

Delta HMI (Human Machine Interface) Design and Programming

Course Description

This program focuses on Delta HMI (DOP Series) hardware, DOPSoft software, screen design, PLC communication, and real-world application development. Participants gain hands-on experience designing operator interfaces for industrial automation systems using Delta HMI.

Audience Profile

- Engineering students (Electrical, Electronics, Instrumentation, Automation)
- Industrial automation engineers and maintenance technicians
- PLC programmers seeking HMI integration knowledge
- Fresh graduates entering the automation domain

Prerequisite

- Basic understanding of control systems and PLCs
- Familiarity with industrial systems is helpful but not mandatory

Course Objective

- Introduce Delta HMI hardware and product range
- Provide practical exposure to DOPSoft environment and HMI-PLC communication
- Develop skills in HMI screen design, controls, and security
- Prepare participants to implement user-friendly interfaces in industrial automation contexts

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Module 1: Fundamentals of HMI & Industrial Automation

- Role of HMI in industrial automation
- Delta HMI product range (DOP-B, DOP-100 series)
- Basic hardware overview (display, ports, touch panel)
- Communication between PLC and HMI

Module 2: Delta HMI Hardware & Connection

- HMI specifications and selection criteria
- Power supply and wiring
- Communication ports (RS232/RS485/Ethernet)
- Interfacing HMI with Delta PLC
- Hands-on: Connecting Delta HMI to PLC

Module 3: DOPSoft Software Basics

- Introduction to DOPSoft software environment
- Creating and managing projects
- Screen resolution, templates, and workspace setup
- HMI-PLC communication configuration
- Uploading and downloading projects to HMI

Module 4: Screen Design & Basic Controls

- Designing operator screens
- Buttons (start/stop), lamps (status indication)
- Numeric displays and input objects
- Bar graphs and meters for analog values
- Bit switches, word switches, and toggles
- Hands-on screen creation exercises

Module 5: Intermediate HMI Functions

- Alarm creation and management
- Trend curves and data logging
- Recipe management
- Password protection and security features

Module 6: Troubleshooting & Best Practices

- Common HMI communication errors

- Online monitoring and debugging in DOPSoft
- Project backup and restore
- Design guidelines for user-friendly HMI screens

Practical Projects (Throughout Training)

- Motor control interface with HMI buttons and status display
- Tank level monitoring with bar graphs and alarms
- Conveyor system control screen
- Temperature monitoring and trend graph display
- Recipe control project for multiple products