

POWER PARAMETERS

Generating Rates

STANDBY POWER				PRIME POWER			
35	kva	28	kW	**32**	kva	25	kW
		51	A			46	A
Voltage		*400/230 VAC*					
Rated at power factor	Cos Ø	*0,8*					

RPM 1500 | Hz 50 | 3 Three phase | Water cooled | Soundproof | Diesel

Standby Rating (ESP)

According to ISO 8528-1:2018, Emergency standby power is the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24h of operation shall not exceed 70% of the ESP. Overload is not allowed.

Prime Rating (PRP)

According to ISO 8528-1:2018, Prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24h of operation shall not exceed 70% of the PRP. 10% overload capability is available for a period of 1 hour within 12-hour period of operation.

Standby power: *According to the standard, the nominal power assigned by the genset is given for 25°C Air Intlet Temperature, of a barometric pressure of 100kPA (100 m A.S.L), and 30% relative humidity.*

Dimensions / Weight / Fuel tank





	Dimensions W x L x H (mm)	Weight (kg)	Tank Capacity (lt)
Canopy	1000 x 2300 x 1350	926	100
Open Type	1000 x 2300 x 1250	770	100

Standard fuel tank
Autonomy: ≈16hr @75% PRP Load

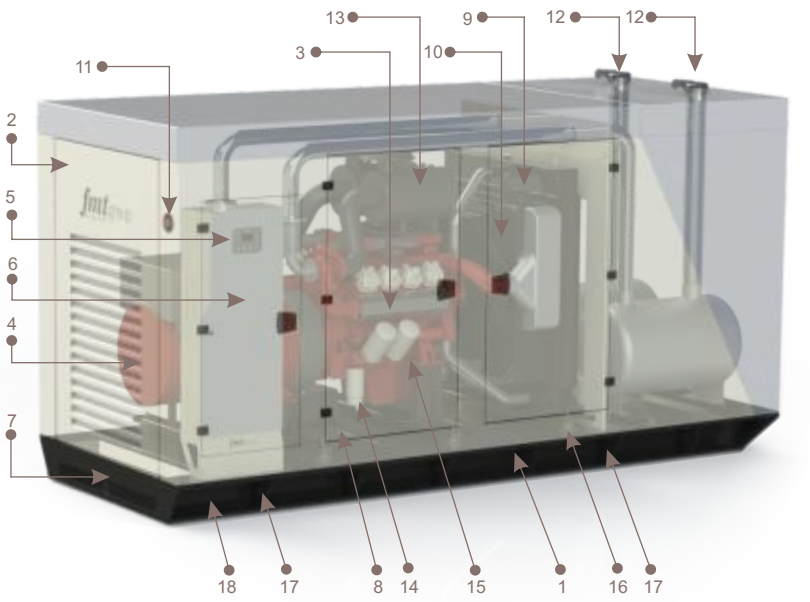
note:
Dimensions, weight, fuel tank are for reference only, do not use for installation design. Please contact your dealer for exact weight, dimensions and fuel tank.

NOISE LEVEL db(A) — 7mt@70-75 db(A)

TBA: *To be asked*, **N/A:** *Not applicable*

Technical data correspond to the available information at the moment of printing.

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Low fuel consumption | High efficiency | Easy lift | Low noise

1	Base Frame	10	Cooling fan
2	Canopy	11	Emergency stop button
3	Engine	12	Exhaust Outlet
4	Alternator	13	Air Filter
5	Control Panel	14	Fuel filter
6	Connection Box	15	Oil Filter
7	Fuel Tank	16	Vibration Isolators
8	Battery	17	Lifting Lug
9	Radiator	18	Earthing Point

**Image for guidance purposes*

FEATURES

- Galvanized steel that provides extra strength, durability and protection
- Tightly structure, excellent design
- Easy access to serviceable parts
- Double swinging doors for ease of service
- Doors have high quality gaskets to avoid leakage of sound
- LCD display shows system status and setup information
- Adequate ventilation to meet air requirement for combustion and heat removal

