

PRODUCT PROFILE

CENTERLINE® 2100 MCC with ArcShield™

Arc-containing designs for Low Voltage Motor Control Centers (MCC) have become a very important topic. Interest in these designs has been driven by requirements in the National Electrical Code NFPA 70-2002, Standard for Electrical Safety in the Workplace NFPA 70E-2004 and the IEEE. These standards encourage development of products that can help provide you a higher level of safety.

UNDERSTANDING ARC FLASH HAZARDS

An arc-flash hazard is defined in NFPA 70E-2004, Standard for Electrical Safety in the Workplace, as: "A dangerous condition associated with the release of energy caused by an electric arc." Electrical arcs can be caused by accidental touching, closing into faulted lines or loose connections.

Independent studies show as much as 80 percent of electrical injury cases are burns resulting from exposure to electrical arcs.

As an end-user or employer, you are responsible for performing arc-flash hazard analyses. Your analysis defines potential arc energy levels adjacent to particular electrical equipment and yields the required level of personal protective equipment (PPE) needed when working near energized electrical equipment.

PROTECTING YOUR PERSONNEL

ArcShield is an enhanced version of the industry-leading CENTERLINE 2100 MCC and the first to offer arc-containing features. Because a low voltage standard does not currently exist, ArcShield has been tested on the load side of the branch circuit protection device to specific service limits and in accordance with ANSI C37.20.7, IEEE Guide for Testing Medium-Voltage Metal-Enclosed Switchgear for Internal Arcing Faults. However, using ArcShield does not eliminate your responsibility to comply with OSHA, NFPA or your company's safety requirements.

ArcShield helps provide you with Type 2 accessibility and improves protection for your personnel against internal arcing faults. Type 2 accessibility allows your personnel to be shielded at the front, rear and sides of the enclosure in the unlikely event of an arcing fault. Special door latches help deliver an extra level of protection against accidental faults that may occur when the doors are closed and latched.

ARC-CONTAINING LOW VOLTAGE MOTOR CONTROL CENTERS HELP YOU REDUCE ARC FLASH HAZARDS



CONTAINING ARC-FAULTS

ArcShield helps contain arc-faults by utilizing a lower horizontal bus rating and incoming protection size for your MCC. Smaller bus and main disconnect sizes help diminish the amount of let-through energy in your application. To help protect your workers during an arc-fault, arc-containment latches allow pressure relief and keep the doors from detaching from the structure. Manual or automatic shutters, as well as insulated bus covers help reduce fault propagation within your MCC. By containing the arc, your potential exposure to hazardous conditions can be reduced.

REDUCING ELECTRICAL SHOCK HAZARDS

Although arc-flash hazards are a concern, electrical shock hazards should also be considered. Over 30,000 nonfatal electrical shock accidents occur each year. The National Safety Council estimates 1,000 fatalities each year are due to electrocution. More than half of these fatalities occur while improperly servicing energized systems with less than 600 V.

CENTERLINE 2100 MCCs are designed to enhance safe operation by helping isolate you from potentially hazardous voltages by providing a solid grounding system and helping minimize potential electrical shock hazards. Additional options such as IntelliCENTER software, DeviceNet ports, blown fuse indicators, exterior windows on unit doors, infrared inspection ports and finger-safe component barriers can help you create a safer working environment by reducing your potential chances of making contact with energized components.

ArcShield OPTION PACKAGE

DESIGN CRITERIA:

- Arc-containment latches on all doors
- Non-vented enclosure
- Maximum 1200 A bus
- Copper vertical ground bus on plug-in structures
- Heavy duty ground stab on plug-in units
- Manual or automatic shutters on plug-in structures
- Insulating covers on horizontal bus closing plates

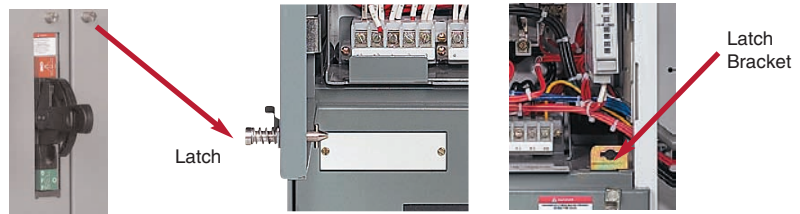
Note: All design criteria and service restrictions must be followed prior to ordering and utilizing ArcShield.

SERVICE REQUIREMENTS:

- Maximum Voltage: 600 V
- Maximum Available Fault Current: 65,000 A RMS Symmetrical
- Branch circuit protection with
 - Fuses
 - 1200 A Class L current-limiting fuses (Max)
 - Ferraz-Shawmut A4BQ or equivalent current-limiting performance
 - 800 A or less any Class J or L current limiting
 - Circuit Breakers
 - 1200 A circuit breaker (max) 65 KAIC Rated
 - HND Frame or higher current limiting performance
 - No intentional time delay
 - 800 A or less must meet interrupting rating of the breaker with the available fault current, with no intentional time delay

ARC-CONTAINMENT LATCH

- Allows pressure relief
- Keeps doors from detaching during an arcing fault



OPTIONS TO ENHANCE PERSONNEL PROTECTION

For a complete list, please contact local Rockwell Automation sales office or Allen-Bradley distributor

FEATURE	BENEFIT	STANDARD	OPTIONAL
Remote monitoring <ul style="list-style-type: none"> • IntelliCENTER Software • DeviceNet Port in the door 	Helps allow you to remotely monitor, configure or troubleshoot your MCC using DeviceNet, well outside of the Flash Protection Boundaries and without potential exposure to hazardous voltages.		√
Grounding <ul style="list-style-type: none"> • Dedicated plug-in unit ground • Dedicated grounding system 	Helps assure the shortest path to ground is through equipment.	√	
Isolation <ul style="list-style-type: none"> • Finger safe barriers • Isolation guards for starters, fuses, transformers and disconnects 	Barriers can help minimize the chance of a potential arc-flash being initiated by accidental contact with energized parts. Risk of foreign materials causing a short is potentially reduced.		√
Indicating features <ul style="list-style-type: none"> • Blown fuse indicators • Windows on unit doors • Infrared inspection ports 	Helps allow hands-off inspection of unit status.		√
Locking and interlocking <ul style="list-style-type: none"> • Unit interlocking system 	Helps facilitate your lockout/tagout procedures.	√	
Unit Designs <ul style="list-style-type: none"> • Drive-Bypass 	Helps allow qualified personnel to service a drive at a potentially Hazard Risk level of 0 while keeping the process running.		√

For more information about Arc-Flash, reference these publications by visiting <http://literature.rockwellautomation.com>

- Arc-Flash Protection Marking Guide for CENTERLINE Motor Control Center, 2100-AT002X-EN-P
- Arc-Flash Resistant Low Voltage Motor Control Center Designs, 2100-AP003X-EN-P

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