

TOROMONT



PROJECT 200020

RELIABLE POWER SOLUTIONS FOR ANY COMPLEXITY.

Toromont Energy Control Systems (TECS)

TOROMONT
Power Systems



TECS: TURNKEY SOLUTIONS FOR ANY SITUATION.

From tap boxes to off-the-shelf controls to fully customized paralleling switchgear solutions, Toromont Energy Control Systems (TECS) provide an integrated approach to a full range of reliable, cost-effective equipment. From planning to customization to delivery to ongoing support, our industry-leading expertise ensures you always have the most efficient solution.

Single Generator Controller

Single Generator Paralleling with 1 Utility

Multiple Generators Paralleling with 1 Utility

Multiple Generators with Single or Multiple Utilities

LOW COMPLEXITY
STANDARD EQUIPMENT

MODERATE COMPLEXITY
STANDARD EQUIPMENT

HIGH COMPLEXITY
CUSTOMIZED SOLUTION



EMCP 4.2/4.3 Generator Controller (1 Gen & ATS)

- Generator mounted
- LV/MV/HV
- Electrical protection
- Remote monitoring



EMCP 4.4 On Board Paralleling

- Generator mounted
- LV/MV/HV paralleling
- Gas or diesel
- Multi generator paralleling
- Automatic demand load
- 1G1U
- Remote supervisory panel (SCP)



EMCP Master panel (MCP)

- Colour touchscreen HMI
- Utility paralleling
- Utility grade relay interface
- Multi step load shed/add

Switchgear

- Non-automated switchgear
- Ideal for EMCP 4.4 and MCP integration
- Available for LV/MV
- Utility grade protection
- Use with CAT 1G1U



TECS Paralleling Switchgear

- Multi utility, multi generator, multi tie & distribution schemes
- Custom/complex application
- Controls can be separated from switchgear for MV/HV application and arc flash requirements
- Options are customizable

TECS Control Platforms

- Common controls, design and programming for standby, prime, CHP and retrofit
- Multi protocol, multi HMI and multi ties and utility interfaces

TECS 100

Non-redundant Control

TECS 500

Non-redundant Control CHP

TECS 1000

Redundant Hot Standby Control

TECS 2000

Redundant Hot Standby Control CHP

TECS 3000

Fully Customized Controls for Standby, Prime, CHP, Microgrid & Retrofit Solutions



LEADING EXPERTISE

With a wide network of experts and technicians, Toromont Power Systems can usually offer faster turnaround time than the competition, without compromising quality.



YOUR SYSTEM, YOUR CHOICE

Our controls are compatible with all switchgear manufacturers, including Schneider, Eaton and CSL. And if standard options don't meet your needs, we also manufacture our own custom switchgear in our Montreal facility.



READY FOR ANYTHING

Our controls and switchgear are ideal for a variety of applications, including standby power, prime power, mission critical power, CHP and retrofits. And with 24 locations across Eastern Canada, our team is always standing by.

TOROMONT POWER SYSTEMS



ONTARIO
 BRAMPTON, ON
 HAMILTON, ON
 LONDON, ON
 OTTAWA, ON
 SUDBURY, ON
 THUNDER BAY, ON

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 CHICOUTIMI, QC
 HULL, QC
 POINTE-CLAIRE, QC
 QUEBEC CITY, QC
 SEPT-ÎLES, QC
 TROIS-RIVIÈRES, QC
 VAL D'OR, QC

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 ST. JOHN'S, NL
 WABUSH, NL

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 WINNIPEG, MB

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 BATHURST, NB
 FREDERICTON, NB
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 SYDNEY, NS
 YARMOUTH, NS

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 ToromontPowerSystems.com



CONTROLS

Standard or customized HMIs to meet your power requirements



Whether you need standard controls to supplement an existing proprietary system or customized controls for complex synchronization and load sharing, we have you covered.

COMPATIBILITY

Toromont Power Systems controls are vendor-neutral (compatible with all power envelope manufacturers) and suitable for all applications, including data centers, hospitals, airports, communications, retrofits, microgrids and CHP.

Our controls can also be retrofit to older systems, or installed as tap boxes for quick-connect integration.

