CENTERLINE® 1500 Motor Control Centers

Medium Voltage Control
CENTERLINE 1500
Motor Control Centers

Your critical applications rely on medium voltage motors for safe, repeatable operation in harsh industrial environments. To improve the protection and performance of your systems, choose Allen-Bradley® CENTERLINE 1500 medium voltage motor control centers (MCCs) – built tough to meet your application demands.

Offering one of the broadest suites of motor controls in the marketplace, CENTERLINE 1500 MV MCCs deliver premium quality, tailored solutions in a centralized package that integrates control and power in one efficient solution.

Matched to your requirements, our UL- and NEMA-certified medium voltage solutions are designed to mitigate risk and support an extensive range of control formats and configurations. The result? Smart, cost-effective systems that can deliver power, control, information and safety capabilities on a common platform.

To extend system performance further, incorporate additional features – like industry-leading ArcShield™ and IntelliCENTER® technology – plus intelligent components. Our flexible and scalable approach to design means you can choose the capabilities you need to enhance safety and maximize productivity.

For nearly 80 years, Rockwell Automation has been providing leading medium voltage motor control solutions – solutions like the CENTERLINE 1500 MV MCC.


The CENTERLINE 1500 MV MCC is designed to optimize performance and protection – and streamline your process.

**Application-Matched Solutions:** Support diverse requirements with motor control formats and configurations ranging from full-voltage to soft starting to variable speed drive integration.

**IntelliCENTER Technology:** Combines a built-in EtherNet/IP™ network with integrated software and intelligent motor controls to deliver real-time access to system control, information and troubleshooting – from any location.

**ArcShield Technology:** Provides an additional level of safety to reduce arc flash hazards and increase protection against internal electrical arcing faults. IEEE C37.20.7 compliant.
From offshore oil rigs and water pumping systems to power generation facilities, CENTERLINE 1500 medium voltage MCCs deliver efficient packaged motor control to keep some of the world’s most demanding applications up and running.

CENTERLINE 1500 Medium Voltage Motor Control Centers (MCCs)

Our product line delivers premium quality, tailored solutions that integrate control and power in one efficient, centralized package.

* Available at 2.4kV to 6.9kV, up to 9000HP.
* Rated up to 800A.
You can count on the CENTERLINE 1500 MV MCC family for flexible options that enable you to select the best match for your medium voltage application.

To help provide the most cost-effective choice, offerings include a range of frame sizes and control formats including:

- Incoming line units
- Load break switches
- Full-voltage controllers
- Reduced voltage soft starters
- Two-speed controllers
- Synchronous controllers
- Variable frequency drive (VFD) input and bypass controllers
- Auxiliary cabinets

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Ease Control, Configuration & Data Acquisition

Connect the CENTERLINE 1500 MV MCC to your enterprise with EtherNet/IP, a robust industrial Ethernet solution.

EtherNet/IP™

Efficient Multiple Motor Synchronization

To efficiently synchronize your multiple motor systems, choose the CENTERLINE 1500 MV MCC option designed for seamless configuration with Allen-Bradley PowerFlex® 7000 medium voltage AC drives. Unlike solutions that configure medium voltage drives and motor controllers as independent systems, our completely integrated offering creates a single line-up on a common bus.

The result? Less cabling, faster installation, a smaller footprint – and a lower total cost of ownership.

While many medium voltage motor controllers use electromechanical devices for vacuum contactor control, the CENTERLINE 1500 MV MCC provides advanced digital control with our IntelliVAC™ control modules. And since all solid state IntelliVAC controllers include no mechanical parts, they are virtually maintenance free.

Our IntelliVAC controller offers consistent vacuum contactor pick-up time and selectable drop-out times – plus features like power loss ride-through and anti-kiss and anti-plugging protection.

For more information regarding equipment options, please visit rockwellautomation.com/global/go/MVMCC
With the growing need for improved safety in industrial environments, Rockwell Automation continues to develop ways to mitigate risk.

Every CENTERLINE 1500 MV MCC includes standard materials and features designed to improve performance and protection in harsh environments – including three isolated compartments for the power bus, power cell and low voltage components.

**Design**

Heavy-Duty Structural Components
- Durable epoxy powder paint coating.
- Generous working space.
- Mounting channels ease installation.
- Modular design simplifies maintenance.

Isolated Power Cell Compartment
- Integrated non-load break isolation switch provides visual isolation and dead-front protection.
- Ample space for isolated load cable connections for added safety.
- Top or bottom cable entry/exit.

Isolated Power Bus Compartment
- Located in the center rear of the enclosure. Accessible from front or rear.
- Easily link to adjacent enclosures on left or right.
- Standard ¾-inch X 2-inch copper ground bus.
- Edge mounted to improve safety and optimize heat dissipation.

Simple Heavy-Duty Mechanical & Electrical Interlocking
- Non-load break isolation switch interlocks prevent switch opening when contactor is energized or if the medium voltage door is open.
- Mechanical handle Interlock helps keep doors closed when power cell is energized.
- Positively driven auxiliary contacts provide safety interlocking of the control circuitry.
Isolated Low Voltage Compartment

• Swing-out low voltage panel for easy access.
• Contains all MCC low voltage components.
• Allows testing and troubleshooting of the power cell with no exposure to medium voltage.

