



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

KEY WORDS:

- Feedback Air Pressure Control.
- ON-OFF & PID control.
- OPEN/CLOSE loop response.
- MANUAL/AUTO tuning of controller
- SCADA Based AIR PRESSURE Control.
- P, P+I, P+I+D Controller Action.
- TRANSIENT response analysis study.
- USB/RS232/RS 485/ Ethernet/ Modbus Communication.
- Ability to hook up with DCS (Distributed Control System Trainer)

TECHNICAL SPECIFICATION

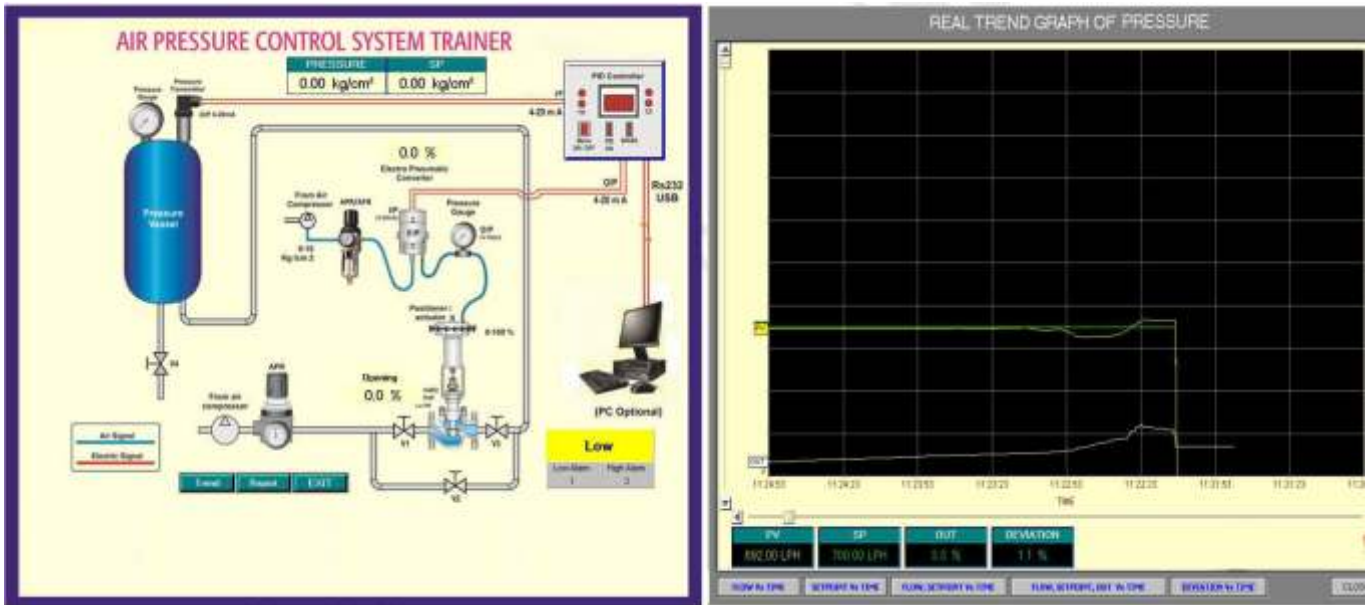
Pressure Vessel-	Shape: Cylindrical, Material: CRCC 5mm thick / SS 304 1.5 mm thick Diameter: 150 mm, Length: 300 mm, Capacity: 15 Kg/cm ² , with ½" BSP connection For Pressure Gauge (0 -4kg), Pressure Transmitter, Inlet & Drain facility
Piping	½", GI, Class B, with ½" ball valves: 6 No.
Air Pressure Transmitter-	Input: 0-2.5 Kg/cm ² / 0-4 Kg/cm ² / 0-10 Kg/cm ² , Output: 4-20 mA, Type: 2-wire Piezo resistive type, Supply: 24 V DC, 50 mA, Mounting: Top ½" BSP connection
Pneumatic Control valve-	Size: ½", Type: Two way Globe type (Air to Close), Cv: 0.2 US GPM, with diaphragm actuator, equal% characteristics, Flange connection : PCD : 60 mm, ID: 16 mm, OD: 90 mm.
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	1] Air Filter, Regulator & Lubricator (optional) for input air supply to the I to P Converter, 0-10 Kg/cm ² with pressure gauge, Connection ¼ NPT / BSP. 2] Air pressure regulator for input air supply to the System, 0-10 Kg/cm ² with pressure gauge, Connection ¼" NPT / BSP.
Electronic PID Controller	With Serial PC Interface (ASCII Protocol) USB / Ethernet / RS485 / RS 232, Cut Out Size: 92mm×92mm×144mm, Input: 4-20 mA, Output: 4-20 mA, Display: Dual for PV & SP, Bar graph display for Output & deviation, Hi-Low Alarm annunciation.
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 multi strand 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: 2 H.P. 230 V AC Operated, Working pressure: 5-6 kg/cm ²

Note: Specifications are subject to change.

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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 AIR PRESSURE 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 Air Pressure Control System.

Features

- Illustrates the concept of feedback AIR PRESSURE 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 Arrangement for ease in movement.
- 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 Air Pressure
- Control System Trainer
- Caster wheel mounted movable frame
- System Dimension: 4 Ft. (L) X 1.5 Ft. (W) X 4Ft. (H)
- Weight: Approx. 50Kg

Services Required

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

Note: Specifications are subject to change.

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