GENSET STANDARD SPECIFICATION

- Diesel engine
- Water cooled
- Radiator with mechanical fan
- ATS automatic transfer switch 4P
- Protective grille for rotating and hot parts
- Electric starter and charge alternator
- Engine coolant heater
- Base frame with integrated fuel tank
- Engine oil filled
- Output circuit breaker 4P
- Anti-vibration shock absorbers
- Rubber fuel connection hoses
- Single bearing, class H alternator
- Industrial exhaust silencer and steel bellows supplied separately
- Static battery charger
- Starting battery (with lead acid) including rack and cables
- Battery isolator
- Manual for application and installation
- Jacket water heater
- Digital fuel level sensor

SAFETY FEATURES

- HIGH WATER TEMPERATURE
- LOW LUBE OIL PRESSURE
- PROTECTIVE EARTH POINT
- EMERGENCY STOP PUSH-BUTTON

TY..!2 YEARS WARRANTY..!2 YEARS WARRANTY..!2 YE

HORSE POWER

Durable Energy

Unique design

The diesel engine is the most important part of the genset. Is the prime mover that drives the generator (alternator) to produce electricity. All diesel engines are similar to each other in the concept but they different in many aspects such as the number of cylinders, if the cylinders are inline or V-type, how the fuel is delivered to the cylinders, governing system, cooling system, air charging system, air intake system. All these details affect the decision of which engine to use and which performance is expected. Engines are rated in KW or HP. Their performance is measured in their fuel consumption in liters or gallons per KWh produced, its thermal efficiency, noise level, lube oil consumption and exhaust gas emissions.



*Image for guidance purposes

ENGINE SPECIFICATION

GENERAL DATA

Model		K2A-4L
No. of cylinder / Configuration		IN-LINE 4
Displacement		3.61 lt
Bore / Stroke		100x115 mm
Compression ratio		17:1
Aspiration		Natural Aspirated
Governor type		Electronic
Cooling system		Water
Coolant capacity		16 lt
Speed / Frequency		1500 rpm / 50 Hz
Fuel consumption	100% power used	8.4 lt/h
Fuel consumption	75% power used	6.5 lt/h
Fuel consumption	50% power used	4.4 lt/h

LUBRICATION SYSTEM

Oil capacity	13 lt

VENTILATION SYSTEM

Intake air flow	1.7 m³/min
Radiator cooling air	72 m³/min

EXHAUST SYSTEM

Exhaust outlet temperature	<600 °C
Exhaust gas flow	8.2 m³/min

ELECTRICAL SYSTEM

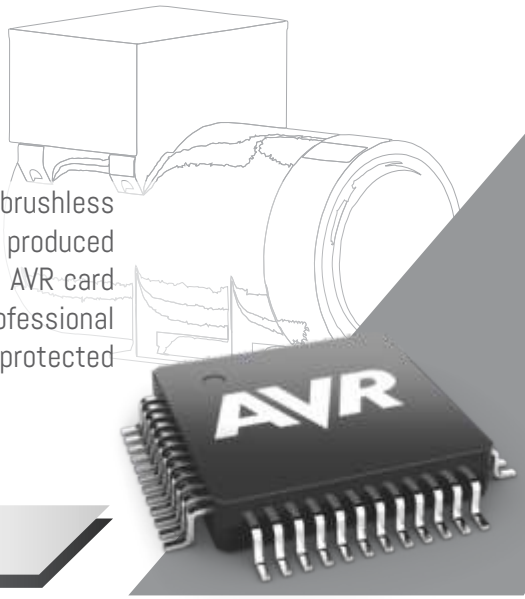
Battery Voltage	12 V

Fuel consumption refers to PRP

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SELF EXCITED
STRONG ROTOR
Isolated Stator

Alternator has been designed for three phase and mono phase. They are brushless type and are controlled by AVR card. The windings have been industrially produced to give maximum efficiency in the production of energy. Throughout the AVR card system the output voltage is always stable. The smart AVR is a professional controller than enables the whole operation of excitement. Alternator is protected by a special cabin that enables the electrical connections.