Low Voltage Compartment Interior

• Painted white for better visibility.
• The “Normal-Off Test” circuit prevents backfeeding medium voltage through the control transformer in “Test” mode.
• Provides off-line control circuit testing capabilities.
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 low voltage or medium voltage 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.
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.

Reduce the Time You Need to Setup Your MCC

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

• Save up to 90 percent 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.

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 rockwellautomation.com/global/go/MVMCC
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/National Fire Protection Association (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 risk and provide protection from an arc flash incident.

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

Available in a Range of Configurations

To meet diverse requirements, the CENTERLINE 1500 MV MCC with ArcShield is available in a number of configurations including:
- Incoming units
- One-high and two-high cabinets
- SMC™ Flex soft starters
- Reversing controllers
- Auxiliary cabinets
Tested to Meet Your Demanding Needs

IEEE C37.20.7, Type 2B Accessibility Compliant

The CENTERLINE 1500 MV MCC with ArcShield meets rigorous IEEE C37.20.7 requirements for arc resistance. Only equipment that meets these five criteria levels during arcing tests is truly compliant:

<table>
<thead>
<tr>
<th>Number</th>
<th>Criteria Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Doors and covers do not open (bowing allowed)</td>
</tr>
<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>
</tr>
<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>
</tr>
</tbody>
</table>

In addition, the IEEE C37.20.7 standard defines accessibility types. The CENTERLINE 1500 MV MCC with ArcShield offering includes Type 2B accessibility. This means the MCC provides full perimeter protection – at the front, rear and sides of the equipment – plus access to a designated low voltage compartment even under an arc fault condition. As a result, personnel continue to be shielded even when the low voltage door is open for maintenance.
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 can provide you with 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.

POINT I/O™ Modular Distributed I/O Family
- Safety and automation control in one I/O solution. Mix safety-rated POINT Guard I/O™ inputs and outputs with standard POINT I/O, all with one node.
- Maximize I/O density in minimal panel space.
- TÜV-certified for use in applications up to SIL3 PLe and CAT4.
- CIP Safety communication over EtherNet/IP or DeviceNet™ networks.

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.

Bulletin 857 Motor & Feeder Protection Relay
- Flexible control maximizes motor output capabilities and provides current, voltage and motor production functions.
- Suitable for voltages from 200V to 450kV.
- Optional, fiber optic connected, 12-channel RTD scanners.
- Optional analog inputs and outputs.
- Optional arc flash detection.
SMC™ Flex Reduced Voltage Soft Starter

For maximum flexibility, choose a CENTERLINE 1500 MV MCC configuration that integrates an SMC Flex control module. This compact, multifunctional solid-state controller includes built-in electronic overload and integral bypass.

The SMC Flex controller offers a full range of starting and stopping modes as standard including:

- Soft start*
- Soft stop
- Current limit start*
- Linear acceleration* and deceleration
- Dual ramp start
- Preset slow speed
- Full voltage
- Pump control

CENTERLINE 1500 MV MCC SMC Flex options include a combination controller for new installations, a retrofit controller designed to work in conjunction with an existing customer-supplied starter, and a modular OEM option for machine applications.

*with selectable kickstart

Certifications

UL 347 for Medium Voltage Motor Control Centers

UL is a global independent safety science company offering expertise across five key strategic businesses: Product safety, environment, life and health, knowledge services and verification services. When you see the UL symbol on a product, it indicates that cULus has tested and evaluated representative samples of that product and has determined that it meets meets UL and Canadian Standards Association (CSA) requirements.

The UL standard for medium voltage motor control centers is UL 347. UL 347 replaces NEMA ICS 3-2005 and includes the following:

- Motor control centers for use on circuits having available short-circuit currents not more than 50,000 A rms symmetrical.
- Applies to three-phase 50 and 60 Hz motor control centers rated not more than 7200V AC.

In addition to UL 347, the CENTERLINE 1500 MV MCC may also be complaint with the following standards:

- CSA Industrial Control Equipment C22.2, No. 253 (harmonized with UL 347)
- ANSI, Instrument Transformers C57.13
- IEEE
- NEC
- OSHA
- NEMA, Medium Voltage Controllers Rated 1501 to 7200V AC ICS 3-2

For new installations, the complete motor control solution features an efficient two-high design. A retrofit solution is also available for existing full voltage non-reversing (FVNR) controller applications.

For more information about product certification, visit: 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 our 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 more 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.

TechConnectSM Support offers real-time, 8 a.m. – 5 p.m. phone support (24/7 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 be sure you have the ability to minimize the impact of incidents on your schedules in order to continue fulfilling commitments to your customers.

Onsite Services

From startup 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.

Increase your knowledge and practice your skills to help provide a safer work environment.

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 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 rockwellautomation.com/training.
CENTERLINE 1500 Medium Voltage Motor Control Centers

Allen-Bradley CENTERLINE 1500 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.

In addition to CENTERLINE 1500 MV MCCs, the product family includes the low voltage offerings described below.

CENTERLINE 2100 Low Voltage Motor Control Centers

Industry-leading CENTERLINE 2100 MCCs deliver integrated low voltage control and power in one rugged, centralized package that meets UL and NEMA standards – and offers the maximum in safety, performance and reliability.

CENTERLINE 2500 Low Voltage Motor Control Centers

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

Find more information at rockwellautomation.com/global/go/MVMCC