



## THE VERSATILE LOW-VOLTAGE SWITCHBOARD // CMRFE20 8PT

**Highly Available with Safety :**

Type-Tested for Motor-Control Center in Withdrawable-Unit Design

### CMRFE20 8PT Low-Voltage Switchboard

The CMRFE20 8PT low-voltage switchboard, featuring a withdrawable-unit design, is a proven standard solution for motor control centers. This model offers the necessary flexibility for power supply and is particularly well-suited to the dynamic requirements of different industries.

Designed with ergonomic principles in mind, based on extensive studies, it ensures easy and safe handling.



### CMRFE20 8PT Features

Compliance:	Verified by calculation, design, and testing in accordance with IEC 61439-2.
Busbar Position:	Standardized at top of the cubicle. Rear busbar design is available upon request.
Busbar System:	Available in 3 and 4 Wire configurations, supporting up to 6300A.
Rated Short-Circuit Withstand Current:	Up to 100 kA.
Switchgear Compartment:	Customizable dimensions to accommodate various designs and requirements.
Modular Structure:	Allows for flexible configuration and scalability.
Accessibility Options:	Front access, front and back access, or double front access.
Cable Lead-In:	Options for entry from above or below.
Cable Connection:	Available from the front or rear.



### Key Features

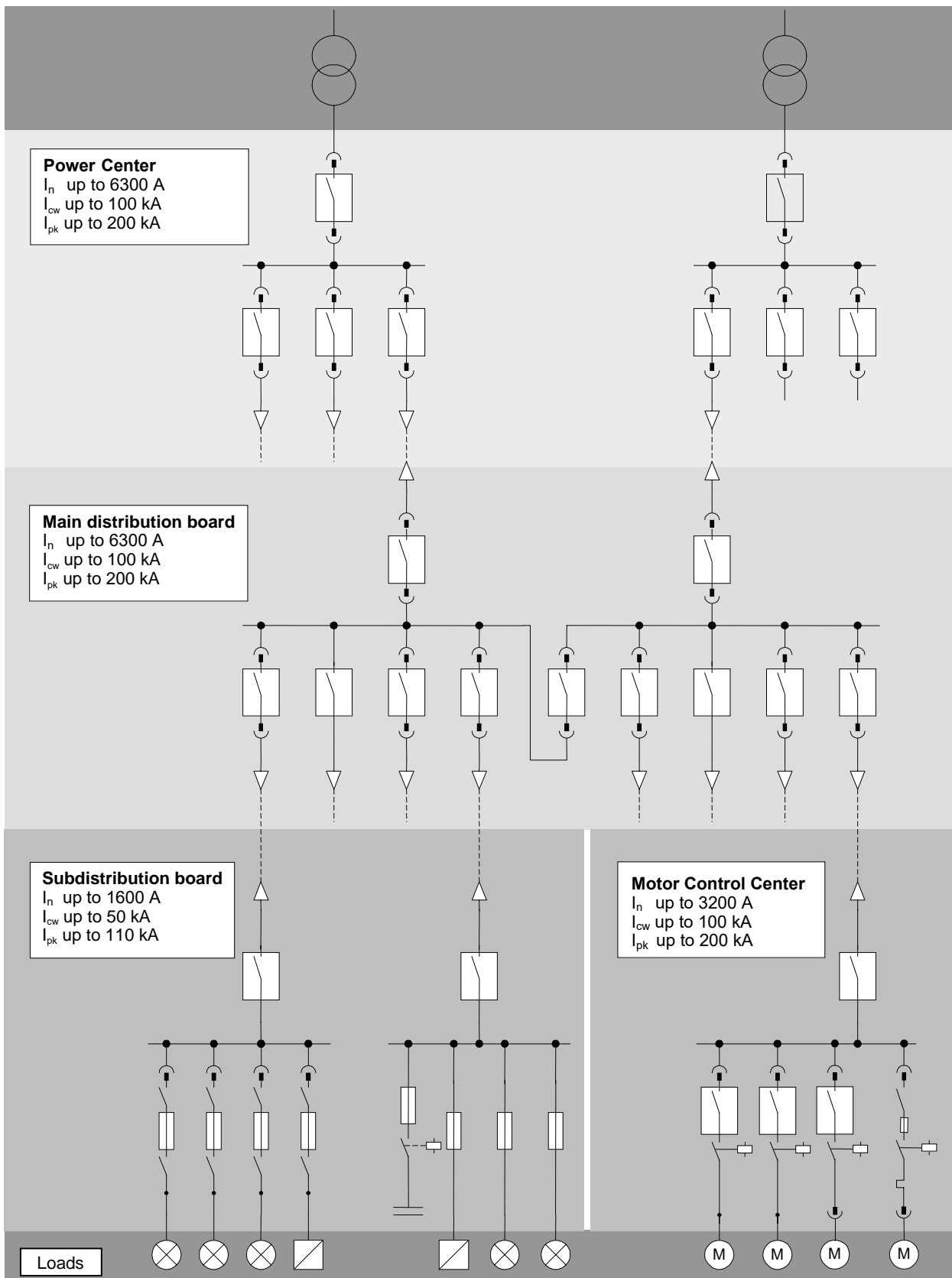
Easy and Safe Handling:	Facilitates rapid replacement without interrupting operation.
High Availability:	Ensures consistent performance and reliability. As a motor control center, the CMRFE20 8PT supports ampere rating up to 6000A and offers global service support.