COMBINED HEAT & POWER (CHP) CONTROLS

Toromont Power Systems has standardized and custom controls to manage your combined heat and power applications. Features include heat recover skids, MCC control and balance of plants.

SCALABILITY



As facility size increases, loads become more critical, systems become more complex, and your power management system requires more sophistication.

The modular design allows you to scale up the size and complexity of your system as needed.

DEAD FIELD PARALLELING

For applications where it is critical to expedite the paralleling of multiple generators onto a common bus, dead field paralleling can bring multiple generators online within 10 seconds.

HMI CUSTOMIZATION

Toromont Power Systems controls can provide a variety of HMI experiences, including:

- View data from the various components (UPS, ATS, generator set, load banks, etc.) located throughout the facility
- Integrate with building management system (BMS)
- System level logging, trending and reporting with built-in state-of-the-art fault alerts

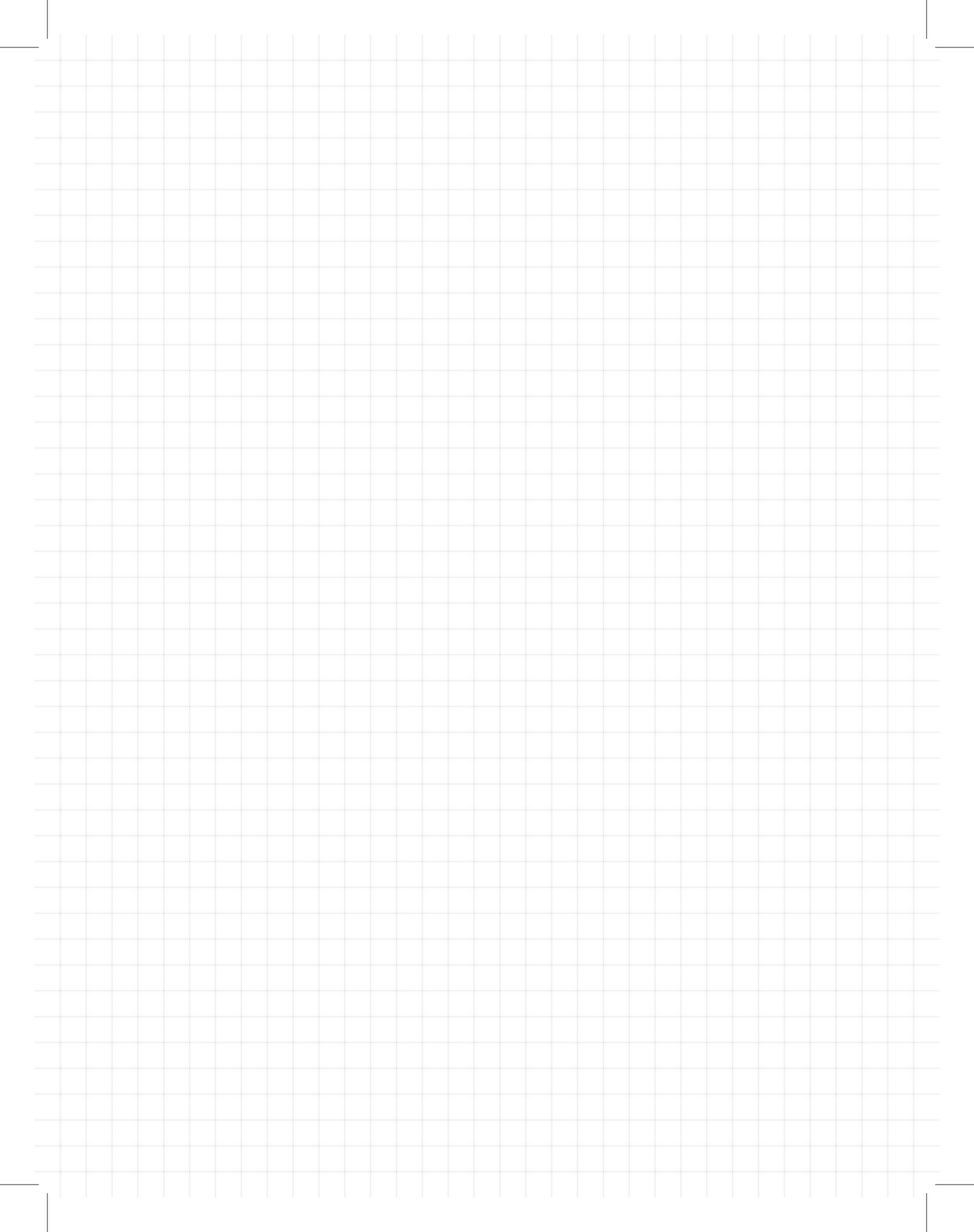
CONTROLS FEATURES

Standard Optional

Control Platform Architecture:

