



# ELECTRICAL POWER KNOWLEDGE CENTER E-LEARNING PORTAL



Knowledge Center  
Electrical Power

# MERSEN KNOWLEDGE CENTER ELECTRICAL POWER TRAINING MODULES LISTINGS

Mersen Knowledge Center – Electrical Power is Mersen Electrical Power’s new official free online self-registering E-learning portal for electrical distributors, engineers, and end users.

Visitors to the portal will find a broad library of 30 different training modules in video presentation format to choose from. The modules introduce students to basics of electricity, fuses and surge protection products and provide an overview of how these products are applied in various applications.

The training modules are typically ten minutes or less video presentations and contain a short quiz at the end of each module. We have categorized the courses from basic (level 1) to detailed product information (level 2) to application (level 3). We recommend students to start exploring the course content from level 1 and advance to level 2 and level 3.

Each course has a final quiz for students to complete and an optional Course Completion Certificate will be available for download. Register yourself today at:

<https://ep-us.mersen.com/services-documents/knowledge-center/training-modules>



## LEVEL 1: FUSE ELECTRICITY BASICS

This course segment discusses basics of electricity, arc flash theory and mitigation and how short circuits are calculated. These courses are recommended as a pre-requisite for Product Basics & Applications Basics courses.

### **ARC FLASH BASICS (English: M100E)**

Understand what an arc flash is and the codes and standards associated with it. Duration: 5 minutes.

### **ARC FLASH MITIGATION (English: M101E)**

Review what an arc flash is and learn mitigation techniques. Duration: 5 minutes.

### **BASICS OF ELECTRICITY OVERVIEW (English: M102E; French: M102F)**

Gain an understanding of basic definitions for electricity, what over currents are and what causes them. Duration: 6 minutes.

### **BASIC ELECTRICITY: AC/DC CURRENT & DELTA/WYE WIRE CONFIGURATIONS (English: M103E; French: M103F)**

Understand direct current and alternating current, distinguish between peak and RMS currents, and explain the differences between a single-phase and three-phase circuit. Duration: 7 minutes.

### **ESTIMATING SHORT CIRCUIT CURRENT: THE QUICK ESTIMATE METHOD (English: M104E)**

Learn the importance of determining available short circuit current and see a quick method for estimating. Duration: 7 minutes.

### **MEDIUM VOLTAGE FUSES - DEFINITIONS & INTRODUCTION TO IEEE/ANSI STANDARDS (English: M105E)**

Learn the most common terms and standards used in the Medium Voltage fuse industry. Duration: 13 minutes.

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## LEVEL 2: PRODUCT BASICS

Product Basics courses provide a more in-depth overview of fuse and fuse gear technology, such as their construction and performance information. Product Basics courses are recommended as a pre-requisite for Applications Basics courses.

### **CABLE LIMITERS (English: M200E)**

Learn the cable limiters' primary function, applications and how to select the proper cable limiter. Duration: 14 minutes.

### **FUSE BASICS - CONSTRUCTION (English: M201E; French: M201F)**

Understand the main parts of a fuse, and explain their function and construction. Duration: 6 minutes.

### **FUSE BASICS - PERFORMANCE (English: M202E; French: M202F)**

Learn how to read fuse performance curves, how a fuse operates under short circuit and overload conditions, and learn the difference between time-delay and non-time-delay fuses. Duration: 5 minutes.

### **FUSE CONTROL - THE FIVE KEY BENEFITS (English: M203E)**

Discover the five key benefits of the Fuse Control program and how it helps protect the MRO's critical assets such as people, production and profitability. Duration: 11 minutes.

### **FUSIBLE SHUNT TRIP SWITCH - ADVANTAGES & CODES (English: M204E)**

Understand the code requirements associated with elevators and elevator machine rooms and discover the advantages to using a fusible shunt trip switch. Duration: 4 minutes.

### **FUSIBLE SHUNT TRIP SWITCH - CONSTRUCTION & SELECTION (English: M205E)**

Learn about the internal components, their primary functions, and how to select the right part number for your application. Duration: 7 minutes.

### **MEDIUM VOLTAGE FUSE SUPPORTS, DISCONNECTS & ACCESSORIES (English: M206E)**

Explore Mersen's medium voltage fuses and accessories product line. Since medium voltage fuses are designed for specific applications, we have categorized our product line for the type of application used. Duration: 10 minutes.