### BENEFITS

Proven Safety and Quality:	Type-tested for reliable operation.
Global Service Support:	Comprehensive service available worldwide.
High Flexibility:	Adaptable for cost-effective solutions.
Established Quality:	Numerous global project applications since the 1990s underscore its reliability and performance.



**CMRFE20 8PT // for all application in the low voltage network**



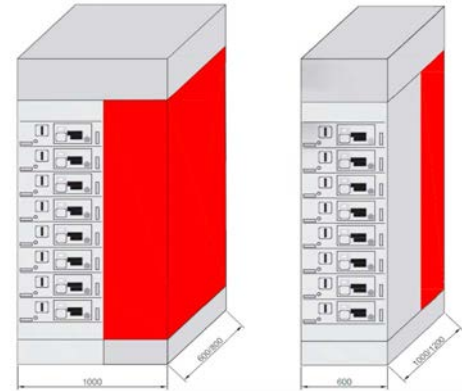


## THE VERSATILE LOW-VOLTAGE SWITCHBOARD // CMRFE20 8PT

Withdrawable-Unit Design:  
 Highly Available, Always Safe

### Cubicles for Starters and Feeders

Our withdrawable-unit design cubicles provide exceptional operating comfort, safety, and availability. Thanks to the innovative guiding withdrawable principle, changes and adaptations can be made quickly and easily. Individual modules can be added or replaced as needed, and even compartments can be converted or modified during operation.



### Key Features

Enhanced Safety:	Achieved through third party type-tested certification.
High Capacity Outgoing:	Capable of handling up to 250 kW or 600A.
Protection Options:	Available with both non-fused and fused protection.
Compact Design:	Withdrawable units available in minimum module height of 100mm.
Operator Interface:	Standardized across all withdrawable units.
Operation Safety:	Includes a Test position to verify the control circuit's functionality without requiring connected load actual operation.
Cable Connection:	Options for front or rear cable connection compartments.
Flexible Operation:	Allows easy adaptation to changing operation requirements without requiring a shutdown of the switchboard.





## THE VERSATILE LOW-VOLTAGE SWITCHBOARD // CMRFE20 8PT

Drawer Design:  
 Offer Safety and Flexibility

### Drawer Highlights

Modular Design:	Available in eight module heights (100, 150, 200, 300, 400, 500, 600, 700 mm).
Versatile Operation:	Clearly marked positions for Connected, Test, and Disconnected states.
Error-Resistant Design:	Prevents withdrawal of drawer when switch is in ON position.
Flexible Control:	Up to 40 pins control plug for each drawer with optional bus communication contacts.
Hazard Prevention:	Incorporate a mechanism to prevent the drawer from being pulled out too forcefully, safeguarding against accidental drops.
Ease of Operation:	Insertion support for easy moving of withdrawable units $\geq 300\text{mm}$ height.
Flexible Arrangement:	Ample space for mounting components by possibility of fitting them at the rear.
Safe Operation:	Lockable at Disconnected position to safely work at the connected load.





