



## Introduction

Aksa is committed to providing the most effective solution to the Data Center industry with the power it takes from engineering, production, distribution, and customer-oriented experience and knowledge. We are constantly improving designs, products and infrastructure to offer the highest level of reliability for Emergency Power Systems. While serving the industry in hundreds of countries Globally, we design our products and systems in line with the needs of Data Center practitioners at the center of our focus. Aksa generator group provides continuity, reliability and ideal performance for Data Centers.

## Power

3 Phase, 50 Hz, PF 0.8

Voltage (V)	STANDBY RATING (ESP)		DCC RATING (DCP)		DCC CURRENT (A)
	kW	kVA	kW	kVA	
400 / 231	1800.0	2250	1600.00	2000	3248

Standby Rating (ESP) : Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. ESP is in accordance with ISO 8528-1. Overload is not allowed.

Data Center Continuous (DCP) : Data centre power is defined as being the maximum power which a generating set is capable of delivering while supplying a variable or continuous electrical load and during unlimited run hours.

\*Data tolerance  $\pm 5\%$

## General Characteristics

Model Name	AC 2250
Frequency (Hz)	50
Fuel Type	Diesel
Engine Make and Model	Cummins QSK60-G4 (DATA CENTER)
Alternator Make and Model	Stamford S7L1D-G4
Control Panel Model	DSE 7320
Canopy	OpenGenset

## Engine Specifications

### General Data

Manufacturer	Cummins
Engine Model	QSK60-G4 (DATA CENTER)



Number of Cylinders / Type	16 cylinders - V type
Bore mm (in)	159
Stroke mm (in)	190
Displacement l (cu. In)	60.2
Compression Ratio	14.5:1
Engine Speed (rpm)	1500
Standby Power (kW/hp)	1915/2567
DCC Power (kW/hp)	1730/2319
Block Heater (QTY)	2
Block Heater Power (Watt)	3000
Governor System	Electronic
Air Filter	Dry Type
Aspiration	Turbocharged and Low Temperature Aftercooled

#### Lubrication System

Oil Capacity l (gal)	280
Max. Oil Temperature °C (F)	121

#### Fuel System

Fuel Type	Diesel
Injection Type	Direct
Type of Fuel Pump	Cummins HPI-PT

#### Electrical System

Operating Voltage (Vdc)	24 Vdc
Battery and Capacity (Qty/Ah)	4x143
Charge Alternator (A)	55

#### Cooling System

Cooling Method	Water Cooled
Coolant Capacity (engine only) l (gal)	157

#### Exhaust System

Exhaust Gas Flow (m <sup>3</sup> /min)	336.60
Exhaust Back Pressure in-Hg (kPa)	6.8
Exhaust Gas Temperature °C (F)	450
Heat Rejection to Exhaust kW (BTU/min)	1325

#### Radiator

Cooling Fan Air Flow m <sup>3</sup> /min (ft <sup>3</sup> /min)	2374
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External Restriction to Cooling Airflow (Pa)	125
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### Fuel Consumption

Fuel Cons. @100% DCC Load l/h (kg/h)	394
Fuel Cons. @75% DCC Load l/h (kg/h)	291
Fuel Cons. @50% DCC Load l/h (kg/h)	200

### Alternator Characteristics

Manufacturer	Stamford
Alternator Model	S7L1D-G4
Frequency (Hz)	50
Power (kVA)	2080
Voltage (V)	400
Phase	3
A.V.R.	MX341
Voltage Regulation	1
Insulation Class	H
Protection Class	IP23
Rated Power Factor	0,8
Weight Complete Generator (kg)	3637
Temperature Rise Class	H
Cooling Air (m <sup>3</sup> /min)	143,4

### Open Generator Set Dimensions

Length mm	5663
Width mm	2408
Height mm	3090
Open Gen.Set Gross Weight Dry kg	15500
Full Tank Capacity (l)	5000

### Control Panel

Manufacturer	DSE
Control Module Model	DSE 7320
Communication Ports	MODBUS

1. Menu navigation buttons
2. Close mains button



- 3. Main Status and instrumentation display
- 4. Alarm LED's
- 5. Close generator button
- 6. Status LED's
- 7. Operation selecting buttons

**Standard Devices**

DSE model 7320, Auto Mains Failure control module, with a highly sophisticated level of new features and functions  
 Static battery charger, Fuses for control circuits

**Control Unit**

- The DSE 7320 control module is a standard addition to our generator sets from 220 kVA upwards and it has been designed to start and stop diesel and gas generating sets that include electronic and non electronic engines.
- The DSE 7320 includes the additional capability of being able to monitor a mains (utility) supply and is therefore suitable for controlling a standby generating set in conjunction with an automatic transfer switch.
- The DSE7320 also indicates operational status and fault conditions, automatically shutting down the generating set and indicating faults by means of its LCD display on the front panel.

