PowerCommand®

SYSTEM-LEVEL CONTROLS AND SWITCHGEAR





Leveraging more than a century of power excellence

Cummins has been delivering power solutions globally for more than 100 years. Our expertise expands beyond the generator set and into every component of a fully integrated and reliable power system. Cummins has been designing, manufacturing and testing switchgear and paralleling controls for over 60 years.
We develop and innovate technologies to support the growing demand for continuous, reliable power.

From generator sets and paralleling controls, to system-level controls, switchgear and transfer switches, to the components that make up a microgrid, and digital solutions to allow for remote monitoring, Cummins has designed, manufactured and factory-tested every component to ensure the highest reliability in the industry. Cummins is with you every step of the way — from the designing and supplying of equipment, to commissioning and service upgrades for the lifecycle of the system.

PowerCommand® paralleling switchgear

Cummins Power Systems has been designing and manufacturing switchgear since the early 1960s. With more than a half-century of industry experience and sophisticated engineering, we offer the most reliable and advanced switchgear solutions in the world.

Utilizing state-of-the-art PowerCommand® technology and architecture, these solutions precisely control and manage sources to ensure power is delivered to the loads every time. Cummins switchgear solutions meet all requirements for low- and medium-voltage applications, from single utility and load bus to multiple utilities and load buses arranged in any topology. Low-voltage options include paralleling switchboards listed to UL 891 or UL 1558 for applications ranging from 208 to 600 volts. Medium-voltage paralleling switchgear built to ANSI Standard C37.20.2 is also available for high-voltage applications.



LOW-VOLTAGE (LV) DISTRIBUTION BOARDS:

Switchboard (UL 891)

- Dead-front switchboard
- UL 489 circuit breakers (MCCB/ICCB) drawout and fixed mount
- Short-circuit up to 0.05s and no short-time ratings
- Healthcare, commercial, water/wastewater and retail

Switchgear (UL 1558 IEEE C37.20.1/NEMA C37.51)

- Dead-front switchboard
- UL 1066 LVPCB drawout circuit breakers and no MCCB/ICCB
- Short-circuit up to 0.5s and short-time ratings
- Healthcare, water/wastewater and hospitals

MEDIUM-VOLTAGE (MV) SWITCHGEAR:

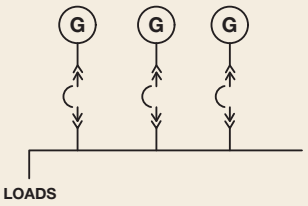
- 1kV and higher
- IEEE C37.20.2 and IEEE C37.20.3
- Drawout interrupting devices type
- All live parts are enclosed within grounded metal compartments
- Primary bus conductors and connections are covered with insulating material
- Automatic shutters

Topologies for any need

There are several basic topologies used in switchgear design, but with Cummins expertise in system engineering, there are no limits to your system layout. With our experience in emergency standby, utility paralleling and prime power applications, we can design our products to meet any specification. In applications from warehouses and office buildings to hospitals and data centers, we have products to meet your needs.

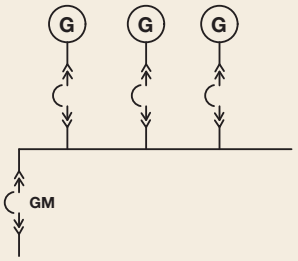
ISOLATED BUS

The simplest and most common topology, an isolated bus does not require a direct connection to the utility. Each generator must be large enough to carry emergency loads.



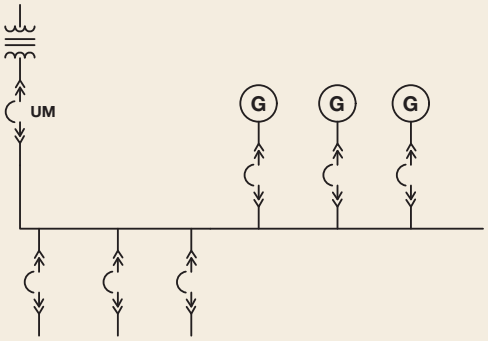
ISOLATED BUS WITH GEN MAIN

Similar to an isolated bus, this configuration adds a generator main breaker. This allows more flexibility by enabling more than one generator to be online before adding load, while still keeping the system fairly simple. Generator maintenance and testing also become simplified to facility operations since they are isolated by the generator main breaker.



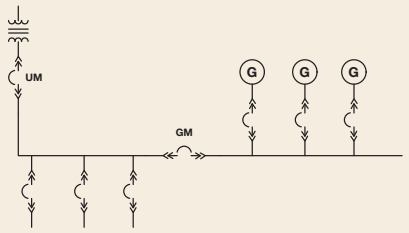
COMMON BUS

In this configuration, the utility and generators share a common bus, which can make it a lower-cost option since it doesn't include additional hardware such as tie breakers and generator main breakers.



