Order Code - 52227
Level Control Trainer (with Ultrasonic Level Transmitter)

The Level Control Trainer is the system, which outlines the basics of Closed Loop Level Control and various aspects related to it.

KEY WORDS:

- Feedback Level control.
- ON-OFF & PID control.
- Open & close loop response.
- MANUAL/AUTO tuning of controller
- SCADA Based Level Control
- P, P+I, P+I+D Controller Action.
- Transient Response analysis study
- USB/RS232/RS485/Ethernet/ Modbus Communication.
- Ability to hook up with DCS (Distributed Control System Trainer)

TECHNICAL SPECIFICATION

Sump tank	Material: Stainless Steel, 1.5 mm thick / P.P.5mm thick, Capacity: 30 liter, with top cover, Dimension: 1 ft (L) X1ft (W) X 1 ft (H).
Level tank	Material: P.P.5mm thick, Capacity: 10 liter, Dimension: 6" (L) X6" (W) X24" ft (H).
Piping	½ ", GI, Class B, with ½'' ball valves: 6 No
Centrifugal Pump	½ H.P., 1f 230 V AC supply, Surface mounting
Level Transmitter	Type : Ultrasonic Level Transmitter Input: 0-500 mm, Output: 4-20 mA, Supply: 24 V DC, 100 mA. Type: 2-wire, Type, Mounting: Top 2" screwed Connection/flange connection.
Pneumatic Control Valve	Size: ½ ", Type: Two way Globe type (Air to Close), Cv: 5 US GPM, with diaphragm actuator, equal% characteristics, Flange connection : PCD : 60 mm, ID: 16 mm, OD: 90 mm.
Rotameter	Range: 100-1000 LPH, Glass Tube Type / Acrylic body. Connection: .", Bob material: SS 304, Mounting: Inlet- Bottom, Outlet- Top.
Level Switch	Float operated, Float Material: SS304, Switching Current: 0.5A, Switching voltage: 24 VDC Switch Action: Reversible, Weight: 150 Gms
E/P Converter	Input: 4-20 mA, Output: 3-15 psi, Connection: .¼"NPT / BSP, Supply: 2.1 Kg/cm^2.
A.F.R /F.R.L. UNIT	Air Filter, Regulator & Lubricator, 0-10 Kg/cm^2 with pressure gauge, Connection ¼" NPT/BSP.
Power Supply	24 V DC, 3 A, Size: 48mm×126mm×68mm.
Electronic PID Controller	With Serial PC Interface (ASCII/MODBUS Protocol) USB / Ethernet / RS 485 / RS232 for SCADA option only, Cut Out Size: 92mm×92mm×144mm, Input: RTD /4-20 mA Input type, Output; 4-20 mA, Display: Dual for PV & SP, High-Low Alarm annunciation, Bar graph display (Optional)

Note: Specifications are subject to change.