PLC Based modular design with separate modular Woodward & Cat speed and voltage control. Control architecture provides superior robust design should certain components fail to keep the power on	●	
True manual control and synchronization capable	●	
Human machine interface (HMI) 15"	●	
Auto synchronization, dead bus arbitration and load share modules	●	
Circuit breaker manual closing switch	on HMI	●
Circuit breaker closed/open position lights	on HMI	●
Frequency raise/lower	●	
Automatic voltage raise/lower	●	
Synchronization check lights and synchro scope	on HMI	●
Automatic load and VAR sharing	●	
Automatic generator demand load priority control	●	
Auto load add/ shed - steps and priority level	●	
Modbus TCP/IP communication:		
Data table interface for remote monitoring	●	
Power supply - 24VDC best source	●	
Generator electrical single line	●	
Display provides full visibility of electrical, engine and balance of plant status parameters	●	
Alarms (alarms and events)	●	
Alarm history (base size of 100)	●	
Generator maintenance reports:		
- Oil life, air filter, fuel filter, coolant check	●	
- JCAHO (CSA C282) report	●	
Real time trending, historical trending and load charts		●
Generator no load and load start/stop control		●
Utility active synchronization		●
Load transfer between multiple generators		●
Auto load add / shed		
8 or more steps with multiple priority level. Can include dynamic load shedding based on actual metered loads		●
Additional remote monitoring capacity to LAN, cellular or satellite		●
Dead field paralleling: multiple generators online within 10 seconds		●
Redundancy PLC control platform architecture:		
Dual redundant primary and secondary hot standby processors		●
Redundant communications networks		●
Redundant human machine interface (HMI) 15" / 17" / 19" (Multiple HMI's can be added)		●
ATS and UPS communication displayed on HMI		●
Utility grade protection relays		●
Ground fault		●
Alarm annunciation with audible horn		●
Tie breaker control and synchronization		●
Utility transfer schemes include:		
Open, close transition 100ms and/or base load control		●
Utility transfer trip integration to meet all connection agreement requirements		●
Load bank breaker control and/or make-up load bank integration		●

ENE 03-19



SWITCHGEAR

Protection, reliability & safety for any size power system



Toromont Power Systems switchgear provides industry-leading power generation, distribution and control.

Our modular design gives you unmatched flexibility and scalability, as components can be added and configured to support multiple power sources and loads. And we can work with any manufacturer.

The module houses genset motorized circuit breakers, load take-off lugs or bussing, a low voltage segregated compartment for auto and manual synchronizing control, as well as relays and PLC.



All available modules are built to CSA standards.

See Controls specification for all switchgear control features.