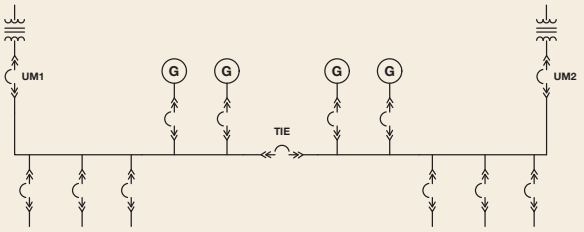
TRANSFER PAIR

This configuration is similar to a common bus, but with a generator main added. This keeps costs low while adding the abilities to test and perform maintenance on the generators without affecting facility loads.



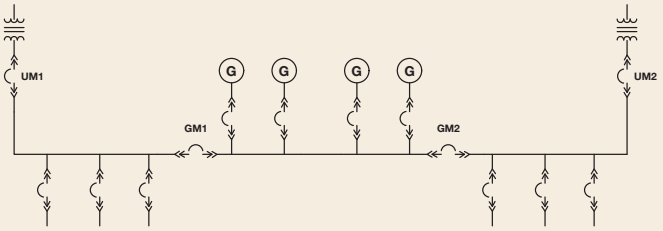
MAIN TIE MAIN

Main tie main combines two common bus configurations with a tie-breaker between them, adding redundancy.



MULTIPLE TRANSFER PAIR

This configuration is similar to a transfer pair, with the addition of a second utility main and generator main. This allows levels of redundancy to be added to prevent unscheduled downtime. Locating the generators on an isolated section of switchgear allows maintenance and testing to be performed with little or no effect on the facility.



CUSTOM TOPOLOGIES

Need an alternative configuration? Cummins can design a system that meets your needs and requirements.

Simplisync™

One fully integrated power system for an expandable future

Simplisync offers pre-engineered, pre-designed switchgear solutions that are configured to order and customizable to meet your specific power system needs.

Compatible with the full suite of Cummins generator sets, Simplisync has been pre-designed for multiple levels of system complexity. This design offers you a cost-competitive solution with reduced lead time, providing fast delivery for facilities where space is a premium and growth is inevitable.

ONE SYSTEM, CRITICAL FEATURES

Whether you have an immediate need or are preparing for planned expansions, Simplisync systems are built to exacting requirements — complete with Cummins controls — and are backed by our fully validated and certified factory standards.

Because your power requirements are likely to grow with time, Simplisync has been designed as a scalable system that can meet your needs now and expand with you in the future — providing flexibility without the need to migrate to a new system. Options include:

- **Isolated Applications —** A master-less system operated by digital master controls eliminates utility monitoring and control.
- **Transfer Monitoring —** A generator power transfer control performs the utility monitoring and breaker control of the generator set.
- **Complex, High-Power Needs —** A microprocessor-based master control provides supervisory and power transfer functions for one utility and up to four generator sets, all with paralleling control.



Additional features include:

- Small footprint takes up less space
- Front door provides easy access
- Modular sections meet different system complexities while reducing design and engineering costs
- Utility service entrance on the utility main breaker provides easy access
- Interchangeable top/bottom conduit entries for easy setup and installation flexibility
- Indoor and outdoor enclosures
- Copper or aluminum bus meets various spec requirements
- More design flexibility — Less up-front costs due to fixed-mount breakers; optional draw-out breakers for easier service
- NEMA 3R certified — Protects against rain, sleet, snow or ice
- Seismic certified
  - OSHPD pre-approved
  - IBC:2015 and up to 5,000 amps for copper bus
  - 3,000 amps for aluminum bus
- Voltage ranges from 208–600 VAC, three-phase/four-wire
- Bus sizes from 2,000–5,000 amps; either silver- or tin-plated aluminum

System-level controls

With smart, scalable and user-friendly technology, Cummins PowerCommand® supervisory system controls take the complexity out of power system control by offering a suite of stable, reliable and flexible controls for any application, anywhere.

PowerCommand® supervisory system controls provide more functionality and robust controls than any other paralleling system available today. They are designed for thousands of applications, including:

- Hospitals
- Wastewater Treatment
- Data Centers
- Industrial Plants
- Commercial Buildings
- Transportation Systems
- Pipeline Stations
- Microgrids
- And many more

Through extensive factory prototype testing, Cummins ensures rigorous, failure-mode response to provide best-in-class performance, resiliency and system uptime in any potentially disruptive scenario. By providing comprehensive design flexibility, control modularity, an enhanced user interface experience, and more than 1,200 failure scenarios, your integrated power system can be trusted to be always on.