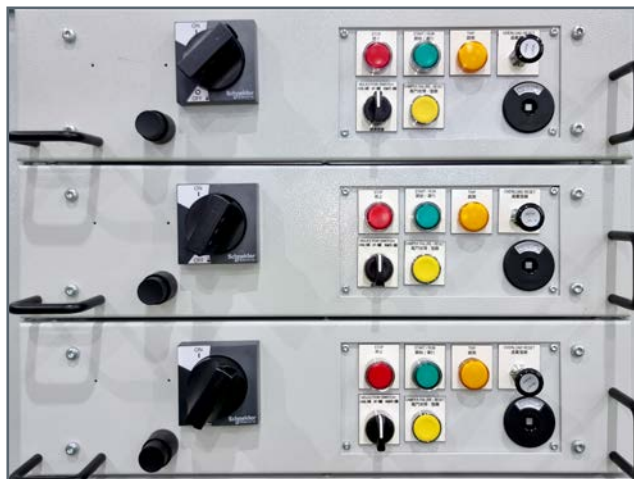


## THE VERSATILE LOW-VOLTAGE SWITCHBOARD // CMRFE20 8PT

### Plug-on bus system

The plug-on bus system is positioned at the rear of the cubicle, providing safe-to-touch protection without the need for additional shutters for live parts.

Integrated Protection:	Ensures safety against electric shock.
Pole Versions:	Available in 3 and 4-pole configurations.
Safe-to-Touch:	Rated IP 20 for protection.
Tap Openings:	Modular grid with 25 mm spacing.



Versatility Configuration	Capable of integrating both Withdrawable-units and Fixed-units within the unified bus system.
Fluid Withdrawal System	Features a seamless withdrawal process that requires no additional unplugging of connectors.
Separated Cable Compartment	Power and control cable connections are housed in the cable connection compartment.
Flexible Cable Connection Compartments	Available in optional widths of 400 mm (front) or 600 mm (rear).



## TECHNICAL DATA

8PT2749

General

### Technical Data

<b>Standards and specifications</b>	Type-tested switchgear and control gear assembly (TTA)	IEC 61439-2(2020)	
	Testing of response to internal faults (arcing faults) (690 V, 80 kA, 300 ms)	IEC 61641	
<b>Creepage distances and clearances</b>	Rated impulse withstand voltage ( $U_{imp}$ )	8 kV	
	Overvoltage category	III	
	Pollution degree	3	
<b>Rated insulation voltage (<math>U_i</math>)</b>		1000V	
<b>Rated operational voltage (<math>U_o</math>)</b>		up to 690V	
<b>Rated currents (<math>I_n</math>) Busbars (3-pole and 4-pole)</b>	Main horizontal busbars	Rated current Rated peak withstand current ( $I_{pk}$ ) Rated short-time withstand current ( $I_{cw}$ )	up to 6000A up to 220kA up to 100kA, 1 s
	Vertical busbars for circuit-breaker design	Rated current Rated peak withstand current ( $I_{pk}$ ) Rated short-time withstand current ( $I_{cw}$ )	up to 1600A up to 110kA up to 50kA, 1 s
	Vertical busbars for fixed-mounted design	Rated current Rated peak withstand current ( $I_{pk}$ ) Rated short-time withstand current ( $I_{cw}$ )	up to 1600A up to 110kA up to 50 kA, 1 s
	Vertical busbars for in-line plug-in design (3JN6)	Rated current Rated peak withstand current ( $I_{pk}$ ) Rated short-time withstand current ( $I_{cw}$ )	up to 1600A up to 110kA up to 50kA*, 1 s
	Vertical busbars for plug-in design and withdrawable design	Rated current Rated peak withstand current ( $I_{pk}$ ) Rated short-time withstand current ( $I_{cw}$ )	up to 1200A up to 220 kA up to 100kA, 1 s
<b>Switchgear rated currents</b>	Circuit-breakers	up to 6000 A	
	Outgoing feeders	up to 630 A	
<b>Internal separation</b>	Form 1 to Form 4	IEC 61439-1	
<b>Surface treatment</b>	Frame parts	galvanised/powder-coated/wet painted	
	Enclosure	galvanised/powder-coated/wet painted	
	Doors	powder-coated/wet painted	
<b>Degree of protection</b>	to IEC 60529, EN 60529	IP 30 to IP 54	
<b>Dimensions</b>	Height:	2200, 2600 mm (with busbar top unit)	
	Width:	400, 600, 800, 1000, 1600 mm	
	Depth:	600, 800, 1000, 1200 mm	