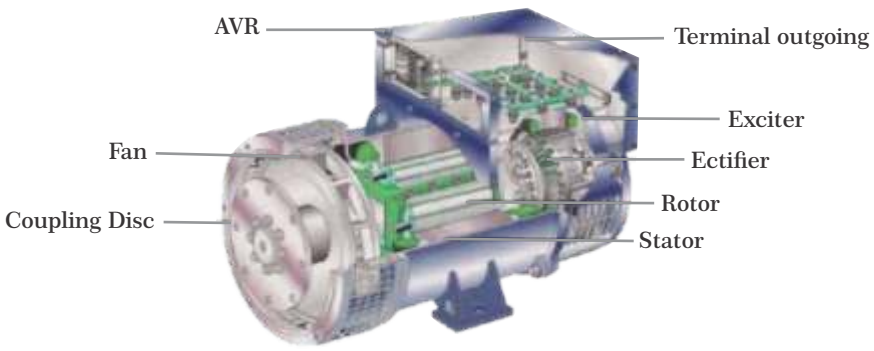
ALTERNATOR SPECIFICATION

GENERAL DATA

Model	PO35
No. of Phase	3
Power Factor	0.8
No of Bearing	SINGLE
No of Poles	4
No of Leads	12
Insulations Class	H
Voltage Regulation (Steady State)	± 1%
Degree of Protection	IP 23
Excitation System	Self excited, AVR, Brushless
Connection System	STAR
Frequency	50 Hz
Voltage Output	400/230 VAC



Alternator Structure



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SINGLE GEN-SET
AMF CONTROL UNIT

control panel

SMART LOGIC / FULL PROTECTION

STANDARD

The SGC 420 controller is modern genset controllers for both AMF applications with a mechanical and electronically controlled engine (CANbus) plus AMF applications with electronic governor. The controllers provide you with a user-friendly interface and full graphics LCD and include voltage and frequency measurement for mains and gensets, and electrical load measurement (true RMS). Configurable analogue and digital inputs/outputs are provided for various features. Modbus over RS-485 and CAN ports are available for remote communication. Start and stop gensets remotely using the Remote start/stop function. Deep sleep mode is a useful feature that extends the battery lifetime by suspending the normal controller functions of when the genset is off. The controller monitors engine safety, electrical load, site battery backup voltage and shelter temperature to reduce fuel consumption. Configure parameters easily from a PC using DEIF Smart Connect utility software. Connect to the PC through the controller's USB Type B port.

DEIF420

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OPTIONAL



InteliLite4 AMF25

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GENA

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DSE6120

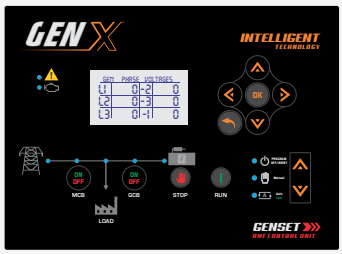
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DSE7320

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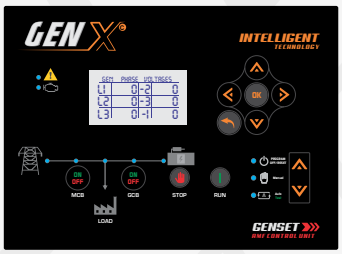


GENX is suitable for managing the most common single or three phase generator applications (Single Prime Mover and Single Standby gensets). It can monitor three phase (RMS) mains voltages and three phase (RMS) generator voltages and currents, An integrated J1939 Canbus interface enables the controller to be used with electronic engines. A traditional interface can be used for non-electronic engines. Extensive input and output capability with optional communication interfaces make this an extremely powerful single genset controller. With its user-friendly interface, GENX provides instant visualisation of measures and alarms coming from the genset. The adjustable parameters of the controller enable both standard and customized tasks to be performed, set directly from the controller's keyboard or by using the free software tool. A version with built in GPRS/GPS tracking is particularly suited for mobile or rental applications, where asset tracking and monitoring is required.



