CENTERLINE® 2100 Motor Control Centers

Industry-Leading Motor Control Centers
Delivering Information and Safety for Increased Productivity
CENTERLINE 2100 Motor Control Centers

Allen-Bradley® CENTERLINE® 2100 Motor Control Centers (MCCs) combine rugged durability and premium quality, integrating control and power in one centralized package with a wide variety of motor control options. Our industry-leading motor control center meets UL and NEMA standards – delivering the maximum in safety, performance and reliability.

With more intelligent components and options than ever before, you get a tailored solution to meet your power, control and information needs, all built on a common platform. The CENTERLINE 2100 MCC is ideal for customers who want to leverage the same architecture, components, programming language and networking, regardless of where you do business all while knowing you will receive unparalleled support from a single-source provider.

CENTERLINE 2100 MCCs offer:

Standard Packaged Motor Control – Integrate all of your motor, power and control needs into one centralized package. The CENTERLINE 2100 MCC is designed and built with standard features to provide years of high quality dependable performance.

Communications – When integrated with IntelliCENTER® technology, the CENTERLINE 2100 MCC uses intelligent motor controls in combination with built-in Ethernet/IP™ networking and pre-configured software to enhance performance by providing real-time access to information. This allows you to control, monitor and maintain operations from any location.

Safety – In combination with the standard safety options built into every CENTERLINE 2100 MCC, additional safety features including ArcShield™ and SecureConnect™ options allow you to design a CENTERLINE 2100 MCC that best satisfies the needs of your individual safety program.

Complete Solution – Further benefits can be gained by combining IntelliCENTER technology, ArcShield and SecureConnect to create a complete CENTERLINE 2100 MCC solution. This allows you to address the key challenges of communication, safety and integration all on a single platform.

Unique to Allen-Bradley CENTERLINE MCCs, is the flexibility to design a MCC to meet your individual networking or safety needs. You are not required to have an IntelliCENTER MCC to get an ArcShield MCC, or an ArcShield MCC to get SecureConnect. Each one of our safety and communication options is available individually or in any combination.

To remain competitive in today’s demanding business landscape, you need all parts of your operation working together at maximum efficiency – including your motor controls. CENTERLINE motor control centers provide a centralized solution to both your motor control needs and network to deliver real-time information, keeping your operation running.
IntelliCENTER technology provides remote access to data and troubleshooting, minimizing the need to approach the MCC.

SecureConnect units allow users to disconnect power from a MCC plug-in unit without opening the enclosure door.

CENTERLINE MCCs are designed to efficiently package your motor control needs.
IntelliCENTER Technology

IntelliCENTER technology features built-in EtherNet/IP, intelligent motor controls and advanced monitoring software all preconfigured and tested at the factory. With its integrated network infrastructure, intelligent motor control devices, and preconfigured user interface software, you can monitor and diagnose your MCC from anywhere which:

- Reduces integration and setup time
- Improves process and diagnostic information
- Improves uptime, advance warnings and troubleshooting tools
- Provides high availability

Built-in Network

Your startup is faster with built-in cabling. Complex inter-wiring is reduced to a single Ethernet cable and because the network is preconfigured and validated, device connections, IP addresses and subnet masks are set for you.

IntelliCENTER Software

IntelliCENTER software provides the ultimate window into your MCC. The software provides both real-time diagnostics and MCC documentation to maximize MCC and related equipment performance.

Intelligent Motor Controls

MCCs with IntelliCENTER technology combine intelligent motor control and protection devices with advanced networking and diagnostic capabilities to give you an inside look at your motor control application.

IntelliCENTER technology provides remote access to data and troubleshooting, minimizing the need to approach the MCC.
Reduce the Time You Need to Setup Your MCC

From installation to configuration to operation – IntelliCENTER technology saves time at every step.

- Save up to 90% on your wiring installation time with a pre-configured and pre-tested CENTERLINE MCC with IntelliCENTER technology.
- With IP addresses and subnet masks pre-configured for your MCC, you are ready to immediately communicate with your intelligent motor control devices and configure device parameters over the network.
- Use Studio 5000® software to leverage a single programming environment for all intelligent motor control devices.

Reduce Commissioning Time with Premier Integration

For even greater control over your operations, CENTERLINE MCCs networked with EtherNet/IP can be easily integrated into a Logix control system. IntelliCENTER software’s Integration Assistant provides:

- Quick addition of intelligent motor control devices into the Studio 5000 Automation Engineering & Design Environment™.
- Reduced programming time by automatically adding intelligent devices to the Studio 5000 Logix Designer® I/O tree with appropriate EtherNet/IP network configuration.
- Simplified integration by automatically creating device controller tags using the device add-on profiles.