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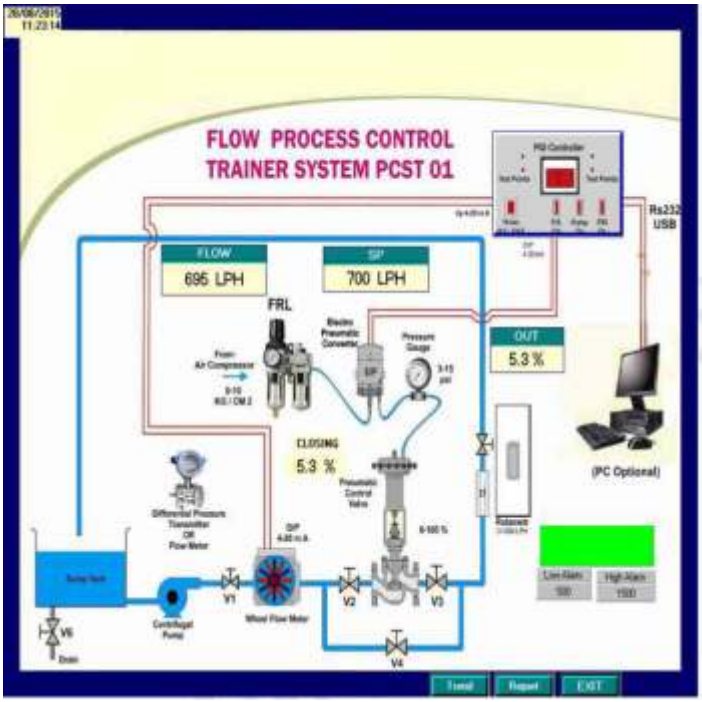
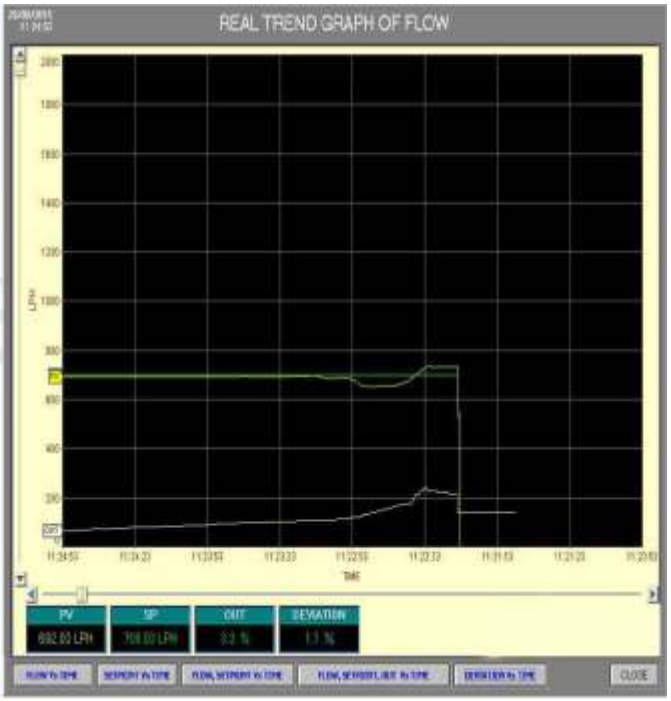
Electrical Control Panel	MS Powder coated panel with switches, indicator, test Points, controller on front facia, UK 2.5 Terminal Connectors mounted on DIN rail channel, Use of 1sq mm multistrand wire with proper insulated Lugs, Feruling & neat wire dressing & clamping, Wires & power cables are seated through 1''×1''PVC cable tray. Dimension: 1ft (L)×1ft (W)×1ft (H)
52202 SCADA Application Software (Optional)	SCADA Appn S/W, PID control setting (P, PI, PD and PID mode), Auto/Manual Tuning of PID, Data Storage, Off Line analysis, online Data Acquisition, Simulation and Printing of data in Graphical and Tabular form. Interactive Graphical User Interface (GUI) included.
52201 Computer (Optional)	PC with color monitor: 18.5'', Intel Core i3, 500 GB HDD, 4GB RAM, Keyboard & Mouse, DVD Writer, With supporting OS and Communication port.
52203 Air Compressor (Optional)	Tank capacity: 25 Liters, Discharge: 2 CFM, Motor: 1 H.P. 230 V AC Operated, Max. Pressure: 8-10 Kg/cm^2Working pressure: 5-6 kg/cm^2

52202 SCADA APPLICATION SOFTWARE (OPTIONAL):





RANGE OF EXPERIMENTS

- Study of single loop Feedback Proportional (P), Integral (I) and Derivative control (D) actions.
- Study of operation and calibration of transmitters, I/P converter and Control Valve.
- Study of OPEN LOOP/CLOSE LOOP TUNNING & AUTO TUNNING of controller.
- Study of STEP response & Transient response of controller (process curve).
- Study of tuning and operation of PID controller.
- Study of stability of single loop Level Control System.
- Configure microcontroller based controller to give manual output, changing controller modes (Manual/Auto), Checking ON-OFF, Proportional, Integral, Derivative, PI and PID control actions, Change local Set point, configure and run a set point ramp, configure measured values to either percentage or Engineering units.
- Study of Communication Protocols and interfacing of System with DCS / SCADA etc.
- Study of SCADA Application Software/ Computerized Control of Level Control System.

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FEATURES

- Illustrates the concept of feedback Level control loop.
- User Friendly, Self Explanatory Systems.
- Leak proof Safety Measures, sturdy piping.
- Enhanced Electrical Safety Considerations.
- Training Manual & Mimic Charts for Operation Ease.
- System Frame with Caster Wheel Arr
- M.S. powder coated cubical plant with standard Instrument Mountings.
- Inbuilt Safety Measures to avoid improper usage.
- Computer Interface (Optional), SCADA Application software connectivity for analysis of Level Control System Trainer.

System Dimension: 3.5 Ft. (L) X 2 Ft. (W) X

- Weight: Approx. 70 Kg

Services Required

- Water supply and drainage arrangement.
- Electric supply 1φ 230 V AC, 50 Hz.
- Clean, dry and dust free Compressed air supply 2.1 kg/cm2.
- Laptop/desktop computer (for SCADA)

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