



## INTRODUCTION

Aksa power generation system, providing optimum performance, and reliability, for stationary standby, prime power, and continuous duty applications. All generator sets are factory build, and production tested.

### Power (kVA)

400V 3Phase, 50Hz, PF 0.8

VOLTAGE	STANDBY RATING (ESP)		PRIME RATING (PRP)		Standby Current (A)
	kWe	kVA	kWe	kVA	
400/231	352	440	300	375	635,1

**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.

**PRIME RATING (PRP)** Applicable for supplying power to varying electrical load for unlimited hours. PRP is in accordance with ISO 8528-1. 10 % overload capability is available for a period of 1 hour within 12-hour period of operation.

## General Characteristics

Model Name	APG 440
Frequency (Hz)	50
Fuel Type	Natural Gas (Pipeline)
Engine Made and Model	PSI21.9L
Alternator	Mecc Alte
Control Panel Model	DSE 7320
Canopy	AK 91
Genset Gas Inlet Pressure	300 mbar

## ENGINE SPECIFICATIONS

Engine	PSI
Engine Model	21.9L
Number of Cylinder	V12
Bore (mm)	128
Stroke (mm)	142
Displacement (L)	21,9
Aspiration	Turbo Charge Cooled Air Cooled
Compression Ratio	10,5:1
Engine Speed (rpm)	1500
Oil Capacity (Total With Filter) (L)	40
Standby Power (kWm / HP) <sup>1,2,3,4</sup> Per ISO 3046	397 / 532
Prime Power (kWm / HP) <sup>1,2,3,4</sup> Per ISO 3046	337 / 453



Block Heater QTY	1
Max. Operating pressure to EPR, mbar	27
Fuel Type	Natural Gas (Pipeline)
Injection Type and System	Spark-Ignited
Governor System	ECU
Operating Voltage (Vdc)	24
Cooling Method	Water Cooled
Cooling Fan Air Flow (m3/min) <sup>5</sup>	971
Coolant Capacity (engine only / with radiator) (L)	44 / 190
Air Filter	Dry Type
Fuel Cons. Prime With %100 Load (kg/hr / m3/hr) <sup>3,4,6</sup>	71 / 99
Fuel Cons. Prime With %75 Load (kg/hr / m3/hr) <sup>3,4,6</sup>	TBD / TBD
Fuel Cons. Prime With %50 Load (kg/hr / m3/hr) <sup>3,4,6</sup>	TBD / TBD

## ALTERNATOR CHARACTERISTICS

Manufacturer	Mecc Alte
Alternator Made and Model	ECO40 1S/4 B
Frequency (Hz)	50
Power (kVA)	400
Voltage (V)	400
Phase	3
A.V.R.	DER1
Voltage Regulation	(+/-)0,5%
Insulation System	H
Protection	IP23
Rated Power Factor	0,8
Weight Comp. Generator (kg)	1049
Cooling Air (m <sup>3</sup> /min)	54

## Canopy Dimensions

Length (mm)	5920
Width (mm)	2199
Height (mm)	2513

1 Max load and overload ratings based on ISO 3046 gross flywheel power.

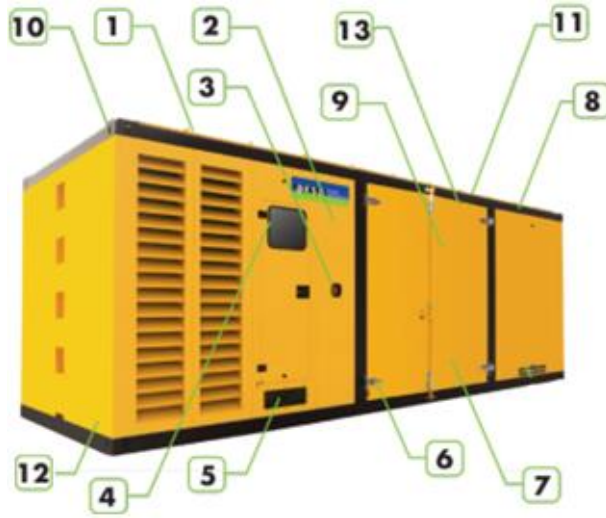
2 Technical data based on ISO 3046-1 standards of 77°F(25°C), 14.5Psia (100kPa) and 30% relative humidity.

3 Production tolerances in engines and installed components can account for power variations of ± 5%. Altitude, temperature and excessive exhaust and intake restrictions should be applied to power calculations.

4 All fuel and thermal calculations unless otherwise noted are done at ISO 3046 rated load using LHV for NG of 48.17 MJ/kg.