LOAD CONTROL MODULE (LCM)

Meter and monitor your systems with ease

The Cummins PowerCommand® Load Control Module is an independent load management controller that regulates loads on your standby generator sets to maximize their power potential — all via a smart and cost-effective package ideal for light commercial applications.

Features at a glance:

- Supports up to six generator sets
- Up to 12 loads with eight assignable priority levels
- Color touchscreen with real-time data views, including one-line diagram overview
- Event log and alarm history
- Bus metering
- Generator set data monitoring
- Priority-based load add/shed
- Selectable kW/loads
- 0–50°C operating temperature and 95% relative humidity (RH)
- 19–30 VDC operating voltage
- LED diagnostics for fast troubleshooting
- Certifications: UL 508
- Constructed to IEC 61439-2, UL 508, IEC 612439-1 and CE Marked





Digital master controls

At the heart of every Cummins paralleling system is a PowerCommand® DMC unit designed to directly interface with Cummins paralleling and transfer switch controls. The DMC is designed for low or medium voltage, isolated and utility paralleling applications, providing system-level functionality and controls.

FEATURES AND BENEFITS OF THE DIGITAL MASTER CONTROLS PRODUCT SERIES

Built-in touchscreens

- HMI panels in 7", 15" and 19" sizes
- High-resolution animated graphics
- Real-time trending data
- Date- and time-stamped alarms

On-site access

- Service access with external programming ports
- Highly visible indication light for greater uptime, serviceability and operator safety
- Four levels of access for maximized security: Technician, Manager, Operator and Guest

Remote access

- Backed by fail-safe cybersecurity
- Distributed logic design usage based on ring Ethernet, the fastest industrial communication protocol at 100 Mbps*
- Email and text notifications for quicker maintenance response times and real-time performance updates*

Reporting

- Personalized reporting means you choose the sampling rate of the data captured*
- Data logging for access to historic performance summaries and maintenance report logs*
- Email/USB/print functionalities for all alarms, trends and reports*

*Available in DMC6000 and DMC8000





DMC2000

The DMC2000 is a pre-engineered, pre-designed and scalable power system paralleling control designed for a variety of simple power systems. It combines precision control with the confidence of paramount security and fail-safe performance.

The DMC2000 meets the following standard specifications:

- IP40 Rated
- NEMA1
- PowerCommand® control systems are designed and manufactured in ISO9001-certified facilities

The DMC2000 can meet the following product specifications, as driven by applicable regional codes and standards requirements:

- Applicable European Union Directives
  - LV Directive 2014/35/EU
  - EMC Directive 2014/30/EU
  - RoHS 2011/65/EU
  - IEC/EN61439-2:2011
- CSA22.2 No. 14 industrial controls
- Eurocode 8 (seismic certification)
- IBC — all risk categories I to IV structures; shake testing qualified
- OSHPD
- UL891
- IP42

DMC6000

The DMC6000 is a pre-engineered design offering integrated control solutions for more complex power systems that rely on essential fail-safe power. It meets or exceeds the requirements of the following codes and standards:

- CSA 22.2 No. 14–18 M91 industrial controls
- CE and UKCA Marked
  - LV Directive 2014/35/EU
  - EMC Directive 2014/30/EU
  - RoHS 2011/65/EU
  - IEC/EN61439-2:2011
- Eurocode 8 (seismic certification)
- IBC — all risk categories I to IV structures; shake testing qualified
- IP55 Rated
- NEMA1
- OSPHD
- PowerCommand® controls are suitable for use in emergency, critical and standby applications, as defined in articles 700, 701 and 702
- PowerCommand® control systems and generator sets are designed and manufactured in ISO9001-certified facilities
- UL891 Listed



DMC8000

The DMC8000 is a completely customizable power system paralleling control offering integrated control solutions for complex power systems that control an unlimited number of gensets, utilities and loads for optimal power control.

The DMC8000 meets or exceeds the requirements of the following codes and standards:

- CSA C282-M1999 Emergency Electrical Power Supply for Buildings
- CSA 22.2 No. 14 M91 Industrial Controls
- CE Marked
- UKCA Marked
- EN 61439-2 Low-Voltage Switchgear and Control Gear
- NFPA 70: U.S. National Electrical Code
- PowerCommand® controls are suitable for use in emergency, critical and standby applications, as defined in articles 700, 701 and 702
- NFPA 99: Standard for Health Care Facilities
- NFPA 110 for level 1 systems
- UL 891 Listed, Category NIWT7 for U.S. and Canada
- PowerCommand® control systems and generator sets are designed and manufactured in ISO9001-certified facilities
- IBC — All risk categories I to IV structures; shake testing qualified
- OSHPD — All California Building Code Risk Category I to IV structures; shake testing qualified



