

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

3 Phase,50 Hz, PF 0.8

Voltage (V)	STANDBY RATING (ESP)		PRIME RATING (PRP)		STANDBY CURRENT (A)
	kW	kVA	kW	kVA	
400 / 231	352.0	440	300.00	375	635

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
Engine Make and Model	PSI 21.9L_ APG440
Alternator Make and Model	Mecc Alte ECO 40-1S/4 C
Control Panel Model	DSE 7320
Canopy	AUL7A

Engine Specifications

General Data

Manufacturer	PSI
Engine Model	21.9L_ APG440
Number of Cylinders / Type	12 cylinders - V type
Bore mm (in)	128 (5)
Stroke mm (in)	142 (5,6)

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Displacement l (cu. In)	21,9 (1336)
Compression Ratio	10,5:1
Engine Speed (rpm)	1500
Standby Power (kW/hp)	397 (532)
Prime Power (kW/hp)	337 (453)
Block Heater (QTY)	1
Block Heater Power (Watt)	3000
Governor System	ECU
Air Filter	Dry Type
Aspiration	Turbo Charged

Lubrication System

Oil Capacity l (qal)	40 (10,6)
Max. Oil Temperature ºC (F)	121 (250)

Fuel System

Fuel Type	Natural Gas
Injection Type	Spark-Ignited
Type of Fuel Pump	-

Electrical System

Operating Voltage (Vdc)	24 Vdc
Battery and Capacity (Qty/Ah)	2 / 120
Charge Alternator (A)	45

Cooling System

Cooling Method	Water Cooled
Coolant Capacity (engine only) l (gal)	44 (12)

Exhaust System

Exhaust Gas Flow (m³/min)	55
Heat Rejection to Exhaust kW (BTU/min)	246 (13993)

Radiator

Total Coolant Capacity (l)	190 (51)
Cooling Fan Air Flow m³/min (ft³/min)	971
External Restriction to Cooling Airflow (Pa)	40000

Fuel Consumption

Fuel Cons. @100% Prime Load m3/h (kg/h)	87,1 (62,5)

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Alternator Characteristics

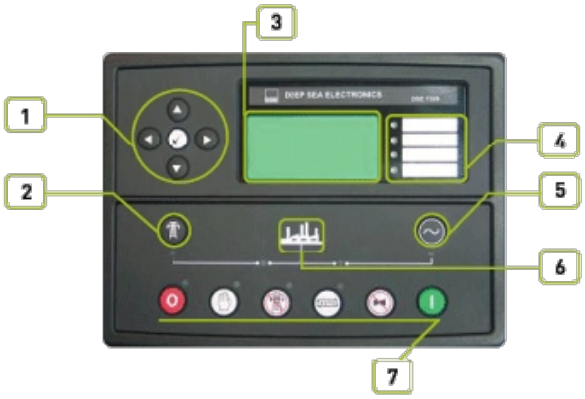
Manufacturer	Mecc Alte
Alternator Model	ECO 40-1S/4 C
Frequency (Hz)	50
Power (kVA)	400
Voltage (V)	400
Phase	3
A.V.R.	DER1
Voltage Regulation	0.5
Insulation Class	H
Protection Class	IP23
Rated Power Factor	0.8
Weight Complete Generator (kg)	1047
Cooling Air (m³/min)	54

Canopy Characteristics

Length mm (ft)	5200 (205)
Width mm (ft)	2100 (83)
Height mm (ft)	2420 (95)

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

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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

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

Pre-alarms

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

Electrical Trip

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

Mains

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

Expensions

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

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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 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 Equipment

- Water cooled, gas engine
- Radiator with mechanical fan
- Protective grille for rotating and hot parts
- Electric starter and charge alternator
- Starting battery (with lead acid) including rack and cables
- Engine coolant heater
- Base frame design incorporates an anti-vibration isolators
- Flexible fuel connection hoses
- Single bearing, class H alternator
- Industrial exhaust silencer and steel bellows supplied separately(for open sets)
- Static battery charger
- Manual for application and installation

Aksa Certificates

Directive

- 2006/42/EC : Machinery Safety Directive
- 2004/108/EC : Electromagnetic Compatibility Directive

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- 2006/95/EC : Low Voltage Directive

Standarts

- EN ISO 8528-13:2016 : Reciprocating internal combustion engine-driven alternating current generating sets- Part:13: Safety

- Max load and overload ratings based on ISO 3046 gross flywheel power.
- Technical data based on ISO 3046-1 standards of 77°F(25°C), 14,5Psia (100kPa) and 30% relative humidity.
- 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.
- All fuel and thermal calculations unless otherwise noted are done at ISO 3046 rated load using LHV for NG of 48,17 MJ/kg.
- At 0,5 in-H2O of Package Restriction at STP
-Volume calculated using density of 0,717 kg/m3 for NG and 0,51 kg/L for LPG

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