**Construction and Finish**

- Components installed in sheet steel enclosure.
- Phosphate chemical, pre-coating of steel provides corrosion resistant surface
- Polyester composite powder topcoat forms high gloss and extremely durable finish
- Lockable hinged panel door provides for easy component access

**Installation**

The Control panel is mounted at the generating set baseframe on robust steel stand or power module. Located at side of generating set with properly panel visibility.

**Engine**

- Engine speed
- Oil pressure
- Coolant temperature
- Run time
- Battery volts
- Engine maintenance due

**Shut Down**

- Fail to start
- Emergency stop
- Low oil pressure
- High engine temperature
- Low coolant level
- Under/over speed
- Under/over generator frequency
- Under/over generator voltage
- Oil pressure sensor open
- Phase rotation

**Warnings**

- Charge failure
- Battery under voltage
- Fail to stop
- Low fuel level (opt.)
- kW over load
- Negative phase sequence
- Loss of speed signal

**Generator**

**Pre-alarms**

**Electrical Trip**



- Voltage (L-L, L-N)
- Current (L1-L2-L3)
- Frequency
- Earthcurrent
- kW
- Pf
- kVAr
- kWh, kVAh, kVArh
- Phasesequence

- Low oil pressure
- High engine temperature
- Low engine temperature
- Under/over speed
- Under/over generator frequency
- Under/over generator voltage
- ECU warning

- Earth fault
- kW over load
- Generator over current
- Negative phase sequence

### Mains

- Voltage (L-L, L-N)
- Frequency

### Expansions

- Additional LED module (2548)
- Expansion relay module (2157)
- Expansion input module (2130)

### Options

- High oil temperature shut down
- Low fuel level shut down
- Low fuel level alarm
- High fuel level alarm

### Control Panel Compliance List

- Electrical Safety / Electro Magnetic Compatibility (EMC)
- BS EN 61000-6-2 EMC Generic Immunity Standard
- BS EN 61000-6-4 EMC Generic Emission Standard
- BS EN 60950 Electrical Safety

### Static Battery Charger

- Battery charger is manufactured with switching-mode and SMD technology and it has high efficiency.
- Battery charger models' output V-I characteristic is very close to square
- 2405 has fully output short circuit protection and it can be used as a current source.
- 2405 charger has high efficiency, long life, low failure rate, light-weight and low heat radiated in accordance with linear alternatives.
- The charger is fitted with a protection diode across the output.
- Charge fail output is available.
- Connect charge fail relay coil between positive output and CF output.
- Input: 196-264V.
- Output: 27,6V 5A or 13,8V 5A.

### Standard Equipment

- Water cooled diesel engine
- Radiator and electrical motor driven fan
- Protective cage to prevent rotating and touching hot parts
- Output breaker
- Electric starter and charge alternator
- Battery (lead acid), cables and stand
- Automatic synchronization and power control system (multiple parallel generator)
- Circulation pump (for engine block heater)
- Engine block water heater
- Steel chassis and anti-vibration wedges
- Fuel tank separate from the group
- Flexible fuel connection hoses
- Alternator with single bearing and H insulation class
- Industrial capacity muffler and flexible steel compensator
- Electronic battery charger



- Operating and installation instructions

## Optional Equipment

### Engine

- Fuel-Water Separator Filter
- Oil heater
- Air filter

### Control Panel

- Automatic synchronising and power control system (Multi gen-set Parallel)
- Parallel system with mains
- Transition synchronization with mains
- Alarm output relays
- Earth fault, single set
- Parallel system with mains
- Remote relay output
- Remote communication with modem
- Charge Ammeter

### Auxiliary Equipment

- Main Fuel Tank
- Automatic or manual fuel filling system
- Electrical oil drain pump
- Low and high fuel level alarm
- Inlet and outlet motorized louvers
- Inlet and outlet acoustic baffles
- Tool kit for maintenance
- 1500/3000 hours maintenance kit
- Supplied with oil and coolant (-30°C)

### Canopy

- Galvanized Coating
- ISO Container
- Marine Grade Paint

### Alternator

- Anti-Condensation Heater
- Over sized alternator
- PMG excitation + AVR
- Main line circuit breaker
- 5% derate when air inlet filters are fitted

### Transfer Panel

- Three or four pole contactor
- Three or four pole motor operated circuit breaker

### Exhaust

- Residential Silencer
- Silencer Spark Arrester
- Critical Silencer
- Catalytic Convertor

### Optional Alternator and Control Panel

Please contact to your reseller for additional Alternator, Control Panel and Breaker Switch options.

## Aksa Certificates

### Directive

- 2006/42/EC : Machinery Safety Directive
- 2014/30/EU : Electromagnetic Compatibility Directive
- 2014/35/EU : Low Voltage Directive

### Standarts

- TS ISO 8528-5:2022 / TS EN ISO 8528-13:2018 : Reciprocating internal combustion engine-driven alternating current generating sets- Part:13: Safety



Quality Management Systems

ISO 9001:2015  
ISO 14001:2015  
ISO 45001:2018  
ISO 50001:2018  
ISO 27001:2013  
ISO 10002:2018