

# CENTERLINE 2100 Low Voltage Motor Control Centers 65 kA Arc Resistant Device Limited and Time Duration Testing

Bulletin 2100

## Test Certification

This test certification is a true and correct summary of data obtained from tests conducted at the Rockwell Automation® Testing and Certification Laboratory in Milwaukee, WI, USA. The test results demonstrate that the CENTERLINE® 2100 ArcShield™ (65 kA arc resistant) Low Voltage Motor Control Center (MCC) meets the requirements of the arc resistant test procedure per IEEE C37.20.7-2007 Type 2 when applied within its ratings.

## Rockwell Automation Test Laboratory Accreditation

The Rockwell Automation Test Laboratory holds the following accreditation and participates in these certification agency programs.

Program	Description
Underwriter Laboratories (UL) Client Test Data	<p>The UL Data Acceptance Program (DAP) provides a means for UL to accept externally-generated test data in support of UL Mark certification. While UL maintains extensive test facilities, Rockwell Automation can use its own test facility at Milwaukee, WI, for product testing through the UL Client Test Data Program, which is part of the UL DAP.</p> <p>To comply with UL program guidelines, a customer must have the following:</p> <ul style="list-style-type: none"> <li>• A laboratory quality program</li> <li>• Physical resources and equipment</li> <li>• Qualified personnel to conduct the needed procedures for the specified tests</li> </ul> <p>Initial and ongoing validation of testing methods must be performed. After the program is established, UL reassesses the test laboratory annually. All submitted data is thoroughly reviewed and audited by UL before it can be used for certification.</p>
National Voluntary Laboratory Accreditation	<p>Accreditation to ISO/IEC 17025:2005</p> <p>The National Voluntary Laboratory Accreditation Program (NVLAP) provides Rockwell Automation accreditation through its Laboratory Accreditation Program (LAP). The LAP includes specific test or calibration standards, and related methods and protocols assembled to satisfy the unique needs for accreditation in a field of testing or calibration. NVLAP accredits public and private laboratories based on evaluation of their technical qualifications and competence to carry out specific calibrations or tests.</p>
CSA Group Supervised Manufacturer's Testing for Certification	<p>Rockwell Automation conducts all tests and prepares the certification reports. The CSA Group validates our data, conducts spot-checks if necessary, and issues the certificate of compliance for qualified products. The laboratory is audited annually by CSA.</p>



## Device Limited Testing

The following equipment was tested using the following tests.

### Tested Equipment

The tested equipment was a CENTERLINE 2100 ArcShield (65 kA arc resistant) Low Voltage MCC Type 2 (front, sides, and rear) per IEEE C37.20.7-2007, and tested to the following ratings.

Factor	Rating
Voltage, max	600V AC rms
Frequency	60 Hz
Fault withstand	65 kA
Horizontal bus, max	1200 A
Vertical bus, max	600 A
Arcing time	DEVICE LIMITED
Tested compartments	<ul style="list-style-type: none"> <li>• Horizontal bus</li> <li>• Vertical bus</li> <li>• Horizontal wireway</li> <li>• Vertical wireway</li> </ul>
Tested components	<ul style="list-style-type: none"> <li>• Mains and feeders</li> <li>• Motor starters</li> <li>• Lighting contactors</li> <li>• Metering units</li> <li>• Drive units</li> <li>• Soft start units</li> <li>• Lighting and power panels</li> <li>• Transformer units</li> <li>• Programmable controller units</li> <li>• Miscellaneous units</li> </ul>
Protective devices	UL Listed fuses: <ul style="list-style-type: none"> <li>• Class L - any fuse <math>\leq</math> 1200 A</li> <li>• Class R - any fuse <math>\leq</math> 600 A</li> <li>• Class J - any fuse <math>\leq</math> 600 A</li> </ul> UL Listed molded-case circuit breakers: <ul style="list-style-type: none"> <li>• Allen-Bradley® Bulletin 140G, Frame G, H, J, K, M, or N</li> <li>• Allen-Bradley Bulletin 140U, Frame I, JD, or K</li> <li>• Cutler-Hammer Series C, Frame F, J, K, L, M, or N</li> <li>• Square D POWERPACT, Frame M (480V AC only)</li> </ul>

### Performed Tests

The following apply to the tests and the results.

- All tests were performed to procedures specified in IEEE C37.20.7-2007 Type 2.
- All tests used the equipment ratings specified in the above section.
- All tests were conducted at the Rockwell Automation Testing and Certification Laboratory in Milwaukee, WI, USA.

Test No.	Criteria	Result
1	That properly secured doors and covers do not open.	Passed
2	No fragmentation of the enclosure occurs within the time specified for the test.	Passed
3	That arcing does not cause holes in freely accessible front, sides, and rear of enclosure.	Passed
4	That the indicators do not ignite.	Passed
5	That all grounding connections remain effective.	Passed

## Time Duration Testing

The following equipment was tested using the following tests.

### Tested Equipment

The tested equipment was a CENTERLINE 2100 ArcShield (65 kA arc resistant) Low Voltage MCC Type 2 (front, sides, and rear) per IEEE C37.20.7-2007, and tested to the following ratings.

