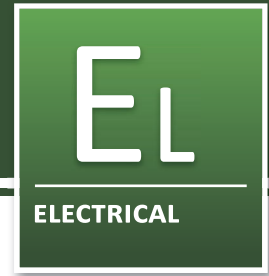
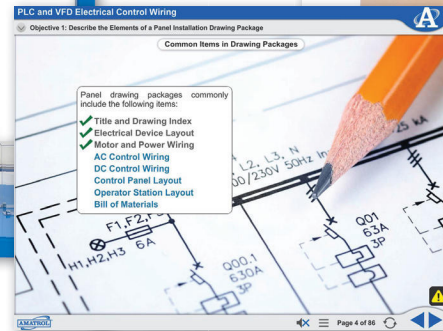


VFD/PLC Wiring Learning System

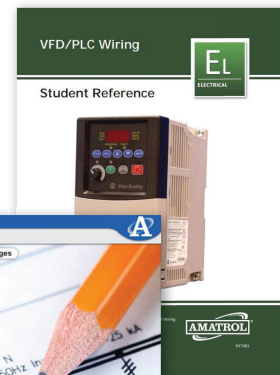
85-MT6BA



VFD/PLC Wiring Learning System



Interactive Multimedia Curriculum and Student Reference Guide



Learning Topics:

- PLC Installation
- PLC Power Wiring
- Test PLC Operation
- PLC Motor Control Circuits
- PLC Control Wiring
- Forward/Reverse Motor Control System
- VFD Motor Control
- VFD Installation
- VFD Testing and Operation
- VFD Wiring
- VFD/PLC Motor Control Circuit
- VFD/PLC Discrete I/O
- VFD/PLC Modbus Communication

Amatrol's Electrical Wiring Learning System (850-MT6B) allows learners to study and practice electrical wiring skills like: control wiring installation in an electrical panel; wiring installation for limit switches, solenoids, and pressure switches; and understanding the importance of correct wire size, material, and insulation. The VFD / PLC Wiring training system is an invaluable industrial wiring technician training system for careers like electricians and industrial maintenance technicians that wire control panels and operator panels on manufacturing machines. This learning system can also be used to form a strong foundation toward attaining numerous industrial maintenance technician certifications.

VFD Wiring / PLC Wiring includes real-world components such as a 3-phase motor, pushbuttons, switches, valves, and a 24VDC power supply all mounted on a mobile workstation. Learners will use these components to study areas like electrical control system wiring, pneumatic control circuit wiring, conductors, disconnects, and overcurrent protection. This combination of industrial components and comprehensive curriculum will reinforce electrical wiring concepts and skills and build up a learner's confidence and competence.



Technical Data

Complete technical specifications available upon request.

Siemens S7-1200 PLC
Motor, 3-Phase, 1/3 Hp, 9 Lead
Motor Disconnect Switch
Terminal Blocks (8)
Bridge, Terminal Block, 2 position (10)
Bridge, Terminal Block, 5 position (2)
Bridge, Terminal Block, 10 position (2)
Terminal Block, grounding
Terminal Block, dual-level (5)
Terminal Block, cage clamp (5)
VFD, Allen-Bradley
Student Curriculum – Interactive PC-Based
Multimedia (M17461)
Instructor's Guide (C17461)
Installation Guide (D17461)
Student Reference Guide (H17461)

Additional Requirements:

PLC Programming Software
Computer. For requirements, see <http://www.amatrol.com/support/computer-requirements>

Utilities Required:

Electricity provided by 850-MT6B

Hands-On Electrical Wiring Skills on a Mobile Workstation

VFD Wiring / PLC Wiring includes heavy-duty industrial components such as a 3-phase, 1/3 HP motor; disconnect switch; side rotary limit switch; manual shut off valve; emergency stop button; push-to-test buttons; and much more all on a mobile workstation! These industrial components can be used to practice an array of hands-on skills like installing a terminal block in an electrical panel; splice motor leads using ring lug connectors; bundle wires in an electrical panel; manually operate an electro-pneumatic valve; and select circuit protection for an application. These real-world industrial wiring components will allow learners to gain confidence and competence in working with equipment they'll actually see on the job.

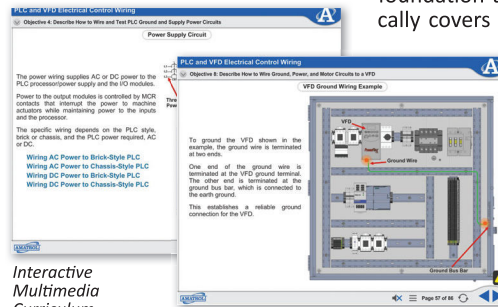


VFD & PLC Mounted in Panel

Comprehensive Wiring Skills Build a Foundation Toward Industrial Certification

VFD Wiring / PLC Wiring's curriculum provides a comprehensive lesson on the function, operation, installation, and construction of electrical wiring and wiring components, as well as forms a strong foundation toward pursuing certifications. This course specifically covers topics such as learning the function of electrical

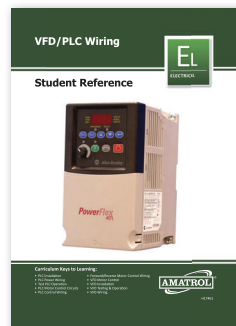
prints, how to select a terminal block for an application, methods used to identify wires that are run between panels, methods to connect wires to terminal screws, the common line and component symbols used in pneumatic schematic diagrams, and common types of disconnects. This learning system's curriculum is presented in a stunning interactive multimedia format that features 3D animations, graphics, text with audio voice-overs, and much more!