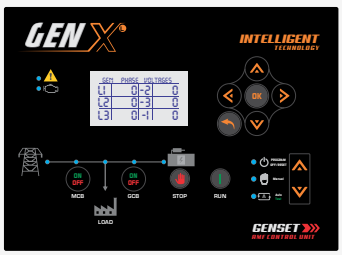
GENX

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GENX-C

DOWNLOAD datasheet



GENX-L

DOWNLOAD datasheet

SYNCHRONIZE SYSTEM

SYNCHRONIZE CONTROL UNIT

control panel

SMART LOGIC / FULL PROTECTION

STANDARD

The AGC 150 Hybrid is a variant of the well-known and easy-to- use controller, AGC 150. The AGC 150 Hybrid comes with all the necessary functions for protection and control of a hybrid installation with PV and genset. It can be used as a single unit for PV and up to 2 gensets for synchronising projects, in island or parallel to the mains modes. The AGC 150 Hybrid handles the power production from PV and genset to give the highest PV penetration and the lowest CO2 emission, and to ensure safe power production to support the load. The AGC 150 Hybrid can be used as: •Hybrid controller mounted directly on the genset with full control of PV, genset and mains •PV integration controller with power measurement and breaker feedback from existing controller.The AGC 150 contains all necessary 3-phase measuring circuits. All values and alarms are presented on the sun proof LCD display.

DEIF150

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General description

The AGC 150 Hybrid is a variant of the well-known and easy-to-use controller, AGC 150. All technical information on this variant is found in the AGC 150 documentation on deif.com.

The AGC 150 Hybrid comes with all the necessary functions for protection and control of a hybrid installation with PV and genset. It can be used as a single unit for PV and up to 2 gensets for synchronising projects, in island or parallel to the mains modes.

The AGC 150 Hybrid handles the power production from PV and genset to give the highest PV penetration and the lowest CO emission, and to ensure safe power production to support the load.

The AGC 150 Hybrid can be used as:

- Hybrid controller mounted directly on the genset with full control of PV, genset and mains
- PV integration controller with power measurement and breaker feedback from existing controller.

The AGC 150 contains all necessary 3-phase measuring circuits. All values and alarms are presented on the sun proof LCD display.

Main hybrid features

Minimum genset load
- Eliminate the risk of reverse power caused by low load

Perfect for Rooftop installations
- Rebuild your genset with AGC 150 benefits and get PV for free

Load calculation in terms of solar power

Automatic genset start/stop
- Based on threshold set points for PV production and mains import/export

PV included in modes
- MPE (Mains power export/import), AMF (Automatic mainsfailure), LTO (Load take-over), Fixed power, and Peak shaving

PV inverter communication support
- Support of morePV inverter communication protocols, including Sunspec

Mains voltage and current measurement
- One CT/Phase for balanced load

PV Power emulation
- Try and test the Hybrid functions without a PV plant

Other PV features:
- Energy Counters, Curtailment
- Inverter monitoring
- POA and BOM for calculating P max
- Weather data presentation

OPTIONAL



InteliGen4 200

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DSE8610

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SGC 420

The SGC 420 controllers is modern genset controller for both AMF applications with a mechanical and electronically controlled engine (CANbus) plus AMF applications with electronic governor.

General Description

The SGC 420 controller is modern AMF genset controllers with a user-friendly HMI and full graphics LCD.

They include voltage and frequency measurement for mains and gensets, and electrical load measurement (true RMS).

Configurable analogue and digital inputs/outputs are provided for various features.

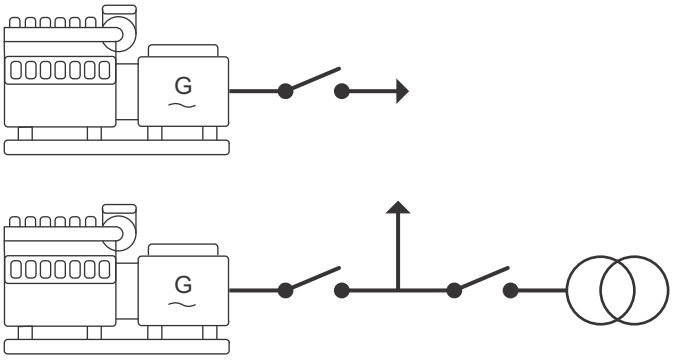
Modbus over RS-485 and CAN ports is available for remote communication.