\* Rated conditional short-circuit current  $I_{cc}$  up to 100 kA





## AUTOMATION SYSTEM - JACKING MONITORING & ALARM MONITORING SYSTEM

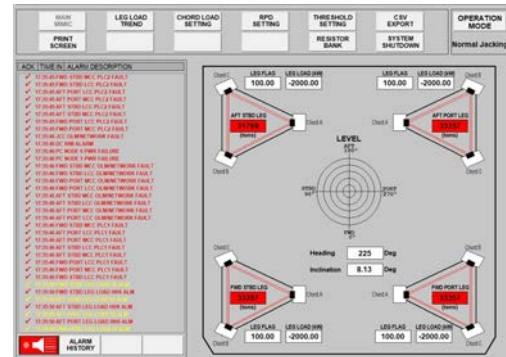
### The Jack-up Rig Monitoring System (JMS)

is designed to oversee jacking operations for rigs with 12, 18, or 24 motors, incorporating comprehensive emergency safety features for the entire jacking system. The JMS includes consoles that integrate seamlessly with existing Jacking Motor Control Centers (MCCs) and interface with jacking hardware. It monitors critical parameters of jacking units using Programmable Logic Controllers (PLCs).

**The HMI Software application** is utilized in the JMS for its user interface, providing seamless interaction with the monitoring system and ensuring fault tolerance through redundancy.

### Typical Network Design:

The network design for the JMS generally includes Profibus, Profinet, and a fiber optic ring system to facilitate robust and reliable communication.



### Typical Parameters Monitored in JMS:

RPD Monitoring:	Tracks the Riser Position Device for accurate positioning.
Chord Load Monitoring:	Measures and monitors load on the chord components.
Alarm Monitoring:	Provides real-time alerts for system alarms.
Motor Current Monitoring:	Monitors current consumption of motors.
RPD Trending:	Analyzes trends in Riser Position Device data.
Chord Load Trending:	Tracks trends in chord load measurements.
Leg Flag Monitoring:	Monitors the status of leg flags for position verification.
Leg Load Monitoring:	Measures and tracks loads on the legs.
Inclination Monitoring:	Measures the inclination angles to ensure stability.
Data Export:	Facilitates the export of monitored data for further analysis.

