on/off solenoid drain valves into a sump tank. Flow is produced by a pump and controlled by relay operated on/off solenoid valves which control:

- the inflow of water to the header tank from the sump tank
- the outflow of water from the header tank to the sump tank

The level of water in the header tank is monitored by float switches which open and close at the following points:

- Header tank low (nearly empty)
- Header tank normal operation lower limit
- Header tank normal operation upper limit
- Header tank overflow

Designed for students studying industrial process maintenance, it can also be used as a process trainer in its own right, using either Industrial Process Controllers or Programmable Logic Controllers (PLCs). A PLC interface board 34-252-1 is available for users to develop their own PLC programs.

Features

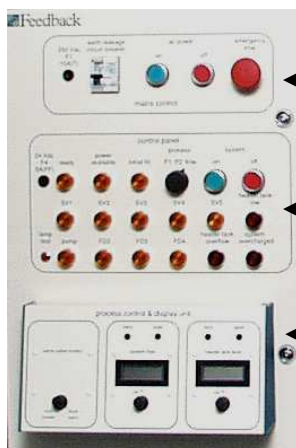
- Self-contained processes
- Wide range of easy-to-apply faults
- Mechanical, electrical, electronic and process component faults
- Teaches fault diagnosis and fault-finding methodology
- May be used as part of an Industrial Maintenance programme
- May be driven from external PLC or Process Controller
- Compatible with the Feedback range of Procon controllers and software
- Fully protected for safety
- Comprehensive Instructor's and student's manuals

Manual coverage

- Overview of the system
- Initial set-up of the Rig
- Systems description
- 34-250 and accessories
- Description of key components
 - *Flow control valves*
 - *Flow detectors*
 - *System operation switches*
- P1 process
- P2 process
- The Flow process
- System flowcharts
- Test sequence
 - *Normal mode*
 - *Fault switches operation*
- Fault diagnosis
 - *Fault switches*
 - *Faulty components*

Control Panel

The Control Cabinet contains the main power input switching, power supplies and protection devices. The cabinet door, the control panel is divided into three distinct areas.



Area one houses the main ac power control that includes separate power on and off push-buttons, emergency power off button and supply earth leakage breaker.

Area two contains the process system controls and indicators for starting/stopping the process and giving a visual indication of the process status by illuminated indicators.

Area three provides digital displays and transmitters for the level and flow transducers in the system and also a 4-20 mA source to control the system motorised servo valve.

The Cabinet contains the internal relay based process controller, lockable fault switch enclosure and low voltage dc power supplies to run the process.

Process Panel

The Process Panel presents the process system components in a way that conveys the sequence in which the process is timed, from the water delivery from the sump tank through controlled flow restriction solenoids and/or motorised control valve and into the working system header tank via flow sensors. The process water is then returned into the sump tank via controlled flow restricted solenoid valves, draining the tank and enabling output from the level sensor to provide a measure of the actual controlled water level. The visible components are: Water tanks, Manual valves, Flow switches, Flow sensor, Solenoid valves, Glass flow meter, Motorised servo valve and Valve drive electronics (under removable panel)



Power requirements

220 – 250 V a.c. @ 250 VA or 110 – 125 V a.c. @ 250 VA, 50/60 Hz.
Please specify when ordering.

Dimensions

Height: 700 mm (27 1/2 in),
Length: 1450 mm (57 1/8 in),
Depth: 450 mm (17 3/4 in)

Ordering Information

Industrial Process Fault Finding Trainer 34-250

Optional equipment

Industrial Process Controller pack 34-010
Industrial Process Trainer PLC Interface 34-252-1



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Feedback reserves the right to change these specifications without notice