

Freedom™ low-voltage motor control centers  
Intelligent MCC solutions

# Intelligent solutions. Optimized performance.

## **The smart choice**

Eaton Intelligent Motor Control Centers (MCCs) are the smart choice to gain actionable insight into your power system.

Backed by more than 100 years of experience, Eaton MCCs easily integrate communications and smart devices to provide open, secure communications, enabling monitoring and control of critical assets while ensuring process reliability, efficiency and personnel safety.

**EATON**

*Powering Business Worldwide*

# Factory of the future, your way

We understand the many challenges of integrating smart MCC solutions – from a myriad of systems driving the need for greater interoperability, to requirements for scalability, to the ability to gain actionable data. Our intelligent devices, network connectivity and visualization tools tackle this unique set of challenges head-on.



**Securely access key data** – Tap into an immense data pool to build system knowledge across the organization, enable data/information sharing across functions, facilitate informed decision-making, and optimize performance of your facility, processes and power system



**Promote continuous uptime** – Automated alarms and early notification systems help detect system threats before they become issues and provide immediate access to the detailed information you need to make better-informed decisions



**Grow with your needs** – Leverage scalable systems to layer in new technology at any stage of your facility, regardless of whether it is new, retrofitted or upgraded



**Accelerate project timelines** – Reduce lead times through labor and installation costs, easily integrate into existing systems, and reduce installation and commissioning time through factory configuration of project-specific parameters prior to shipping



**Enhance safety** – Backed by a legacy of design and safety expertise, Eaton MCCs deliver the monitoring, data accessibility and visualization capabilities needed to detect issues before they become problems – protecting personnel by reducing their need to access equipment for troubleshooting purposes



**Achieve more efficient maintenance** – By unlocking and integrating data between systems, predictive maintenance is enabled, promoting equipment health through timely, targeted maintenance while minimizing shutdowns and incidents



Data collaboration



Enhanced safety



Scalable solutions



Improve productivity



Efficient maintenance



Automatic alerts

## Increase reliability

Ensure network health and security through proven architectures and hardware solutions, secure network configurations and adherence to industry standards

## Lower total cost of ownership

Offer flexibility through tailored solutions to meet the needs of now, tomorrow and into the future

## Drive interoperability

Seamlessly integrate with new and existing automation systems to support a wide range of communication options

## Enhance safety

Designed and built to industry standards to keep personnel and consumers safe and to limit interaction with live equipment

# Ethernet solutions you can trust

With Industrial Ethernet having overtaken the use of traditional fieldbuses, today's networks require a bolstered level of hardware and control. Eaton MCCs offer robust cabling and switching to optimize reliability and meet the communication needs around this intelligent technology.



## Communications cabling

Specifically designed for use in MCCs where continuous communication is paramount, Eaton's 600 V, Cat 5e Ethernet cable delivers a high, 1 Gigabit/s speed data rate with the option to convert to fiber optic for long-distance or harsh environments. The cable's foil shielded construction provides maximum noise immunity, with ease of accessibility offered via motor control center wireways.



## Ethernet switches

To ensure consistent, reliable performance for maximum uptime, Eaton MCCs utilize compact, industrial-managed Ethernet switches designed for decades of continuous use. With Layer 2 software for maximum application flexibility, the switches provide configuration options to enable redundancy and security needs. Supporting high port densities of 8, 16 or 24 ports, this hardware is packaged in easy to access relay compartments within the MCC.

## Proven architectures

Designed for optimal network reliability, Eaton MCCs are built upon years of experience. Process disruptions are minimized through default network configurations that ensure that each intelligent device is independently connected. To further safeguard against a single point of failure, Eaton accommodates redundancy applications with flexible ring arrangements.



## Cybersecurity

For superior protection, cybersecurity resides at the heart of Eaton intelligent MCCs. Built with the tools you need to employ your defense in-depth strategy, MCCs can be customized to incorporate enhanced mechanisms to help protect your critical infrastructure. Additionally, Eaton's suite of Cybersecurity services for operational technology is designed to help businesses easily understand the risks that cybersecurity vulnerabilities pose to operations and methods to harden facilities on an ongoing basis.

# A focus on interoperability

Because most facilities are not limited to one type of controller, Eaton MCCs are designed to integrate seamlessly with all major manufacturers of DCS, PLC and SCADA while supporting all major industrial protocols (EtherNet/IP, Modbus TCP, PROFIBUS, DeviceNet and Modbus RTU). With an array of scalable communication options, Eaton MCCs can support numerous network applications, from simple remote monitoring to network controls. They even enable integration into many systems from one MCC so control and monitoring can be separated, making it easy to meet your unique requirements.



PLANT CONTROL SYSTEMS

EtherNet/IP  
Modbus TCP  
PROFIBUS



POWER MANAGEMENT CONTROL SYSTEMS



# Control & Protection

## Intelligent Electronic Devices



**Freedom Contactors and Starters**  
Rugged, reliable power switching



**C440/C441/C445**  
Scalable motor protection



**DG1 Drives**  
Industrial purposed speed control



**S811+ Soft Starter**  
Proven, dependable ramped motor control



**DM1 Microdrive**  
More power in a small footprint



**DG1 Drives**  
Industrial purposed speed control



**Molded Case Breakers/  
Fusible Disconnects**  
Industry-leading circuit protection



**Magnum Air Circuit Breakers**  
Programmable protection and coordination



**Automatic Transfer Schemes**  
Critical power switching



**PX Meters**  
Core and advanced power monitoring



**Power Xpert SPD**  
Advanced surge monitoring and communications



**Harmonic Correction**  
Dynamic harmonic mitigation and power factor correction

## THERE FOR YOU THE ENTIRE WAY

### Design

- Eaton application engineers and sales support to lay groundwork for project success
- Develop bid stage drawings and network topologies to help project planning

Initial hands-on support incorporates demo hardware for Intelligent MCCs

### Execution

- Eaton application engineers, technical support and management ensure project success, meeting timelines and project milestones
- Factory testing of networks/signals for each intelligent MCC
- Eaton EESS capability for installation/commissioning and on-site support to ensure installation needs are met and for integration assistance

Detailed drawings and network topologies throughout manufacturing for confirmation and verification

Factory acceptance testing to further accelerate your commissioning time

### Support

- Lifecycle support of equipment, TRC, firmware management, warranty
- Eaton application engineers, field services, technical support for continued project success with local support

New and existing installations support with equipment modernization, latest technology, upgrades, replacement parts

# Visualization at your fingertips



Eaton's intelligent MCC solutions glean vital system information and place it into the hands of the personnel who need it most. Through our industrial suite of remote monitoring solutions — which includes process control integration tools, operator interfaces, and tailored software applications for local or mobile use — Eaton facilitates a consolidated view of equipment, processes and facilities. These visualization tools allow you to monitor, diagnose and control devices from a safe location outside the arc flash boundary.

Additionally, with access to this real-time monitoring and status information, you gain valuable insights in the formats you need, connected across your enterprise, helping you to identify issues and trigger remedial actions before asset failure; make informed device repair and replacement decisions to reduce unplanned downtime; and identify energy anomalies to lower utility costs.



To learn more about Freedom MCCs, visit:  
**[Eaton.com/mcc](https://www.eaton.com/mcc)** or  
contact your local Eaton sales representative.

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