Scientech

Hydraulic and Electro Hydraulic Workbench
Scientech 2471ADT



The Scientech 2471ADT Hydraulic and Electro-Hydraulic Training Workbench is a comprehensive educational platform designed to provide practical training in hydraulic power systems, electro-hydraulic control circuits, and industrial automation applications. The system integrates hydraulic actuators, directional control valves, pressure and flow control devices, hydraulic power units, sensors, electrical control components, and PLC interfacing capabilities on a modular workstation, enabling learners to gain both theoretical knowledge and hands-on experience in hydraulic automation technology.

Designed for engineering colleges, technical institutions, vocational training centers, research laboratories, and industrial training departments, the Scientech 2471ADT serves as an effective learning tool for developing practical skills in hydraulic and electro-hydraulic systems. Its modular construction, industrial-grade components, and flexible configuration options provide a safe and realistic environment for understanding modern fluid power technologies and industrial automation practices.

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Features

- Integrated Hydraulic and Electro-Hydraulic Training Platform supports both Hydraulic and electro-Hydraulic circuit development on a single workbench.
- Industrial PLC with 12 digital inputs , 8 digital output with USB communication facility and programming software provided.
- Heavy-duty modular aluminum profile structure ensures durability, stability, and long service life.
- Industrial-Grade hydraulic components equipped with cylinders, directional control valves, flow control valves, hydraulic power pack and accessories as used in real industrial applications.
- Function and identification of Hydraulic components and their symbols.
- PLC interface capability supports integration with PLC's for automation, sequence control, and industrial process simulation.
- Modular component mounting system for components can be easily mounted, repositioned, and removed for various experiments and training exercises.
- 4 mm patch cord electrical connections provides safe, quick, and flexible electrical wiring for conducting electro-pneumatic experiments.
- Hydraulic quick release coupling fittings enables tool-free, secure, and leak-proof hose pipe connections for rapid circuit assembly and modification.
- Integrated low-voltage DC power supply for sensors, relays, solenoid valves, and control circuits.
- Equipped with lockable caster wheels for easy movement and positioning within laboratories.
- MCB for ON/OFF control and over load protection

Scope of Learning

Study and use of :

- NO (normally open) and NC (normally close) instruction bit.
- Types of logic gate.
- Set and reset bit.
- Memory bit.
- Timer instruction.
- Counter instruction.
- Compare instruction.
- Arithmetic (addition) instruction.
- Move instruction.
- Control of Double Acting Cylinder_1 (DAC1) using Solenoid Valve_1 (SV1) and PLC.
- Control of Single Acting Cylinder (SAC) using Solenoid Valve_2 (SV2) and PLC.
- Control of Hydraulic motor using solenoid valve_3 and PLC.
- Counting of double acting cylinder_1 piston forward movement using limit switch and PLC.

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Technical Specification

PLC

- Digital Inputs : 12
- Digital Outputs : 8
- Program size (Words) : 2048
- Boolean execution speed : 0.33ms/sequential instruction in average
- Interfacing : USB
- Programming software : Winproladder
- Power Supply : 110V – 260V AC, 50/60Hz

Pneumatic and Electro Pneumatic Components

- Double acting cylinder : 1 no.
- Single acting cylinder : 1 no.
- Hydraulic motor : 1 no.
- Hydraulic hand lever valve : 1 no.
- 4/3 solenoid valve : 2 nos.
- 4/2 solenoid valve : 1 no.
- Flow control valve : 1 no.
- Proximity sensor : 1 no.
- Limit switch : 1 no.



Electrical Components

- Pushbuttons : 4 nos.
- Toggle switches: 5 nos.
- Inductive proximity sensor : 1no.
- Roller lever limit switch: 1 no.
- Indicator : 9 nos.
- Audio indicator : 1 no.
- 24VDC Power Supply : 1 no.
  Current rating : 6A
- Hydraulic power pack : 1 no.
- MCB:1 no.
  Current rating : 6A
- Caster wheel : 4 nos. (2 with lock & 2 without lock)

PC

- Computer Desktop PC, core i-5 12 or 13 gen., supported processor, ram 8gb, SSD- 480/512, cabinet with SMPS, win11 pro , 19.5" monitor with wireless keyboard and mouse.

Subject to Change

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