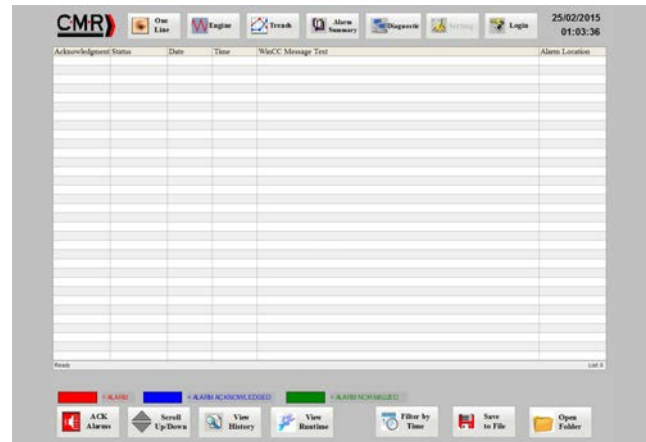
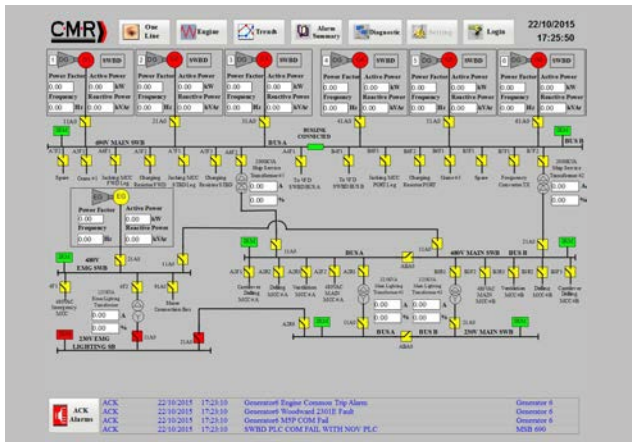
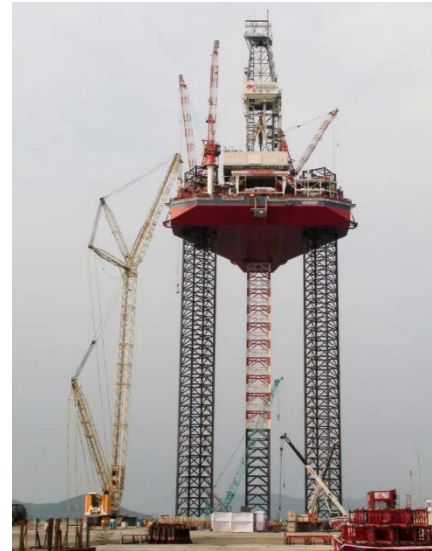


## AUTOMATION SYSTEM - POWER MANAGEMENT SYSTEM

The Power Management System (PMS) oversees the power demand and supply for routine operations on jack-up rigs, such as drilling, jacking, and hoisting, in challenging offshore environments.

### Typical PMS Components:

Hot Standby PLC	Ensures continuous operation with redundancy.
Remote I/O (RIOs)	Provides distributed input and output control.
Industrial PC	Centralizes processing and control.
Keyboard and Touchscreen	For user interaction and system management.
Local HMI Panels	Offer localized control and monitoring.
Load Sharer	Balances electrical load across the system.