Start and stop gensets remotely using the Remote start/stop function.

Deep sleep mode is a useful feature that extends the battery lifetime by suspending the normal controller functions of when the genset is off.

Monitoring engine safety, electrical load, site battery backup voltage and shelter temperature (to reduce fuel consumption).

Configure parameters from a PC using DEIF Smart Connect utility software. Connect to the PC through the controller's USB Type B port.



Main Features

- **Auto, manual and remote start/stop** modes with night restriction option
- **17 inputs**, configurable
  - 5 resistive
  - 2 analogue I/V
  - 1 differential
  - 9 digital
- **7 digital outputs**, configurable
- **Modbus** over RS-485
- **Manually configurable** from the controller front buttons or from a PC using DEIF Smart Connect utility software
- **Backlit full graphics LCD** with power saving feature for extended battery lifetime
- Supports the **battery charging alternator** I/O interface
- **Supports Auto mode** (site battery monitoring, AMF, remote start/stop, auto exercise and cyclic) and manual running modes
- **Magnetic Pickup Unit (MPU)** interface for engine speed measurement
- **Auto exercise mode** (2 events) to start and stop the genset for a preconfigured time
- **Monitors 1-phase/3-phase** voltage, frequency, load current and power factor for generator
- **Monitors engine safety parameters** like lube oil pressure, engine temperature, fuel level and more
- **Monitors telecom site battery backup level and shelter temperature** to reduce engine running and fuel consumption at telecom tower sites
- Controls **start relay, fuel relay, alarm horn** and more as digital outputs
- **Event log** for 100 events with real time clock (RTC) stamps and engine running hours information
- **Counters** for engine starts, engine trips, engine running hours, genset and Mains kWh, kVAh, kvarh
- **Measures** mains kW, kVA
- **CANbus** for engine communication with support for Stage 5/Tier 4 Final

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SGC 420

The controllers provide you with a user-friendly interface and full graphics LCD and include voltage and frequency measurement for mains and gensets, and electrical load measurement (true RMS).

Power Supply

- Nominal voltage: 12/24 V DC
- Operating range: 8 to 32 V DC
- Power transients, in compliance with ISO 7637-2

Operating Conditions

- Operation: -20 to 65 °C
- Storage: -30 to 75 °C
- In compliance with IEC 60068-2-1, 2

Environment

- Vibration: 2G in X,Y and Z axes, in compliance with IEC 60068-2-6
- Shock: 15 g for 11 ms, in compliance with IEC 60068-2-27
- Humidity: 0 to 95 % RH, in compliance with IEC 60068-2-78
- Protection degree: IP65 for front face with gasket, in compliance with IEC 60529
- EMI/EMC: In compliance with IEC 61000-6-2, 4

Approvals

CE approved:

Comply to the EU Low Voltage Directive: EN 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements Comply to the EU EMC directive EN 61000-6-2, 4

Technical Specifications

Maximum standby current
- 180 mA, 12 V DC
- 140 mA, 24 V DC
- 1A (additional) for the actuator

Crank-start dropout survival period
- 50 ms for a drop from 12/24 V DC

Charging alternator interface
- 0.25A, 12 V DC
- 0.125A, 24 V DC
- Diagnostic voltage measurement

Digital outputs
- 5 x 1A, configurable for pre-heat, horn and more
- 2 x 5A, configurable for start relay, stop solenoid, fuel relay, contactors and more

Digital inputs
- 9 x switch-to-ground inputs for lube oil, temp, fuel level and more

Analogue inputs
- 5 x resistive inputs (10 to 5000 Ω), configurable
- 1 x 4 to 20 mA (LOP) / 0 to 5 V input
- 1 x 0 to 5 V input
- 1 x differential input (± 60 V DC) for site battery voltage