Power Generation

Generator Test Report

Generator Name: Genset 1
Report Note: JCAHO Monthly
Report Date: 09/16/2014
Report Time: 18:50:00

Date & Time	Total kW	% kW	Oil Pressure (PSI)	Coolant Temp (F)	Battery Volt	Total kVAR	Freq Hz	Amp L1	Amp L2	Amp L3	Volt L1-L2	Volt L2-L3	Volt L3-L1
09/16/2014, 18:50:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 18:55:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:00:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:05:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:10:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:15:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:20:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:25:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:30:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480
09/16/2014, 19:35:00	20	90.0	2.9	68.0	30.0	20	60.0	300	300	300	480	480	480

Genset 1 was tested on 09/16/2014 for 00:45:00 (HH:MM:SS) with at least 30 % kW Load.

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DMC TECHNICAL SPECIFICATIONS

Model	Product aplication	System voltage	Colored touch-screen user interface	Generators supported	Loads supported	Utilities supported	Multiple system configuration topologies	Communication protocol
Load Control Module (LCM0408)	Load Control	LV	7”	Up to 4	Up to 8	None	N/A	Modbus TCP/IP (Standard)
Load Control Module (LCM0612)	Load Control	LV	7”	Up to 6	Up to 12	None	N/A	Modbus TCP/IP (Standard)
DMC2000	Simple Power System	LV & MV	7”	Up to 8	Up to 10	Up to 1	Limited	Modbus TCP/IP (Standard)
DMC6000	Power System With Reporting	LV & MV	15”	Up to 16	Up to 16	Up to 2	Limited	Modbus TCP/IP (Standard) BACnet (Option)
DMC8000	Complex Power System	LV & MV	19” / Custom	Unlimited	Unlimited	Unlimited	Yes	Modbus TCP/IP (Standard) BACnet (Option)

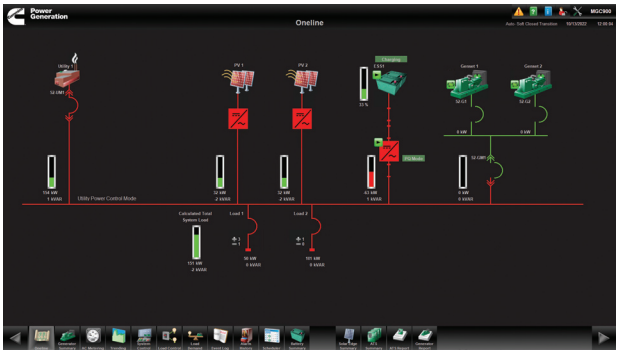
All units meet the following codes and standards: UL 891, IEC 61439-2, CSA 22.2, Seismic and CE Marked.

Microgrid controls

As Cummins strives for more sustainable power solutions, PowerCommand® Microgrid Controls provide the ultimate in system integration. This technology provides a single interface control for simple to complex microgrid power systems. It can control traditional power system assets while integrating new and emerging power technologies, including distributed energy power system designs, renewable energy resources and energy storage.

The PowerCommand Microgrid Control® (MGC) suite includes two product options, the MGC300 and MGC900, offering the appropriate controller for every unique microgrid application. Both MGCs optimize energy production from all assets in the system. This includes maximizing the output of renewable sources and ultimately lowering the levelized cost of energy (LCOE) and total cost of ownership (TCO), ensuring full utilization of all assets in the system.





A single control interface for microgrid power systems

CERTIFICATIONS FOR DMCs

PowerCommand® Digital Master Controls are designed, manufactured, tested and third-party certified to UL 891, IEC 61439-2, CSA 22.2, Seismic and CE, and provide world-class functionality, reliability and quality.

Support chains

A dedicated factory representative keeps you up and running

All Cummins service and support resources are managed through a single point of contact: your factory-direct account manager. Assigned specifically to you, your account manager gives you a direct line to the factory with no middlemen, ensuring rapid response from the entire service system.

Your knowledgeable, single-source contact is dedicated to saving you time and hassles while ensuring fast, reliable service every time.

World-class service and support

With the largest global and local support footprint in the industry, Cummins owns, trains and controls its entire distributor network. You'll always have a direct connection to the people who know mobile power generators best.

- Best-in-class aftermarket capabilities are provided through a dedicated local contact who is supported by a global system of service technicians, engineers and parts distribution centers.
- Technical support representatives always have the most up-to-date skills and equipment, with additional resources available on an as-needed basis.
- All Cummins parts distribution centers are linked by a fully integrated database, enabling you to search for parts anywhere in the world.



Contact

For sales and ordering, please contact your local sales manager via the dealer and distributor network at cummins.com.

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