Connect Your Entire Enterprise

More information – where you need it and when you need it for advanced plant asset management. EtherNet/IP helps enhance integration, reduces your MCC setup time and allows you to quickly monitor, troubleshoot and diagnose your MCC using a network that communicates with your entire enterprise.

- Easily integrate your manufacturing operations network with the corporate network, helping reduce maintenance cost by reusing existing network resources and tools.
- Seamlessly integrate production data and business systems by removing a network layer between devices and higher level networks without sacrificing network security.

For more information please visit the IntelliCENTER Technology brochure (MCC-BR003)
Design

With the growing need for increased safety in the industrial environment, the CENTERLINE 2100 MCCs have developed ways to continuously mitigate risk while driving performance and reliability. For over 45 years, these MCCs have been the industry leaders in helping customers with motor and power control while meeting industry standards.

Every CENTERLINE MCC is built with a structural foundation of standard high quality design and materials that provide the first level of protection.

1. **Shutters**
   Immediately isolates vertical bus when unit is removed and minimizes exposure to energized power bus, enhancing personal safety.

2. **Sheet metal thickness**
   - Major structural components: 10–16 gauge steel
   - Covers & plates: 14–16 gauge steel
   - Units doors: 12–14 gauge steel
   - Unit wrap & support pans: 14 gauge steel

3. **Horizontal & vertical bus**
   Machine-torqued, two-bolt fastening system, used for the horizontal to vertical bus connection, reducing periodic maintenance, minimizing exposure to hazardous voltages.

4. **Structural isolation**
   Two side sheets per section provide isolation between sections, helping prevent faults from propagating to adjacent sections.

5. **Standard vertical power bus**
   Capacity is twice the industry norm – 300 A above and 300 A below the horizontal bus for an effective 600 A capacity per section.

6. **Unit isolation**
   Solid top and bottom unit support pans provide exceptional unit isolation to help prevent a single fault from cascading throughout the enclosure, limiting equipment damage.

**CENTERLINE 2100 MCCs**
Available at 600V AC Bus Rating, 600 to 3200 A UL 845
7. **Ground bus & ground stab**
Dedicated plug-in ground bus is part of a solid grounding system helps assure units are securely grounded.

8. **Load stab**
Stab housing is designed to extinguish arcing faults by segregating three phases.

9. **NEMA components**
Allen-Bradley push buttons, pilot lights, selector switches, contactors and starters deliver proven and predictable performance over the full life of the product, to help maximize the efficiency and performance of your MCC.

10. **Interlocks**
With versatile interlock mechanism, the unit cannot be inserted or withdrawn when the disconnect handle is ON.
ArcShield

You can’t predict when an arc blast will occur, which makes arc resistant designs an important topic. Greater emphasis has been placed on acknowledging arc flash dangers in standards such as the National Electrical Code (NEC), Standard for Electrical Safety in the Workplace NFPA, and the Institute of Electrical and Electronics Engineers (IEEE).

An arc blast can result from many factors, including dropped tools, accidental contact with electrical systems, buildup of conductive dust, corrosion, rodents or improper work procedures. When one of these occurs, ArcShield can help mitigate and protect from an arc flash incident.

ArcShield helps to reduce arc flash hazards while providing you with increased protection against internal electrical arcing faults.

Passing IEEE C37.20.7 Testing

Any manufacturer that can not provide documentation that they meet this criteria does not have arc resistant equipment.

<table>
<thead>
<tr>
<th>Number</th>
<th>Criteria Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Doors and covers do not open (bowing allowed)</td>
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<tr>
<td>2</td>
<td>No parts are ejected from the equipment</td>
</tr>
<tr>
<td>3</td>
<td>The arc does not burn any holes in the exterior of the tested structure (in the applicable planes for the accessibility level)</td>
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<tr>
<td>4</td>
<td>Untreated cotton test indicators must not ignite or be perforated (equivalent to typical industrial work clothes)</td>
</tr>
<tr>
<td>5</td>
<td>The grounding connections remain effective</td>
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Increased Protection from Arc Flash Hazards

ArcShield is an enhanced version of the industry-leading CENTERLINE 2100 MCC and the first to offer arc resistant features. The CENTERLINE 2100 MCC with ArcShield has been tested in accordance with the IEEE C37.20.7 standard for Type 2 accessibility. 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 to deliver an extra level of protection against accidental faults that may occur when the doors are closed and latched. The pressure relief system at the top of the CENTERLINE MCC with ArcShield, vents and redirects arc blasts out the top and away from personnel, adding additional protection.

