



## 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)

3 Phase, 50 Hz, PF 0.8

| Voltage | STANDBY RATING (ESP) |         | PRIME RATING (PRP) |         | Standby Amper |
|---------|----------------------|---------|--------------------|---------|---------------|
|         | kW                   | kVA     | kW                 | kVA     |               |
| 400/231 | 1680,00              | 2100,00 | 1500,00            | 1875,00 | 3031,18       |

**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                | APD 2100 M                          |
| Frequency (Hz)            | 50                                  |
| Fuel Type                 | Diesel                              |
| Engine Made and Model     | MITSUBISHI S16R-PTA2                |
| Alternator Made and Model | ECO 46-1L/4 A                       |
| Control Panel Model       | DSE 7320                            |
| Canopy                    | AK 99 - External Removable Silencer |

### ENGINE SPECIFICATIONS

|                        |                               |
|------------------------|-------------------------------|
| Engine                 | MITSUBISHI                    |
| Engine Model           | S16R-PTA2                     |
| Number of Cylinder (L) | 16 cylinders - V type         |
| Bore (mm.)             | 170                           |
| Stroke (mm.)           | 180                           |
| Displacement (lt.)     | 65.37                         |
| Aspiration             | Turbo Charged and AfterCooled |
| Compression Ratio      | 13.5:1                        |
| RPM (d/dk)             | 1500                          |



|                                                     |                            |
|-----------------------------------------------------|----------------------------|
| Oil Capacity (Total With Filter) (lt)               | 230                        |
| Standby Power (kW/HP)                               | 1790/2399                  |
| Prime Power                                         | 1630/2185                  |
| Block Heater QTY                                    | 2                          |
| Block Heater Power (Watt)                           | 3000                       |
| Fuel Type                                           | Diesel                     |
| Injection Type and System                           | Direct                     |
| Type of Fuel Pump                                   | Mitsubishi PS8x2 (In-Line) |
| Governor System                                     | Electronic                 |
| Operating Voltage (Vdc)                             | 24 Vdc                     |
| Battery and Capacity (Qty/Ah)                       | 4x143                      |
| Charge Alternator (A)                               | 30                         |
| Cooling Method                                      | Water Cooled               |
| Cooling Fan Air Flow (m3/min)                       | 2040                       |
| Coolant Capacity (engine only / with radiator) (lt) | 44.9/445                   |
| Air Filter                                          | Dry Type                   |
| Fuel Cons. Prime With %100 Load (lt/hr)             | 398.7                      |
| Fuel Cons. Prime With %75 Load (lt/hr)              | 305.1                      |
| Fuel Cons. Prime With %50 Load (lt/hr)              | 216.2                      |

#### ALTERNATOR CHARACTERISTICS

|                                   |               |
|-----------------------------------|---------------|
| Manufacturer                      | Mecc Alte     |
| Alternator Made and Model         | ECO 46-1L/4 A |
| Frequency (Hz)                    | 50            |
| Power (kVA)                       | 2100          |
| 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)       | 3810          |
| COOLING AIR (m <sup>3</sup> /min) | 135           |

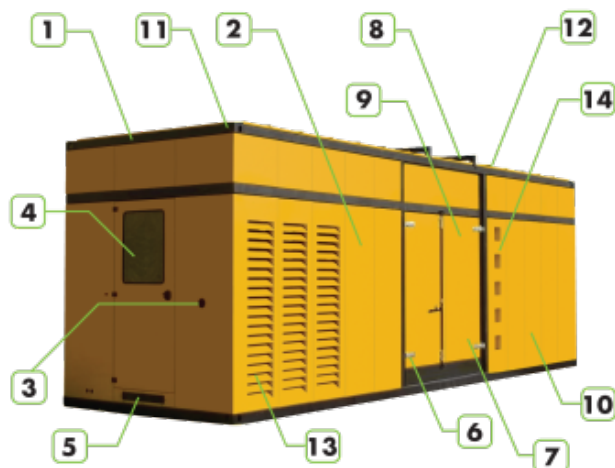
#### Open Gen.Set Dimensions (mm)

|                     |       |
|---------------------|-------|
| LENGTH              | 5223  |
| WIDTH               | 2245  |
| HEIGHT              | 2608  |
| DRY WEIGHT (kg.)    | 13100 |
| TANK CAPACITY (lt.) | 2000  |



### Gen.Set Canopy Dimensions (mm)

|                     |       |
|---------------------|-------|
| LENGTH              | 9000  |
| WIDTH               | 2800  |
| HEIGHT              | 3307  |
| DRY WEIGHT (kg.)    | 18350 |
| TANK CAPACITY (lt.) | 2200  |



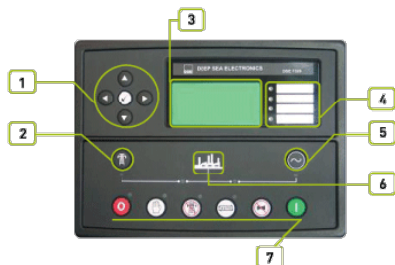
1. Steel structure made from steel sheet and steel profiles.
2. Canopy and panels made from powder coated sheet steel.
3. Emergency stop push button.
4. Control panel is mounted on the baseframe located at the back of the Generator set.
5. Cables out locations are back of the canopy.
6. Corrosion.resistant locks and hinges.
7. Oil could be drained via valve and a hose.
8. Exhaust system on the canopy.
9. Special large access doors for easy maintenance.
10. The cap on the canopy provides easy access to radiator cap.
11. Lifting points similar to ISO container, located on each top corner of the Canopy.
12. Sound proofing materials.
13. Fuel tank is at front of the canopy ,easy access to the fuel tank via lockable door.
14. 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 DSE 7320 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 load 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

kVAr

kWh, kVAh, kVArh



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**

- Water cooled, Diesel 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 integral fuel tank and 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
- Generators Sets' voltage and frequency regulation comply with ISO 8528-5
- Generators Sets' can take 100% load at one step according to NFPA110

**OPTIONAL EQUIPMENTS****ENGINE**

Remote Radiator Cooling

Fuel-Water Separator Filter

Oil heater

**ALTERNATOR**

Anti-Condensation Heater

Main line circuit breaker

**CONTROL SYSTEM**

Automatic synchronising and power control system ( multi gen-set Parallel )

Parallel system with mains.

Transition synchronization with mains

Remote relay output

Alarm output relays

Remote communication with modem

Earth fault, single set

Charge Ammeter

**TRANSFER SWITCH**

Three or four pole contactor

Three or four pole motor operated circuit breaker

**OTHER ACCESSORIES**

Main Fuel Tank

Automatic or manual fuel filling system

Residential silencer

Enclosure: weather protective or sound attenuated

Duct adapter ( on radiator)

Inlet and outlet motorised louvers

Inlet and outlet acoustic baffles

Tool kit for maintenance

1500/3000 hours maintenance kit

Supplied with oil and coolant - 30 °C

**AKSA CERTIFICATES**

- TS ISO 8528

- TS ISO 9001-2008

- CE

- SZUTEST

- 2000/14/EC