# Portable AC Variable Frequency Drives Learning System

**990-DRV1**

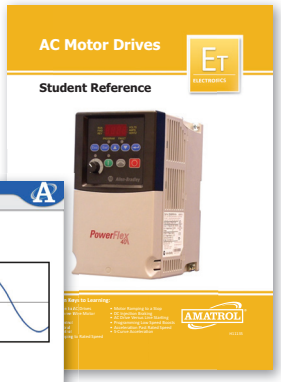
ELECTRONICS



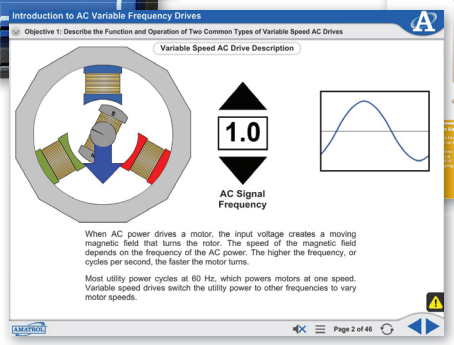

*Portable AC Motor Drive Learning System*



*Portable Workstation*




*Student Reference Guide*




*Interactive Multimedia Curriculum*

## Learning Topics:

- Introduction to AC Drives
- Two- and Three-Wire Motor Control
- Jogging Control
- Speed Control
- Torque Control
- Motor Ramping to Rated Speed
- Motor Ramping to a Stop
- DC Injection Braking
- AC Drive Versus Line Starting
- Programming Low Speed Boosts
- Acceleration Past Rated Speed
- S-Curve Acceleration

Amatrol's Portable AC Variable Frequecny Drives training (990-DRV1) can be utilized for industries like packaging, textiles, paper, or many others where rapid motor acceleration or deceleration are required. This system features industry-standard components like a Rockwell PowerFlex 4 variable frequency AC drive (VFD) and a 3-phase AC motor used to teach how to operate an AC drive. This motor drives training system includes onboard analog and discrete input devices so that learners can operate the drive in many different program applications. Optional electronic fault insertion can also be added to this system to teach valuable hands-on AC motor drive troubleshooting skills.

The 990-DRV1 is a portable solution for limited training spaces that does not sacrifice comprehensive knowledge and skill building. This portable system fits on a conference room table or shop floor desk due to its small footprint and features a durable case for safe storage when available training space must be used to teach other topics.

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## Technical Data

Complete technical specifications available upon request.

**AC Drive**
**AC 3-Phase Motor**
**Potentiometer**
**Voltmeter (LED type)**
**Pushbuttons (3)**
**Forward/Reverse Selector Switch**
**PLC/Manual Selector Switch**
**Indicator Lamps (2)**
**Lockout/Tagout**
**On/Off Switch with Circuit Breaker**
**Emergency Stop Circuit**
**Red Mushroom E-Stop Pushbutton**
**Drive Input/Output Connection Breadboard**
**Programmable Controller Discrete IO Interface**
**Programmable Controller Analog IO Interface**
**Motor Guard**
**Motor Operation Wheel**
**Digital Tachometer Readout Display**
**Tachometer**
**Lead Set**
**Power Cord with Plug-In Connector**
**Amatrol FaultPro Software (11164)**
**Student Curriculum – Interactive PC-Based Multimedia (M11135)**
**Instructor's Guide (C11135)**
**Installation Guide (D11135)**
**Student Reference Guide (H11135)**
**Additional Requirements:**
Personal Computer
Computer: See requirements: http://www.amatrol.com/support/computer-requirements
**Utilities Required:**
Electricity (120VAC/60Hz/1 Phase)

## Standard Industry Components

Variable frequency AC drives control the supply of voltage and frequency to match a motor's speed to an application, which saves energy and reduces cost. Amatrol's hands-on motor drives training system provides the necessary skills to build AC motor drives programming and operation competencies. This system uses a Rockwell Powerflex 4 variable frequency AC drive and a 3-phase motor in addition to a digital tachometer to monitor output and a digital voltmeter to monitor analog input to the motor. The system also features a lockout/tagout system to teach vital safety skills when working with AC motors. The 990-DRV1 also features an interface to further enhance the breadth and depth of training by providing easy connection to external control devices like programmable logic controllers.

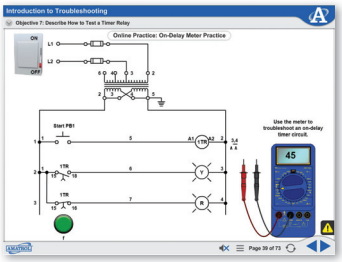


## 3-Phase Motor Training with 1-Phase Power Requirement

Many training areas are not equipped with 3-phase power or do not have sufficient 3-phase outlets to set up a training class. The motor drive training system runs on single phase power to add to the convenience and range of locations where it can be used. Requiring only single phase power, this portable system can be located almost anywhere!

## Highly Engaging Interactive Multimedia

Beginning at the foundation of AC Electronic Drives knowledge, the motor drive training course builds from the basics to advance to AC motor operation, installation, and performance analysis. As learners complete new topics, they'll build skills like jogging control and torque control, ramping commands, DC injection braking, and acceleration methods. This motor drive training course is presented in an interactive multimedia format that features text, video, 3D animations, and interactive quizzes and reviews.



*Interactive Multimedia: S-Curve Programming*



## The 990-DRV1: Mobile, Durable, Compact Learning System

Set within a durable ABS plastic case, the 990-DRV1 features wheels and a handle to create a mobile training platform that can be used to deliver training where needed and that's easy to store and transport. The cover is quickly removed to enable the case to sit firmly upright on a table surface for any learner to use.

## Enhance the Training by Adding Optional Electronic Fault Insertion

The 990-DRV1 can be modified to include electronic faults by adding the Portable AC Variable Frequency Drives Troubleshooting training system (99-FTSDRV1). This modification allows users to troubleshoot over 20 faults focused on drive and motor inputs and drive relays. The 990-DRV1F (AC Motor Drive Troubleshooting Learning System) includeseverything on the 990-DRV1, but also includes fault insertion capability.

As the industry's premier program utilizing electronic faults, FaultPro allows instructors to instantly set and tailor faults to test a learner's weaknesses, turn them into strengths, and prepare learners to solve real-world technical problems once they're in the field.




*FaultPro*




## Complimentary Student Reference Guide

A sample copy of the Portable AC Drives Learning System's Student Reference Guide is also included with the system for your evaluation. 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.

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