

TROUBLESHOOTING INDUSTRIAL CONTROLS

Troubleshooting Industrial Controls (TIC) is the fifth in our series of simulation-based training modules. In this module, your professionals will diagnose and repair **more than 50 faults** in a simulated fluid processing system. This system is used to mix, heat, and pump two types of fluids, and contains a motor, contactors, overloads, fuses, a pump, solenoid valves, heaters, a circuit breaker, temperature switches, float switches, pushbuttons, and control transformers.

This module builds on the techniques learned in the first three modules and allows users to apply these skills to larger electro-mechanical systems, widely found in industrial and manufacturing settings such as the food and beverage and petrochemical industries.

REALISTIC TOOLS AND REACTIONS

1. The lifelike simulations include all the tools normally used to troubleshoot a typical industrial control system.
2. Standard features include realistic actions such as taking meter readings, removing wires, and inspecting and replacing components.
3. Typical faults encountered in the simulations:
 - Opens in components or wiring
 - Shorts in components or wiring
 - Defects in component mechanisms
 - Overloaded and defective three-phase motors and protective equipment
 - Opens and shorts in three-phase circuits
 - Defective mechanical components



LEARNING OBJECTIVES

Your staff will:

- Master effective testing methods and techniques for safely troubleshooting malfunctions in a typical industrial control system using Simutech Multimedia's Systematic Troubleshooting Approach
- Safely develop and refine problem-solving skills with many hours of hands-on learning
- Practice on more than 50 faults of various levels of difficulty

DESIGNED FOR

- Electrical and maintenance staff responsible for maintaining and troubleshooting complex, electro-mechanical controls in fluid processing systems
- Learning skills that are directly transferable to the workplace
- Worldwide use: simulations on resources provided for NEMA and IEC electrical standards

ADDED BENEFITS

- Challenges all expertise levels with multiple degrees of fault difficulty in each simulation
- Real-time feedback on safe practices and testing methods to improve performance
- Step-by-step guides help users apply new problem-solving techniques to solve faults
- Printable resources including circuit diagrams, schematics, worksheets, and system operation manual
- Extra and Genius Faults available for skill maintenance

THE SIMULATIONS

The simulation features **a fluid processing system with an electro-mechanical control circuit and a three-phase power supply:**

- Pump, agitator, and heaters
- Motors and transformers
- Contactors and overloads
- Temperature, float and selector switches
- Relays, timers and pushbuttons
- Solenoid valves, fuses, indicators
- Wiring, terminal blocks and wire connectors

Modeled on real equipment, the behavior of the system and the components are accurate under normal and faulty conditions.

FEATURES

More than **50 system malfunctions** included in the complex industrial control system simulation providing safe, hands-on practice.

Practice faults (core)	6
Guided faults (core)	3
Skill Test faults (core)	18
Extra faults	16
Genius faults	8
Practice	Limitless

EVALUATING SKILLS

Managers can:

- Track skills development with comprehensive evaluations for each fault and overall individual performance
- Measure and record users' achievements in safety, accuracy, and efficiency
- Use all-inclusive reports to monitor professionals' progress, achievements, and areas that need improvement
- Print certificates when a professional finishes all skill test faults

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