Mains/genset voltage measurement
- 32 to 300 V AC RMS, 5 to 75 Hz for phase-to neutral

Load current measurement
- Nominal: -/5 A for current transformer (CT) secondary
- 4 CT inputs

CANbus for engine interface
- Baud rate: 250 kbps
- Packet size: 8 bytes
- Termination resistor of 120 Ω, internally mounted

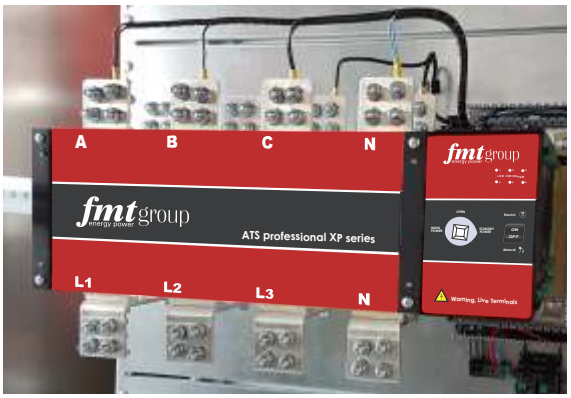
Dimensions
- External dimensions: 233 mm x 173 mm x 38.5 mm
- Mounting panel cut-out: 219 mm x 158 mm

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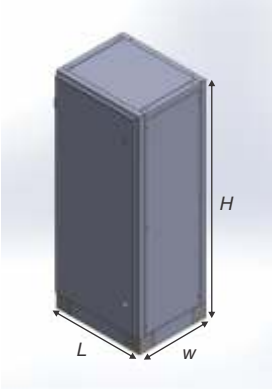
fmt eletric ats system

AUTOMATIC TRANSFER SWITCHES

An ATS is a device that interfaces with a generator and the electrical system. It monitors the utility power and signals of generator to start if the utility power goes out of specifications or drops out entirely. Backup power is now fed to the main utility panel or an emergency panel via the ATS. Are sized based on the power requirements of the connected devices and the type of power sources involved. Some ATS units include monitoring features, allowing users to track power status, load levels and other relevant data. All FMT Group generators has the ATS system.







VOLTAGE	MODEL CONFIGURATION*	ATS PANEL MODEL	CAPACITY AMPS	Dimension (mm) W x L x H
400/230 VAC	3P5-V400-DEIF420	ATSXP 63A 4P	63A 4P	190 X 350 X 450

*model configuration explanation

3P5-V400-DEIF420

- ***AMF/Synchronize Control Unit***
- ***Voltage***
- ***5**-50Hz / **6**-60Hz*
- *no. of phase **3P**-threephase / **IP**-monophase*

OPTIONAL

PRO-ACB Series

AIR CIRCUIT BREAKER

FMT PRO-ACB Series intelligent type universal circuit breaker is suitable for AC50HZ, rated voltage up to 660V(690) and below, rated current 400A-6300A of the distribution network used to distribute power and protect circuits and power supply equipment against overload, under-voltage, short circuit, single-phase ground fault. Circuit breaker protection with intelligent, selective protection of precision, improve the reliability of power supply, avoid unnecessary power outages. At the same time with an open communication interface for four remote, meet the requirements of the system centers and automation systems. The circuit breaker at an altitude of 2000 meters pulse pressure 8000V (different altitude correction according to the standard, no more than 12000V). The circuit breaker without in Intelligent Release and sensor can be used for isolation, mask as Circuit Breaker meets the requirement specified in GB14048.2 "low-voltage switchgear and control equipment low-voltage circuit breakers" and IEC947-2 "low-voltage switchgear and control equipment circuit breaker".



i note:

- Producing with ISO9001, ISO14001, ISO45001, CE standards
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energy power

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WE HAVE THE POWER

For more information please visit our websites

CE ISO 9001:2015 ISO 14001:2015 ISO 45001:2018

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