### Features & Functions of PMS

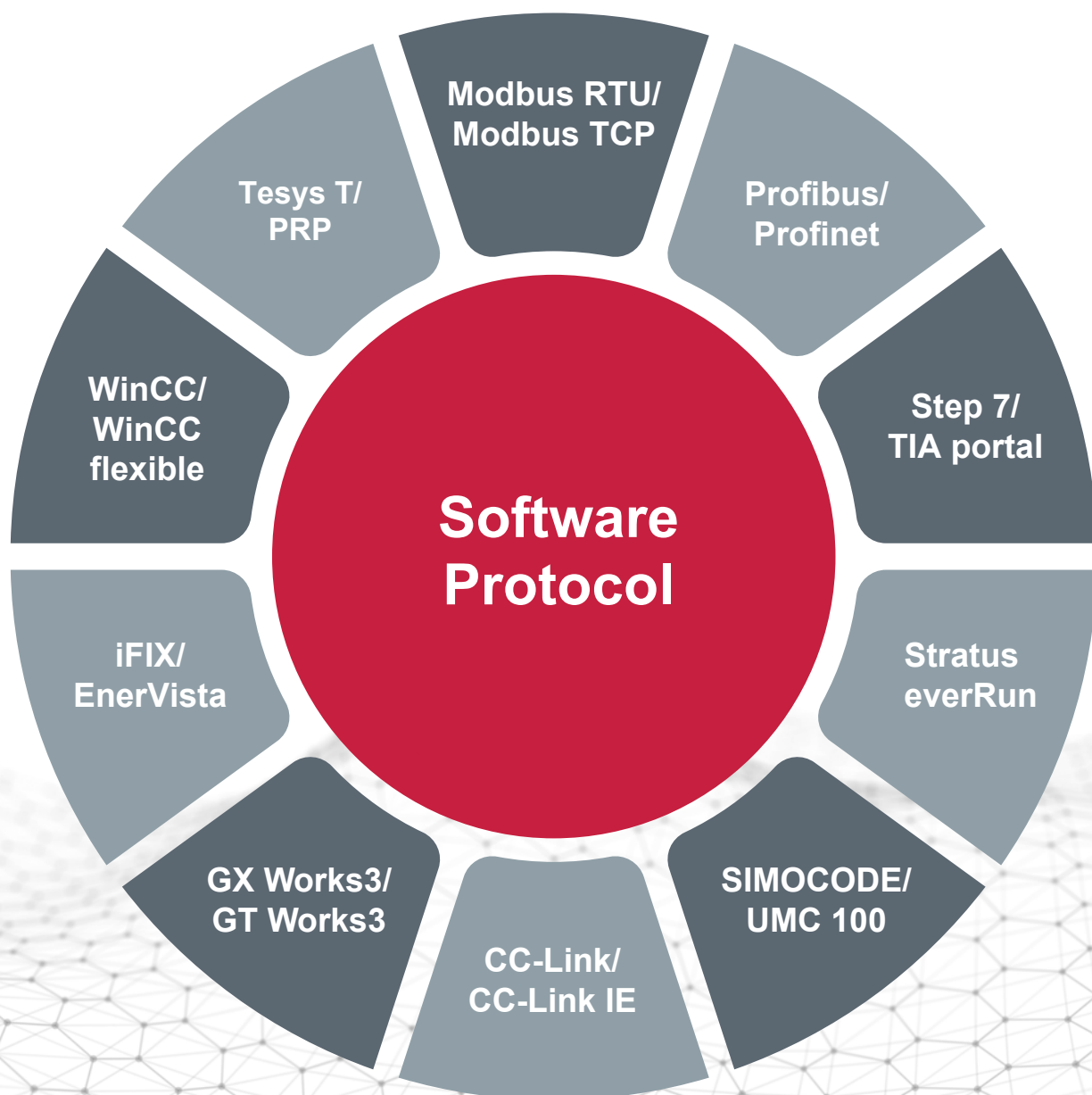
Load Sharing	Distributes electrical load efficiently across multiple generators.
Priority Start of Standby Genset	Ensures standby generators start in the correct sequence based on priority.
Breaker Status Monitoring	Tracks the status and operation of breakers.
Power Monitoring	Measures key parameters including kilowatts (kW), voltage (V), current (A), and power factor (PF).
Alarm Monitoring	Provides real-time alerts and notifications for system alarms.
Engine Status Monitoring	Monitors and reports on engine performance and condition.
Network Diagnostics	Performs thorough diagnostics of network health and performance.
Integration with LV System	Seamlessly integrates with low-voltage systems for cohesive operation.
Interface with Drilling System	Interfaces with drilling systems for coordinated power management.







## COMMON SOFTWARES & COMMUNICATION PROTOCOLS USE IN AUTOMATION SYSTEM







## CABLE ASSEMBLY CAPABILITIES

At C M R , a member of the Amphenol family, we are committed to delivering outstanding cable assembly solutions that meet the rigorous demands of various industries. Leveraging Amphenol's renowned product quality, our extensive cable assembly capabilities cover a wide range of applications, ensuring robust, reliable, and high-performance connections for all your projects.



## CUSTOM DESIGN AND ENGINEERING

Our experienced team works closely with you to develop custom cable assemblies that meet your specific requirements. Utilizing Amphenol's advanced components, we focus on creating solutions that adhere to your exact specifications and industry standards, from initial design through to final production.