5 At 0.5 in-H<sub>2</sub>O of Package Restriction at STP

6. Volume calculated using density of 0.717 kg/m<sup>3</sup> for NG, 0.51 kg/L for LPG



1. Steel structure made from steel sheet and steel profiles.
2. Canopy and panels made from powder coated sheet steel.
3. Emergency stop push button.
4. Control panel is mounted on the baseframe . Located at the back of the generator set
5. Cables out locations are under or back of the canopy
6. Corrosion-resistant locks and hinges.
7. Oil could be drained via valve and a hose
8. Exhaust system in the canopy.
9. Special large access doors for easy maintenance
10. Lifting points similar to ISO container, located on each top corner of the canopy.
11. The cap on the canopy provides easy access to radiator cap.
12. Sound proofing materials
13. Integrated ladder built in to side of the canopy allows access to the top of the canopy.

## INTRODUCTION

Sound-attenuated and weather protective enclosures for generating sets from Aksa, meet even the sound requirements and provide optimum protection from inclement weather and development by our specialist acoustic engineers. Our modular designed sound insulated canopies provide ease of access for servicing and general maintenance and interchangeable components permitting on-site repair. Enclosures are designed to optimize genset cooling performance, providing you with confidence that genset ratings and ambient capability.

## Control Panel

Control Module	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

## Devices

DSE, model 7320 Auto Mains Failure control module Static battery charger Emergency stop push button and fuses for control circuits

## CONSTRUCTION and FINISH

- Comonents 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

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

## GENERATING SET 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.

## STANDARD SPECIFICATIONS

Microprocessor controlled

- 132 x 64 pixel LCD display makes information easy to read
- Front panel programming and also via PC software
- Soft touch membrane keypad and five key menu navigation
- Remote communications via RS232, RS485 and ethernet.
- Event logging (50) showing date and time
- Multiple date and time engine exercise mode and maintenance scheduler
- Engine block heater control.
- Controls; stop, manual, auto, test, start, mute lamp test/transfer to generator, transfer to mains, menu navigation.

## Instruments

### ENGINE

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

### GENERATOR

Voltage (L-L, L-N)  
Current (L1-L2-L3)  
Frequency  
Earth current  
kW  
Pf  
kVA  
kWh, kVAh, kVAh  
Phase sequence



## MAINS

Voltage (L-L, L-N)

Frequency

## WARNING

Charge failure

Battery under voltage

Fail to stop

Low fuel level (opt.)

kW over load

Negative phase sequence

Loss of speed signal

## PRE-ALARMS

Low oil pressure

High engine temperature

Low engine temperature

Over /Under speed

Under/over generator frequency

Under/over generator voltage

ECU warning

## SHUT DOWNS

Fail to start

Emergency stop

Low oil pressure

High engine temperature

Low coolant level

Over /Under speed

Under/over generator frequency

Under/over generator voltage

Oil pressure sensor open

Phase rotation

## ELECTRICAL TRIP

Earth fault

kW over load

Generator over current

Negative phase sequence

**Options**

High oil temperature shut down

Low fuel level shut down

Low fuel level alarm

High fuel level alarm

**EXPANSION MODULES**

Editional LED module (2548)

Expension relay module (2157)

Expansion input module (2130)

**Standards**

Electrical Safety / EMC compatibility

BS EN 60950 Electrical business equipment

BS EN 61000-6-2 EMC immunity standard

BS EN 61000-6-4 EMC emission standard

**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 shot 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 SPECIFICATIONS**

- Heavy duty, water cooled naturalgas engine
- Radiator with mechanical fan
- Protective grille for fan and rotating parts
- Electric starter and charge alternator
- Starting battery (with lead acid) including rack and cables
- Engine jacket cooling heater
- Static battery charger
- Flexible gas connection hoses
- Single bearing, class H alternator
- Industrial exhaust silencer and steel belows supplied separately
- Manual for use and installation



## OPTIONAL EQUIPMENTS

### ALTERNATOR

Anti-Condensation heater

Over sized alternator

Main line circuit breaker

### CONTROL SYSTEM

Remote annunciator panel

Remote alarm panel

Alarm output relays

Erath fault, single set

Charging ammeter

### TRANSFER SWITCH

Three Pole Contactor

Four Pole Contactor

### WISE ACCESSORIES

Manuel oil drain pump

Electrical oil drain pump

Enclosure: weather protective or sound attenuated

Duct adapter (on radiator)

Inlet and outlet motorised louvers

Tool kit for maintenance

Supplied with oil and coolant- 30 °C

## AKSA CERTIFICATES

- CE
- 2000/14/EC