Scientech

Industrial Internet of Things (IIoT) Workbench

Scientech 2485

New

Step into a new era of industrial innovation with our cutting-edge IIoT Workbench-revolutionary platform meticulously designed to redefine your interaction with industrial components. Our Scientech 2485 IIoT Workbench is more than just a collection of tools-it's a gateway to a world where creativity and functionality converge seamlessly. From Programmable Logic Controllers (PLCs) to Human-Machine Interfaces (HMIs), Supervisory Control and Data Acquisition (SCADA), IIoT devices/Gateway , Variable Frequency Drives (VFDs) to sensors and actuators, the IIoT Workbench offers a diverse array of tools at your fingertips.

Our Scientech 2485 Industrial Internet of Things (IIoT) Workbench is a playground where you can immerse yourself in real-world scenarios, gaining practical skills and insights that go beyond theoretical knowledge. By working directly with these components, you'll not only enhance your understanding of industrial automation concepts but also develop the expertise needed to excel in today's dynamic industrial landscape.

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Features

- PLC with 16 digital inputs, 12 digital outputs, 4 analog inputs, 4 analog outputs ,communication facilities including USB, RS-485, and Ethernet for flexible connectivity , Equipped with industry-standard PLC programming software for seamless configuration and control.
- 7” HMI touch screen for user-friendly process visualization and interaction and includes programming cable and HMI programming software for easy screen design and parameter configuration.
- Industrial components included PLC, HMI, VFD , IIOT gateway, SCADA, Sensors actuators and Ethernet switch.
- Experience the power of cloud-based data SCADA for logging and alarm monitoring.
- Create stunning animations and graphical web SCADA interfaces to visualize and optimize your processes in real time.
- Seamlessly integrate web SCADA with PLC data for enhanced control and automation.
- Expand your capabilities with app monitoring, unlocking new possibilities for integration and automation.
- Develop PLC, HMI, and SCADA programs with ease using our student-friendly PC-based programming software.
- Our IIoT Workbench is ergonomically mounted for ease of operation, ensuring comfort and efficiency during learning sessions.
- Easily connect multiple workstations to the PLCHMI with our provisioned Ethernet switch, facilitating collaborative learning and experimentation.
- Learn electrical panel maintenance and troubleshooting skills with our well-designed wiring and test point layout.
- Castor wheel (with locking mechanism) is provided at legs of test bench so that it can be easily moved.
- Heavy-duty workstation with a M.S. powder-coated frame, ensuring durability and reliability in industrial training environments.
- MCB is provided with AC supply for safety purpose.
- Enhanced electrical safety consideration.

Scope of Learning

- Understand the layered architecture of IIoT systems perception layer, network layer, and application layer.
- Learn about the role of sensors, actuators, edge devices, gateways, and cloud platforms.
- Interface temperature sensor with PLC and develop ladder program to read sensor data and transmit it to a cloud platform or a local server.
- Implement basic security measures like access control and authentication mechanisms.
- Using mobile app that enables remote monitoring and control of industrial processes with features for real-time data visualization, alerts, and remote actuation, enhancing efficiency and productivity in industrial environments.

PLC

- How to design, configure, and connect PLCs with inputs and outputs to control an industrial process.
- Creating PLC ladder diagrams that incorporates all the basic functions of PLC programming.
- Run, debug and print ladder diagrams from within the PLC editor, making programming easier.
- Create logic control applications by selecting PLC programming functions (inputs, outputs, timers, counters and flags) and linking these instructions to variable addresses.

PLC Hardware

- PLC configuration.
- Source and sink concept.
- PLC history.
- Input/output configuration.
- Installation.
- Switches and sensor interfacing.
- Actuator interfacing.

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PLC operation

- Sequence of operation.
- Program scans cycle.
- Addressing example.
- Upload/download/monitoring.

Installation

- Wiring and connection.
- Communication setup.
- Programming devices connection.