Two Versions of ArcShield are Available:

1. **Device Limited** – The ArcShield MCC is designed to contain an arcing fault for the time it takes a pre-tested main protective device to clear the fault. The mains are chosen to limit the amount of available incident energy. Recommended for applications needing a wider variety of structural or unit options.

2. **Duration Limited (100 ms)** – The ArcShield MCC is designed to contain an arcing fault for up to 100 ms in duration. Any main protective device, either in the MCC itself or upstream through the use of main lugs, may be used. Recommended for applications needing high bus currents or specific mains, typically external to the MCC.
SecureConnect for CENTERLINE 2100 MCCs is an option that helps reduce exposure to electrical hazards by allowing a unit to be disconnected from the vertical power bus with the enclosure door still closed. Its “snap action” retract mechanism of the stabs helps to reduce exposure to electrical shock and hazards by quickly disconnecting the stabs and isolating them behind shutters while the unit is still installed.

With a multi-point validation system, SecureConnect provides both electrical and mechanical indications that the unit is disconnected from the vertical power bus and it is safe to begin service, in accordance with many safety policies and standards.

In addition to standard lock-out/tag-out features inherent in all units, the SecureConnect lock-out mechanism offers an exceptional lock-out/tag-out location helping prevent all three-phase power that could be present in the unit. The integrated lock-out mechanism, which is standard on all SecureConnect units, consists of an unobtrusive arm that can be pulled out and locked when desired.

**SecureConnect**

Units allow users to disconnect power from a MCC plug-in unit without opening the enclosure door.

**Power stabs**

The power stabs, located on the back of the unit, connect the individual unit to the MCC vertical bus to establish power.

**Power stab withdrawal**

When the stabs are disconnected, they are withdrawn into the power stab housing. The withdrawn stabs complete a continuity circuit that can be tested with a standard meter using the multi-point validation port. Continuity is measured directly through the withdrawn stabs, not through prone-to-failure auxiliary contacts.

**Patented “snap action” mechanism makes and breaks the connection to the horizontal bus in less than one second, with just a quarter-turn of a standard hex socket wrench.**

**Lock-out mechanism**

**Multi-point validation port helps electrically verify that the stabs are withdrawn and the unit shutters closed.**

**Help reduce electrical shock hazards and exposure to harmful voltages with SecureConnect**
Added Safety
CENTERLINE 2100 MCCs are designed to enhance safe operation by helping isolate you from potentially hazardous voltages and offering a solid grounding system. Additional options such as IntelliCENTER technology, blown fuse indicators, exterior windows on unit doors, infrared inspection ports and fingersafe component barriers can help you create a safer working environment by reducing your potential chances of making contact with energized components.

Key Interlock
Lock out mains or feeder units with provisions for customer-mounted key interlocks from Superior or Kirk.

1. Yellow door – helps identify main disconnect for MCC lineup
2. Voltage indicator – visibly verifies voltage has been disconnected without opening the door
3. Patented arc resistant baffles – allow ventilation of units such as drives and SMCs while still providing arc resistance
4. Infrared viewing window – allows you to perform thermograph scans of equipment without opening the door

Stab housing shutters
Shutters on the back of the unit close when the stabs are disconnected and withdrawn inside the unit for increased electrical isolation.
Intelligent Motor Control

CENTERLINE MCCs with IntelliCENTER technology combine intelligent motor control and protection devices with advanced networking and diagnostic capabilities to give you an inside look at your motor control application. These intelligent motor control devices provide you with both control and diagnostic information via EtherNet/IP that allows you to make data driven decisions while helping keep personnel away from operating equipment and electrical hazards.

SMC™ Flex Soft Starters
- Multi-functional solid-state controller containing a built-in SCR bypass and a built-in overload.
- Integrates a bypass to minimize heat generation during run time which automatically closes when the motor reaches its nominal speed, resulting in a cooler-running component and reduction in enclosure size.