SWITCHGEAR FEATURES

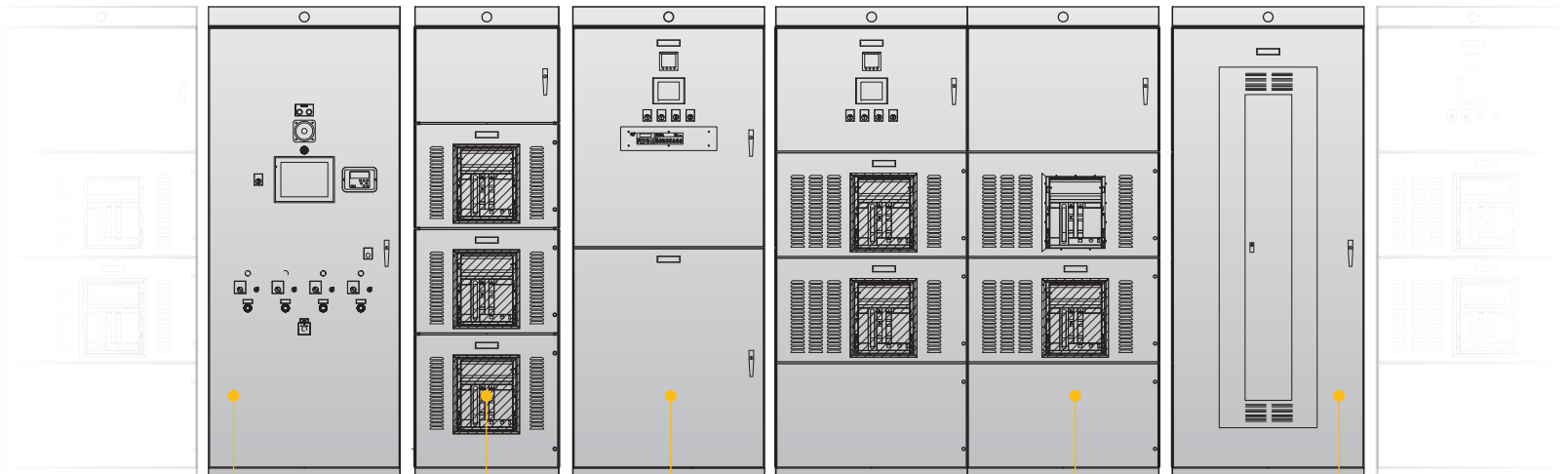
	Standard	Optional
Offered in low and medium voltage 480/600/4160/13.8KV (Other low and medium voltage can be provided)	●	
Construction: Metal clad, gas insulated and metal enclosed	●	
Access: Front and rear or front only	●	
NEMA 1	●	
Fixed or drawout electrically operated circuit breakers, with or without protective trip units with bus risers for bus duct connection to top	●	
Bottom and/or top cable access configurations also available with bus risers for bus duct connection to top	●	
Auto sync and load share modules, protective relays	●	
Circuit breaker manual closing selector switch (local and/or remote)	●	
Circuit breaker closed/open position lights	●	
Arc resistant switchgear		●
All switchgear industry insulating mediums are available		●
Customized cable entry available		●
BLB: Back up generator & load bank tie in circuit breaker		●
NEMA 2 (sprinkler proof)		●
Silver plated bus bars, or insulated bus bars duct connection to top		●
Controls can be separated from switchgear in separate panel		●

External Accessories

Quick connect tap box for mobile generator and load bank testing

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STANDARD SWITCHGEAR MODULES



MC & GC Module (Master Control and Generator Control)

MC & GC module can be located in separate controls or in the switchgear. For a full list of module standard and optional features, please refer to the Controls datasheet.

FCB Module (Feeder Circuit Breaker)

This module can be integrated with your MC & GC module into a single lineup, also available as stand alone for remote installation. Available with or without PLC controlled priority load add/shed management.

- Bottom and/or top cable access configurations also available with bus risers for bus duct connection to top
- Manually or electrically operated circuit breakers
- Air circuit breakers fixed or drawout type
- Molded case circuit breakers
- Circuit breaker manual closing selector switch
- Circuit breaker closed/open position lights

UGS Module (Utility Genset Synchronization)

This utility synchronizing module ties the MC & GC main bus to the normal utility supply via an electrically operated and PLC controlled circuit breaker mounted in the UGS.*

- PLC managed modes of operation:
 - Load sharing between gensets and utility - Peak shaving/Base loading
 - Continuous full genset power export to utility
 - Genset test mode on building load - no interruption rapid transfer under gradual loading ramp
- Utility grade multi function protective relay
- Power metering

*Requires approval by local Utility.

ST Module (Source Transfer - Utility/Emergency)

This module can be integrated with your MC & GC module into a single lineup, also available stand alone for remote installation from MC & GC.

- In phase monitor
- Programmable genset exerciser
- Breaker type
- Open transition
- Cable or bus duct connection configurations
- Built as per CSA C22.2 no 31-1
- Available optional configurations:
 - With bypass
 - With "make before break" closed transition

TLC Module (Transformer and Load Centre)

Transformer and load center allows you to feed your low voltage loads directly from the same switchgear lineup.

- Dry type transformer
- Upstream breaker protection
- Three phase or single phase load center



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