Factor	Rating
Voltage, max	480V AC rms
Frequency	60 Hz
Fault withstand	65 kA
Horizontal bus, max	3000 A
Vertical bus, max	600 A
Arcing time	100 ms
Tested compartments	<ul style="list-style-type: none"> <li>• Horizontal bus</li> <li>• Vertical bus</li> <li>• Horizontal wireway</li> <li>• Vertical wireway</li> </ul>
Tested components	<ul style="list-style-type: none"> <li>• Mains and feeders</li> <li>• Motor starters</li> <li>• Lighting contactors</li> <li>• Metering units</li> <li>• Drive units</li> <li>• Soft start units</li> <li>• Lighting and power panels</li> <li>• Transformer units</li> <li>• Programmable controller units</li> <li>• Miscellaneous units</li> </ul>
Protective devices	Any device with fault clearing time of $\leq$ 100 ms

### Performed Tests

The following apply to the tests and the results.

- All tests were performed to procedures specified in IEEE C37.20.7-2007 Type 2.
- All tests used the equipment ratings specified in the above section.
- All tests were conducted at the Rockwell Automation Testing and Certification Laboratory in Milwaukee, WI, USA.

Test No.	Criteria	Result
1	That properly secured doors and covers do not open.	Passed
2	No fragmentation of the enclosure occurs within the time specified for the test.	Passed
3	That arcing does not cause holes in freely accessible front, sides, and rear of enclosure.	Passed
4	That the indicators do not ignite.	Passed
5	That all grounding connections remain effective.	Passed

# ArcShield Rating Labels

CENTERLINE 2100 Low Voltage MCC units with the arc resistant rating have a rating label on the vertical wireway door. This label serves as the arc resistant nameplate and provides information on the arc resistant rating. There are also labels on other parts that must be in place before operating an arc resistant MCC.

Device Limited Rating Label

**ARC RESISTANT EQUIPMENT**  
PER IEEE C37.20.7-2007

ACCESSIBILITY: TYPE 2  
 ARC SHORT CIRCUIT CURRENT: ≤ 65 kA  
 ARC DURATION: DEVICE LIMITED  
 PROTECTIVE DEVICE:

**UL LISTED FUSES**  
 CLASS L – ANY FUSE ≤ 1200 A  
 CLASS R – ANY FUSE ≤ 600 A  
 CLASS J – ANY FUSE ≤ 600 A

**UL LISTED MOLDED CASE CIRCUIT BREAKERS**  
 ALLEN-BRADLEY – BULLETIN 140G, FRAME G, H, J, K, M, or N  
 ALLEN-BRADLEY – BULLETIN 140J, FRAME J, D, or K  
 CUTLER-HAMMER – SERIES C, FRAME F, J, K, L, M, or N  
 SQUARE D – POWERPACT FRAME M (480V AC ONLY)

**NOTE: 140G-N MUST HAVE INSTANTANEOUS TRIP FUNCTION ON AND SET NO HIGHER THAN 12,000A.**

**WARNING**

**ARC FLASH HAZARD**

THE ARC CONTAINMENT CAPABILITY OF THE MOTOR CONTROL CENTER IS DEPENDENT UPON THE MAIN PROTECTIVE DEVICE. PROTECT ONLY WITH UL LISTED PROTECTIVE DEVICE SPECIFIED ABOVE.

DOORS AND COVERS MUST BE PROPERLY CLOSED, LATCHED, AND SECURED. EQUIPMENT MUST BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. REFER TO PUBLICATION 2100-IN012.

EQUIPMENT WILL NOT FUNCTION AS ARC RESISTANT IF ABOVE GUIDELINES ARE NOT FOLLOWED.

FAILURE TO FOLLOW THESE GUIDELINES COULD RESULT IN SEVERE INJURY OR DEATH.

PN-240698

100 ms Arc Duration Label

**ARC RESISTANT EQUIPMENT**  
PER IEEE C37.20.7-2007

ACCESSIBILITY: TYPE 2  
 ARC SHORT CIRCUIT CURRENT: ≤ 65 kA  
 ARC DURATION: ≤ 100 ms  
 OPERATIONAL VOLTAGE: ≤ 480 V

**WARNING**

**ARC FLASH HAZARD**

DOORS AND COVERS MUST BE PROPERLY CLOSED, LATCHED, AND SECURED.

EQUIPMENT MUST BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. REFER TO PUBLICATION 2100-IN012.

ONLY INSTALL ArcShield 100ms / 480V / 65KA RATED UNITS IN THIS STRUCTURE.

EQUIPMENT WILL NOT FUNCTION AS ARC RESISTANT IF ABOVE GUIDELINES ARE NOT FOLLOWED.

FAILURE TO FOLLOW THESE GUIDELINES COULD RESULT IN SEVERE INJURY OR DEATH.

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## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
CENTERLINE 2100 Low Voltage Motor Control Centers Installation Instruction, publication <a href="#">2100-IN012</a>	Provides general guidelines for installing, starting, and troubleshooting a CENTERLINE 2100 Low Voltage MCC.
CENTERLINE 2100 Low Voltage Motor Control Centers Safety Brochure, publication <a href="#">2100-BR006</a>	Provides information on the safety features of a CENTERLINE 2100 Low Voltage MCC.
Industrial Automation Wiring and Grounding Guidelines, publication <a href="#">1770-4.1</a>	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, <a href="http://www.ab.com">http://www.ab.com</a>	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

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