PowerFlex® Drives
- Select from a range of PowerFlex AC drives meeting needs from 0.25 to 1500 Hp / 0.2 to 1100 kW.
- PowerFlex 525 and PowerFlex 755 drives feature a standard built-in Ethernet port for simplified integration into an EtherNet/IP enabled CENTERLINE MCC and IntelliCENTER software.
- Safety functionality in PowerFlex drives offers the benefit of faster start ups and can help reduce wear from repetitive start ups. Safety ratings up to and including SIL 3, PLe and CAT 3.

E1 Plus™ Electronic Overload Relay for Starters
- Enhanced motor protection with overload and underload warning functions to help protect your processes.
- Adjustable levels of protection, tailored to your application including: ground fault protection, jam protection and PTC thermistor monitoring.

PowerMonitor™ 5000
- Virtual wiring correction capability
- Sag/swell detection alert
- Single cycle metering
- Can be easily integrated into networked CENTERLINE MCCs and accessed with IntelliCENTER software to provide a comprehensive picture of the MCC’s energy consumption.

E300™ Electronic Overload Relay
- Enhanced thermal overload motor protection with inherent phase loss, thermal overload, ground fault current, voltage monitoring and underload protection.
- Advanced motor diagnostic information for preventative maintenance and energy management programs.
- Additional protection of your motors against voltage issues such as under voltage, voltage unbalance, phase loss, frequency and phase rotation before the contact coil is energized.

SMC™ Flex Soft Starters
- Multi-functional solid-state controller containing a built-in SCR bypass and a built-in overload.
- Integrates a bypass to minimize heat generation during run time which automatically closes when the motor reaches its nominal speed, resulting in a cooler-running component and reduction in enclosure size.

E1 Plus™ Electronic Overload Relay for Starters
- Enhanced motor protection with overload and underload warning functions to help protect your processes.
- Adjustable levels of protection, tailored to your application including: ground fault protection, jam protection and PTC thermistor monitoring.
Space Saving Units

With limited floor space in your facility for motor control equipment, space saving units can help reduce your section count and save valuable floor space. Space saving unit designs for CENTERLINE 2100 MCCs are available for size 1-4 full voltage non-reversing and size 1-3 full voltage reversing starter units, feeder units, drive units and soft starter units.

- Space saving designs provide an alternative to traditional units and can significantly reduce the overall footprint of your CENTERLINE 2100 MCCs while still meeting NEMA and UL standards.
- Space saving units can be used for applications such as commercial, water, wastewater, off-shore oil platforms or when minimizing your MCC footprint is critical.

Certifications

UL 845 for Motor Control Centers

UL is a global independent safety science company offering expertise across five key strategic businesses: Product Safety, Environment, Life & Health, Knowledge Services and Verification Services. When you see the UL symbol on a product, it indicates that UL has tested and evaluated representative samples of that product and has determined that it meets UL requirements. The UL standard for Motor Control Centers is UL 845 which includes the following:

- Motor control centers for use on circuits having available short-circuit currents not more than 200,000 A rms symmetrical or 200,000 A DC.
- Applies to single- and three-phase 50 and 60 Hz and DC motor control centers rated not more than 600V AC or 1000V DC.

The CENTERLINE 2100 also meets the following additional standards:

- ABS Type Certified (Marine & Coast Guard)
- International Building Code – IBC (Seismic)
- UL/cUL
- NMXS-353-ANCE
- CE Conformance
- ISO 9001 Certification

For more information about product certification, visit:
www.rockwellautomation.com/global/certification
Services

As your collaborator, we offer industry and technology-specific expertise to address your unique challenges and help you meet your goals. By leveraging our global infrastructure of support centers and subject matter professionals, we’re here to help you protect your automation investment. As we help you keep your plant running, we can assess your entire operation and recommend the right mix of services to help maximize productivity, optimize plant assets and improve your overall financial performance.

With Rockwell Automation® Machine Safety services, you can help reduce the risk to personnel during production and maintenance tasks and improve diagnostics to reduce down time. The Engineered Services from Rockwell Automation provide Arc Flash Studies, Safety Risk Assessments and Guarding Evaluation.

Arc Flash Studies

Arc Flash Studies provide an effective means to evaluate and inform employees of the arc flash hazards when exposed to live electrical components. Arc Flash Studies can be conducted on existing systems, new equipment or modified equipment. While Arc Flash Studies will meet required Arc Flash regulatory requirements*, the real benefits are twofold:

1) Provide visibility to hazard exposure so you can make an informed decision on how to best protect your employees. Options include mitigating hazards to acceptable levels, educating employees for hazard awareness and training employees how to work within those acceptable conditions. Rockwell Automation often implements a combination of these options to provide the most effective solution.

