



Sciencetech 2476 Pressure Measuring Workbench is a complete setup to control process through two points (On/Off) and three point (PID) controller. Pressure which we can control through an Ethernet based Data Acquisition System which has 24 bit ADC and digital input/output. Sciencetech 2476 also gives the exposure to Industrial components like PID Controller, Pressure Transmitter, Control Valves, Pressure Gauge, Solenoid Valve. Users can learn how to calibrate, install, operate and tune the instruments for controlling the process. All electrical components are connected to the control panel to allow students to measure signals and connect the devices in wide variety of control configuration including open loop (manual control) and close loop (PID control, On/Off control).

Sciencetech 2476 comes with a versatile Software through which we can control it from any Computer in the local area network. The Software has features like logging of the process data, live and stored graphs that can be printed when needed, alarms that can be set for different points, animated real time view of complete process, with easy IP configuration.

Features

- Industry-standard instruments and controls
- Academic and vocational study for process control engineers and plant technicians
- Experiments configurable through patch board
- Self-contained, bench-mounting arrangement
- Supplied with DAQ Software for supervisory control of the process with data acquisition
- Types of Controller : DAQ, PID and HMI
- Study of Pressure Transmitter, Pressure Gauge, Control Valve, Solenoid Valve, PID Controller, DAQ8 Channel 24 bit ADC
- Start, Stop, Compressor, Solenoid Valve buttons and Indicator for Visual Indicator, Audio Indicator, Compressor, Solenoid Valve
- Pressure Vessel
- Real time DAQ Inter face with ADC and Digital input/output
- Inter face with Ethernet based DAQ
- Castor Wheel (with locking mechanism) is provided at legs of workstation so that it can be easily moved
- MCB is provided with AC supply for safety purpose
- Tower Light for Process Indication
- Enhanced electrical safety consideration

Scope of Learning

Study and use of :

- Pressure transmitter
- Control valve
- On/Off controller using software
- Proportional controller using software
- Proportional-integral controller using software
- Proportional-integral-derivative controller using software
- Sciencetech 2476 alarm function
- On/Off controller using Industrial PID controller
- Proportional controller using Industrial PID controller
- Proportional-Integral controller using Industrial PID controller
- Proportional-Integral-Derivative controller using Industrial PID controller

Technical Specifications

Technical specifications of instruments to be installed on laboratory workbench are given as below.

The bench should have following detailed specifications:

- Should provide easy access and working environment in sitting posture
- Instrument cluster with on/off switch for instruments
- Instrument cluster with protected enclosure with cooling fan

Frame:

- Rust preventive coat and Powder coating
- One storage drawers with the following facilities
- Place in drawers for meters, patch cords, components, bread board and other accessories for storage, easy identification and access inside the drawers
- Modular in design for Instruments removal and maintenance
- Provided with all the necessary cables & accessories to perform Pressure Measurement experiments
- It should have power indicator & On/Off Control
- User friendly and self explanatory system
- Electrical Switches and indicators
- Enhanced electrical safety consideration
- System frame with wheel arrangement for ease in movement
- Training manual for operation ease

Pressure Transmitter

- Range : 0-10 bar
- Accuracy : $\pm 0.5\%$
- Output : 4 to 20mA, 2 wire system

Control Valve

- Quantity : 1 no.
- Input : 4 to 20mA
- Size : 25mm
- Supply Pressure : 40 to 50 Psi
- Type : Linear

Pressure Gauge

- Range : 0-110 psi
- Dial : 100 mm
- Quantity : 2
- Range : 0-150 psi
- Dial : 63 mm
- Quantity : 1

Industrial PID Controller

- Supply Voltage : 230V AC
- Input : 4 to 20mA
- Sampling Time : 200ms
- Output : Relay contact output, SSR drive voltage output, current output, voltage output.
- Control Algorithms : PID, P, PI, PD, On/Off
- PID Range : P: 0 to 200%,
I: 0 to 3600 Sec,
D: 0 to 900 Sec

Current Display

- Display : 4 Digit, 7 segment digital displays
- Keys : 3 for digital setting
- Input Type : Current
- Resolution : 1 or 0.1 degree
- Supply Voltage : 230V AC

4 to 20mA Source

Potentiometer : 1 no.
Output : 4 to 20mA

Air Compressor

Voltage : 220V/50Hz
Power : 1.5 HP
Pressure : 110 Psi (maximum)
Tank Capacity : 40 Liter

Human Machine Interface (HMI)

Quantity : 1 no.
Supply : +24V DC
CPU : 32-bit 400MHz RISC
Storage : 128M flash + 64M DDRAM
Display size : 7 inch
Resolution : 800x480 TFT LCD 65, 536 colors
Interface : RS232/RS485/RS422
Touch Screen : High precision four-wire resistive

Ammeter

Range : 0-5A
Input Type : AC current
Quantity : 1

Data Acquisition System (DAQ)

Analog Input : 8
Analog Output : 2
Digital Input : 8
Digital Output : 8
ADC Resolution : 24 Bit
Two Unity Gain Amplifiers: 0 to 5V
USB 2.0 : Yes
Ethernet : Yes
Data Logging (PC based) : Yes
Power Supply : USB based
UART Interface : Yes
Caster Wheel
Quantity : 2 (with lock), 2 (without lock)
Size : 4"

MCB

Quantity : 1
Supply : 230V AC
Current : 16Ampere

Relay Card (Contain 4 Relay)

Quantity : 1 no.

Contactors

Quantity : 1
Supply : 230V AC

Push buttons

Quantity : 4 nos. (start, stop, compressor, solenoid valve)

Operating Voltage : +5V

Toggle Switch

Quantity : 4 nos.

Indicators

Quantity : 4 nos. (visual, compressor, solenoid valve, audio indicator)

Operating Voltage : +230V AC

SCADA (Optional)

Included Accessories

4mm patch cord 30" (red) : 5 nos.
4mm patch cord 30" (black): 5 nos.
Ethernet cable : 1 no.
Product tutorial (CD) : 1 no.

Software window