### **MEDIUM VOLTAGE FUSES & ACCESSORIES (English: M207E)**

Learn the various types of holders for medium voltage fuses, the differences between indoor or outdoor usage, the distinctions between supports and disconnects, how to properly select a holder for your fuse. Duration: 16 minutes.

### **HIGH SPEED FUSES - INTRODUCTION TO HIGH-SPEED FUSES' FUNDAMENTALS AND THEIR UNIQUE ABILITIES (English: M208E; French: M208F)**

In this module you will learn about an overview of a high speed fuse construction, performance, applicable Global Electrical Standards and typical applications. Duration: 18 minutes.

### **SURGE PROTECTION - TECHNICAL BACKGROUND AND BASICS (English: M400E)**

Covers AC power basics, power quality scope, voltage transients & disturbances, power quality in the workplace, and MOV technology & surge protective devices. Duration: 12 minutes.

### **SURGE PROTECTION - HOW TO SPECIFY AND APPLY SURGE PROTECTIVE DEVICES AS PER NEC (English: M401E)**

In this module you will learn about different types of Surge Protective Devices defined by UL1449, the electrical and performance ratings of Surge Protective Devices and how to specify and apply Surge Protective Devices under NEC code requirements in US markets. Duration: 12 minutes.

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## LEVEL 3: APPLICATION BASICS

Application Basics courses offer the students an overview of how fuses are applied to protect common electrical applications such as motors, transformers and capacitors. In this segment, students also get introduced to selective coordination theory.

### **APPLICATION BASICS - SELECTIVITY FOR FUSES AND CIRCUIT BREAKERS (English: M300E)**

Review what selectivity is, understand selectivity with a fuse in the main and a breaker in the branch, and selectivity with a breaker in the main and a fuse in the branch. Duration: 4 minutes

### **APPLICATION BASICS - SELECTIVITY FOR FUSES AND FUSES (English: M301E; French: M301F)**

Understand what selectivity is, when it's required and how to make sure fuses are selective. Duration: 3 minutes

### **APPLICATION BASICS: CAPACITOR PROTECTION (English: M302E)**

Discover the National Electrical Code requirements, fuse placement and recommended fuse types and sizing for capacitor protection. Duration: 3 Minutes

### **APPLICATION BASICS: LOW VOLTAGE MOTORS (English: M303E; French: M303F)**

A review of what a motor is, motor starting characteristics, factors affecting fuse sizing, and the difference between Type 1 and Type 2 protection. Duration: 6 Minutes

### **APPLICATION BASICS: LOW VOLTAGE TRANSFORMERS (English: M304E; French M304F)**

A review of what a transformer is, transformer magnetizing currents, how to calculate a transformer's full load current, and factors affecting proper fuse sizing. Duration: 4 Minutes

### **MEDIUM VOLTAGE FUSES - MOTOR PROTECTION APPLICATION GUIDELINES (English: M305E)**

Learn the characteristics of medium voltage motors, the characteristics and purposes of R-Rated fuses, the most commonly used motor starter methods, and a few guidelines to selecting the right Medium Voltage fuses to protect medium voltage motors. Duration: 10 minutes

### **MEDIUM VOLTAGE FUSES - TRANSFORMER APPLICATION GUIDELINES (English: M306E)**

Understand the characteristics of a medium voltage transformer, the purpose of fusing the primary of medium voltage transformers, factors effecting the fuse selection, and guidelines selecting the right Medium Voltage fuses for the primary of medium voltage transformer. Duration: 10 minutes

### **APPLICATION BASICS: PHOTOVOLTAIC FUSES IN SOLAR APPLICATIONS (English: M307E; French: M307F)**

Learn about the main components of a typical photovoltaic installation, understand the different segmentations of the solar market, and identify Mersen fuses and fuses holders designed for use in PV installations. Duration: 12 minutes.

### **HIGH SPEED FUSES-TYPICAL MARKETS & APPLICATIONS (English: M308E; French: M308F)**

In this module you will learn about typical equipment in which high speed fuses are used, markets where those equipment are used in and examples of applications requiring high-speed fuses. Duration: 15 minutes.