2) Providing equipment setting recommendations and mitigation options so equipment can perform as intended. Uncalculated adjustments to equipment settings to meet operational needs can introduce unknown or unintended safety risks. There can be an optimal solution for both equipment and employees.

Common services include: Arc Flash Annual Maintenance Programs, Allen-Bradley MCC panel retrofits for improved arc flash protection, Complete Arc Flash Studies, and Arc Flash Study Updates for new/modified equipment. (Most Arc Flash Studies include power system analysis, short circuit study, protective device coordination study, one-lines, labels, and reports).

Safety Risk Assessments

Rockwell Automation can lead your team through the globally recognized risk assessment process and offer guidance on a wide range of risk reduction techniques that encompass process redesign, guarding, awareness means, training, administrative requirements and personal protection equipment. Rockwell Automation will provide the completed documentation upon conclusion of the assessment.

Guarding Evaluation

A Rockwell Automation Machine Safety Consultant will evaluate the equipment, identify guarding deficiencies and recommend machine guarding solutions that are compliant with current Safety Standards and designed to meet production and maintenance needs. Included in the hazard assessment is a recommended bill of materials and approximate hard guard dimensions.


*NFPA 70E, CSA Z462 and IEEE-1584
Remote Support and Monitoring

Improve your productivity by resolving technical issues quickly and accurately. Remote Support and Monitoring from Rockwell Automation can help you optimize your control system performance, improve your overall equipment effectiveness, normalize control system expertise at your plant and reduce maintenance time and costs.

TechConnect℠ Support offers real-time, 8 a.m. – 5 p.m. phone support (24x7 option), comprehensive electronic support tools and software and flash firmware updates for your Allen-Bradley and Rockwell Software® products.

Assurance™ Integrated Support

Assurance Integrated Support gives you the peace-of-mind of knowing that should the unexpected happen, you have a means of dealing with it swiftly and efficiently. The fixed monthly fee makes it easy to budget and includes:

- Guaranteed, direct access to qualified specialists 24/7/365
- Web-enabled information and remote support
- Fixed billing model
- Health checks and equipment audits

Assurance Integrated Support helps ensure you’ll be able to minimize the impact of incidents on your schedules in order to continue fulfilling commitments to your customers.

Onsite Services

From start-up to maintenance and troubleshooting, Rockwell Automation has the technical expertise to help you increase uptime and optimize equipment performance. Our global network of field service professionals can perform services on both Rockwell Automation products and those from other brands. Available on an as-needed, scheduled, or full-time basis, we can help you meet your specific needs throughout the lifecycle of your MCC.

Training

In addition to services, Rockwell Automation also provides training courses on commissioning, electrical safety, NFPA 70E and arc flash compliance. These programs are meant to increase employee awareness of electric shock, arc flash and arc blast hazards along with helping you to bring your training program into compliance with OSHA and NFPA 70E mandated electrical training.

Rockwell Automation provides several courses including the following major topics:

- CENTERLINE MCC commissioning on an EtherNet/IP Network
- NFPA 70E Electrical Safety Requirements
- Safe Electrical Practices
- Calculating Flash Protection Boundary
- Personnel Protective Equipment

Learn more about Rockwell Automation training courses from a local authorized Allen-Bradley Distributor or Sales/Support office. Find a full list of courses at http://www.rockwellautomation.com/training.

Increase your knowledge and practice your skills to provide a safer work environment.
CENTERLINE Motor Control Centers

Allen-Bradley CENTERLINE low and medium voltage motor control centers offer optimal safety, performance and reliability to meet your global needs. If you are looking for a solution that leverages the same architecture, components, programming language and networking – look to the entire portfolio of CENTERLINE motor control centers. Regardless of where you do business, you will receive unparalleled support from a single-source provider to meet all of your motor control needs.

CENTERLINE 2500 Motor Control Centers

Designed to address the wide range of IEC application requirements found throughout the world, CENTERLINE 2500 MCCs offer fixed or withdrawable units, high density columns, and fully type tested standard designs.

CENTERLINE 1500 Motor Control Centers

Available in a wide range of configurations from across-the-line to solid-state SMC starters, medium voltage NEMA CENTERLINE 1500 MCCs provide the flexibility to select the best match for your application.

Find more information on ab.com