Interactive
Multimedia
Curriculum

Expanded Electrical Wiring Skill-Building Options!

In addition to all of the electrical wiring skills and exercises provided by VFD Wiring / PLC Wiring expansion system, Amatrol offers several other options for the Electrical Wiring training system (850-MT6B) to expand the real-work skill-building opportunities. These options include Industrial Soldering (85-MT6BB), and HMI Wiring (85-MT6BC). The Industrial Soldering training system will include soldering equipment and components commonly used in electrical connections within a control enclosure. The HMI Wiring training system teaches wiring an HMI, analog wiring, and Ethernet cabling into a control panel mounted PLC.



Student Reference Guide

A sample copy of the Electrical Wiring Student Reference Guide is also included with the system for your evaluation. Sourced from the system's 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.



VFD/PLC WIRING LEARNING SYSTEM

This system covers installing a VFD and PLC in an electrical panel to create power and control circuits that learners will test and operate. This system adds to the Electrical Wiring Learning System (85-MT6B) and requires PLC programming software, a computer, and electricity. This system includes:

Siemens S7-1200 PLC

Motor, 3-Phase, 1/3 HP, 9 Lead

Motor Disconnect Switch

Terminal Blocks (8)

Bridge, Terminal Block, 2 Position (10)

Bridge, Terminal Block, 5 Position (2)

Bridge, Terminal Block, 10 Position (2)

Terminal Block, grounding

Terminal Block, dual-level (5)

Terminal Block, cage clamp (5)

VFD, Allen-Bradley

Student Curriculum

This curriculum will include one (1) module of interactive multimedia that will feature at least ten (10) hands-on skills. This curriculum will cover: installing a PLC in an electrical panel; wiring a PLC in an electrical panel; VFD motor control; and wiring a VFD and PLC in an electrical panel.

The student curriculum supplied with each module shall be designed in a skill-based format that focuses on teaching industry-relevant tasks. This curriculum shall be designed for use in both self-directed student learning and group instruction formats. The objectives shall be accomplished by organizing the learning material into a series of learning activity packets, which are further subdivided into three or more segments per packet. All learning materials needed shall be contained in the packets including text material, laboratory equipment activities, and any multimedia directions. No external text sources shall be required. The specific cognitive skills taught by each text passage shall be identified next to the passage. Each lab activity shall be identified by the industrial task taught. All activities shall be highly detailed with step-by-step instructions to facilitate a self-directed learning environment. A combination of step-by-step enabling activities and creative, problem-solving activities shall be provided. A self-review of five to ten questions shall be provided after each segment.

Teacher's Assessment Guide

The teacher's assessment guide shall contain student data sheets, data sheet solutions, self-review answers, quizzes, quiz answers, student skill record sheets, and assessment directions. The student data sheets shall be designed with data collection blanks to permit students to record data without consuming the learning activity packets. A quiz shall be provided for each packet. A question shall be provided in each quiz for each cognitive objective taught and correlated as such. All tasks listed in the packet shall be listed on personalized student record sheets. Detailed instructions and any supplemental material shall be provided for the teacher to perform live assessment of each student.

Amatrol Model No. 85-MT6BA or equal

85-MT6BA
PLC/VFD WIRING LEARNING SYSTEM

MODULE 1 PLC AND VFD ELECTRICAL CONTROL WIRING

SEGMENT 1 PLC AND VFD INSTALLATION

- OBJECTIVE 1 Describe the elements of a panel installation drawing package
- OBJECTIVE 2 Describe how to mount a programmable controller in an enclosure
- SKILL 1 Install a PLC into an electrical enclosure
- OBJECTIVE 3 Describe how to mount a VFD in an electrical enclosure
- SKILL 2 Install a VFD into an electrical enclosure

SEGMENT 2 WIRING A PLC IN AN ELECTRICAL ENCLOSURE

- OBJECTIVE 4 Describe how to wire and test PLC ground and supply power circuits
- OBJECTIVE 5 Describe how to wire and test a MCR circuit
- SKILL 3 Wire and test PLC power and MCR circuits in an electrical enclosure
- OBJECTIVE 6 Describe how to wire PLC discrete inputs and outputs
- OBJECTIVE 7 Describe how to test and start up a PLC installation
- SKILL 4 Wire and test PLC control and I/O wiring circuits in an electrical enclosure
- SKILL 5 Wire and operate a forward/reverse motor control system that uses PLC discrete i/o

SEGMENT 3 VFD MOTOR CONTROL

- OBJECTIVE 8 Describe how to wire ground, power, and motor circuits to a VFD
- SKILL 6 Wire supply power and ground to a VFD in an electrical enclosure
- OBJECTIVE 9 Describe how to interface a VFD with PLC discrete I/O
- OBJECTIVE 10 Describe how to test and start up a VFD installation
- SKILL 7 Wire and operate a motor control system using VFD/PLC discrete I/O
- SKILL 8: Wire and operate an interlocked motor to a VFD motor control system

SEGMENT 4 WIRING A PLC AND VFD IN AN ELECTRICAL ENCLOSURE

- OBJECTIVE 11 Describe how to interface and operate a VFD using MODBUS
- SKILL 9 Wire and operate a VFD/PLC motor control system that uses MODBUS communications