

# Level/Flow Process Control Troubleshooting Learning System

T5552FA



T5552FA Learning System



Interactive Multimedia, FaultPro, and Student Reference Guides

## Learning Topics:

- Process Control Concepts
- Instrument Tags
- Piping and Instrumentation Diagrams
- Loop Controllers
- Final Control Elements
- Level Measurement
- Liquid Level Control
- Methods of Automatic Control
- Basic Flow Measurement and Control
- Control Loop Performance
- Process Inputs Troubleshooting
- Process Outputs Troubleshooting
- Systems Troubleshooting

Amatrol's Level/Flow Process Control Troubleshooting Learning System (T5552FA) covers the calibration, adjustment, installation, operation, and troubleshooting of two of the most common types of process control systems, flow and liquid level. The T5552FA includes the industry's best hands-on process control troubleshooting, covering process input, process output, and system-level troubleshooting. This system also offers learners the ability to practice both manual and automatic control on a process control system, and study both open-loop and closed-loop systems. Process control systems provide precise control of liquids and gases in a wide variety of industrial applications including power generation, petrochemicals, and manufacturing.

The T5552FA features industrial quality components mounted and plumbed in a closed loop circuit to control the water flow rate between two tanks or the liquid level in one tank. This system also includes FaultPro, the industry's only electronic troubleshooting system, to practice hands-on troubleshooting skills like PID troubleshooting a pressure level sensor using in-circuit tests, troubleshooting an I/P converter using in-circuit tests, and troubleshoot an on/off level control mode. The T5552FA's curriculum describes basic process control components to ensure that learners understand the function and operation of each valve, transducer, and controller and the role that they play in a process control loop.



## Technical Data

Complete technical specifications available upon request.

**Workstation: 66-in. L x 46-in. H x 28-in. W**

Welded steel tube construction

**Centrifugal Pump**

**Electric Motor, single phase**

**Proportional Control Valve, pneumatically-operated**

**I/P Converter, 4-20ma input**

**Pneumatic Regulator and Pressure Gauge**

**Reservoir Tank, 10 gal.**

**Process Tank, 5 gal.**

2-Compartment Baffle

Drain Valve, ball type (2)

2-Way Valves (2)

Liquid Level Transducer

Float Switches, SPST (2)

**Piping Network**

Pump Flow Control Valve

Pump Valve

Control Mode Valve (2)

Flow Meter, rotameter type

Pressure Gauges, 0-30 psig (4)

Flow Transducer, paddlewheel type

**Process Meter**

4-20ma Input

Alarm Relay Outputs, SPDT (2)

Scalable Output Displays

Digital Display, 3.5 digit

Programmable

**PLC I/O Interface**

Discrete Inputs (8) & Outputs (2)

Analog Inputs (8) & Outputs (8)

**Relay Control Unit**

Control Relays, DPDT

Selector Switch Inputs, 2-position (4)

Output Indicators, (4)

Pump Contractor Relay, 24 VDC

Solenoid Valve Output Interface

**Faultboard**

**FaultPro Software**

**Multimedia Curriculum (MB270, M33306)**

**Instructor's Guide (CB270, C33306)**

**Installation Guide (DB270, D33306)**

**Student Reference Guide (HB270, H33306)**

**Additional Requirements:**

Water

Computer: see requirements <http://www.amatrol.com/support/computer-requirements>

**Utilities:**

120 VAC

## Extensive Component and System-Level Process Control Troubleshooting

The T5552FA features an unmatched offering of process control troubleshooting knowledge and skills. This system covers troubleshooting at both the component and system level for better understanding. Major topics include component level troubleshooting for pressure level sensors, paddlewheel flow sensor, flow transmitter, I/P converter, diaphragm-actuator valve, and controller. This system also covers system-level troubleshooting via topics like on/off level control, closed-loop system troubleshooting, and closed-loop flow control troubleshooting. Troubleshooting on the T5552FA is provided via FaultPro, Amatrol's world-class electronic fault insertion system, which allows instructors to instantly set and tailor faults to test a learner's weaknesses and turn them into strengths.



## Industrial-Grade Process Control Components for Hands-On Learning

The T5552FA includes industrial-grade components like a centrifugal pump, electric motor, regulators, gauges, as well as three types of controllers on its control panel: relay control for automatic on/off liquid level control, the PID controller for variable electronic control of either liquid level or flow, and PLC control for both on/off and PID control of the system. This learning system

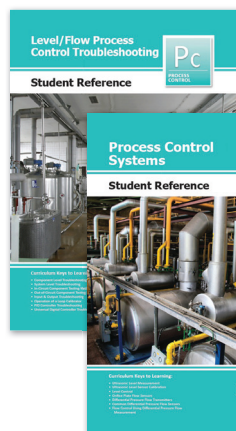
is extensively instrumented, enabling learners to observe the system's operation and more clearly understand the effects of external disturbances and their own adjustments.



Control Panel

## In-Depth Curriculum with Extensive System Control Function and Troubleshooting Knowledge

This curriculum covers process control safety, instrument tags, piping and instrumentation diagrams, and level measurement, then moves into system control functions such as liquid level control, automatic control methods, basic flow measurement and control, and control loop performance. The curriculum concludes with extensive component and system-level troubleshooting training. This curriculum is presented in a stunning interactive multimedia format. This multimedia includes beautiful 3D graphics and videos, voiceovers of all text, and interactive quizzes and activities.



## Student Reference Guide

A sample copy of the Level/Flow Process Control Troubleshooting Student Reference Guide is also included with the system for your evaluation. Sourced from the system's multimedia curriculum, the Student Reference Guide takes the entire series' technical content contained in the learning objectives and combines them into one perfectly-bound book. Student Reference Guides supplement this course by providing a condensed, inexpensive reference tool that learners will find invaluable once they finish their training making it the perfect course takeaway.