Program operation

Study and use of :

- Normally open and Normally Close Contact instruction
- Set and Reset Bit instruction
- Types of Logic Gates
- Memory Bit instruction
- Timer instruction
- Counter instruction
- MOV instruction
- Mathematic instruction
- Compare instruction
- Scaling instruction

HMI

Study and use of

- HMI Working
- Creating applications/screens in HMI.
- Downloading and uploading programs.

Design screen for:

- Switch and indicator in HMI for communication with PLC.
- Timer in HMI for communication with PLC.
- Counter in HMI for communication with PLC.
- Trend in HMI for communication with PLC.
- Alarm in HMI for communication with PLC.

VFD

- Variable Frequency Drive (VFD) Working principle of VFD.
- Hardware connection of VFD.
- Parameter setting of VFD.
- Acceleration & deceleration time setting in VFD.
- Jog mode operation in VFD.
- Direction control operation of motor
- Speed control of motor by using and PLC.

Cloud SCADA

- Create SCADA application
- Real-time data exchange between PLCs and SCADA, ensuring live monitoring and control.
- Interface PLC with SCADA and check the status of read/command transfer operation
- Read parameters of PLC in SCADA
- Create database of tags
- Create & edit graphic display with animation
- Create & access real-time trends
- Create alarms
- Live data monitoring and control worldwide
- Data logger and download of data, alarms and history directly to excel.
- Access available from mobile devices through the PLC Gateway app (Android / IOS)
- Learn how to develop and use cloud-based SCADA systems for global access. With cloud SCADA, you can access live data and control operations from anywhere via mobile devices (using apps like PLC Gateway).

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Technical Specifications

PLC : 1 no.

- Digital inputs : 16 nos.
- Digital outputs : 12 nos.
- Analog inputs : 4 nos.
- Analog output : 4 nos.
- Communication : Ethernet ,RS485
- Programming software : ISPSoft
- Programming Cable : Ethernet

Human Machine Interface (HMI)

- HMI Supply : +24V DC
- CPU : 32-bits 400MHz RISC
- Interface : Ethernet

Storage

- Flash : 128MB
- DDRAM : 64MB
- Display size : 7 inch
- Resolution : 800 × 480 TFT LCD 65,536 colors
- Touch screen : High precision four-wire resistive

Switch Gear module

- Pushbutton NO : 3 nos.
- Pushbutton NC : 2 nos.
- Selector switch NO : 1 no.
- Selector switch NC : 1 no.
- SPDT toggle switch : 1 no.

Capacitive Proximity Sensor : 1 no.

- Type : NO
- Output : Digital (PNP)
- Sensing range 0-8mm

Inductive Proximity Sensor : 1 no.

- Type : NO
- Output : Digital (PNP)
- Sensing range : 0-8mm

Photo Electric Sensor : 1 no.

- Type : NO
- Output : Digital (PNP)
- Sensing range : 0-10mm
- Inductive Proximity Sensor : 1 no.
- Type : NC
- Output : Digital (PNP)
- Sensing range : 0-8mm

Indicator module

- Green indicator : 2 nos.
- Red indicator : 2 nos.
- Yellow indicator : 2 nos.
- Operating voltage : 24VDC

DPDT Relay : 2 nos.

- Coil voltage : 24VDC
- Type : Electro magnetic
- Current rating : 10A

Audio indicator : 1 no.

- Operating voltage : 24VDC

Contactor : 1 No.

- Operating Voltage : 24VDC

Variable Frequency Drive : 1 No.

- Make : Delta
- Input : 230VAC
- Output Frequency : 0 to 599Hz

Motor

- Type : Induction
- Voltage Rating : 230VAC
- Speed : 1440rpm
- Power : 0.5HP

PC: 1 No.

List of Accessories

- Ethernet cable: 3 nos.
- PLC programming software: 1 no.
- HMI Programming software: 1 no.
- 2mm patch cord red : 4 nos.
- 2mm patch cord black: 4 nos.

Subject to Change

Designed and Manufactured in India by -

Scientech Technologies Pvt. Ltd.

94, Electronic Complex, Pardesipura, Indore-452010, India.

✆ +91-731-4211100, ✉ info@scientech.bz, www.ScientechWorld.com, Helpline : +91 9893270301