



## 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	88.0	110	80.00	100	159

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 110 BD
Frequency (Hz)	50
Fuel Type	Diesel
Engine Make and Model	Baudouin 4M10G6D0
Alternator Make and Model	Aksa AK 480
Control Panel Model	DSE 6120
Canopy	ACP 6A
Noise Level @1m , @7m (dB(A))	87 / 78.5

## Engine Specifications

### General Data

Manufacturer	Baudouin
Engine Model	4M10G6D0
Number of Cylinders / Type	4 cylinders - in line
Bore mm (in)	105



Stroke mm (in)	118
Displacement l (cu. In)	4.087
Compression Ratio	17.5:1
Engine Speed (rpm)	1500
Standby Power (kW/hp)	100/134
Prime Power (kW/hp)	90/121
Block Heater (QTY)	1
Block Heater Power (Watt)	1000
Governor System	Electronic
Air Filter	Dry Type
Aspiration	Turbocharged and Air Aftercooled

### Lubrication System

Oil Capacity l (gal)	13
Max. Oil Temperature °C (F)	110

### Fuel System

Fuel Type	Diesel
Injection Type	Direct
Type of Fuel Pump	Mechanical

### Electrical System

Operating Voltage (Vdc)	12 Vdc
Battery and Capacity (Qty/Ah)	1x66
Charge Alternator (A)	55

### Cooling System

Cooling Method	Water Cooled
Coolant Capacity (engine only) l (gal)	9.4

### Exhaust System

Exhaust Gas Flow (m <sup>3</sup> /min)	21.63
Exhaust Back Pressure in-Hg (kPa)	5
Exhaust Gas Temperature °C (F)	570

### Radiator

Total Coolant Capacity (l)	23.6
Cooling Fan Air Flow m <sup>3</sup> /min (ft <sup>3</sup> /min)	175
External Restriction to Cooling Airflow (Pa)	125



### Fuel Consumption

Fuel Cons. @100% Prime Load l/h (kg/h)	21.25
Fuel Cons. @75% Prime Load l/h (kg/h)	16,01
Fuel Cons. @50% Prime Load l/h (kg/h)	10.58

### Alternator Characteristics

Manufacturer	Aksa
Alternator Model	AK 480
Frequency (Hz)	50
Power (kVA)	100
Voltage (V)	400
Phase	3
A.V.R.	SX460
Voltage Regulation	1
Insulation Class	H
Protection Class	IP22
Rated Power Factor	0.8
Weight Complete Generator (kg)	406
Cooling Air (m <sup>3</sup> /min)	30,84

### Open Generator Set Dimensions

Length mm	2348
Width mm	1004
Height mm	1332
Open Gen.Set Gross Weight Dry kg	1230
Full Tank Capacity (l)	180

### Canopy Characteristics

Length mm	2600
Width mm	1058
Height mm	1590
Dry Weight kg	1480
Full Tank Capacity (l)	180

### Control Panel

Manufacturer	DSE
Control Module Model	DSE 6120



Communication Ports

CANBUS



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 6120, Auto Mains Failure control module, Static battery charger input 198-264 volt, output 27,6V 5A (24V) or 13,8 Volt 5A (12V), fuses for control circuits. This Control Module is suitable for a wide variety of single gen-set applications

**Control Unit**

- The DSE 6120 module has been designed to monitor generator frequency, volt, current, engine oil pressure, coolant temperature running hours and battery volts.
- Module monitors the mains supply and control the switch over to the generator when the mains power fails.
- The DSE6120 also indicates operational status and fault conditions, Automatically shutting down the Gen. Set and giving true first up fault condition of Gen. Set failure. The LCD display indicates the fault.

**Construction and Finish**

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

**Installation**

Control panel is mounted on baseframe with steel stand. Located at the right side of the generator set (When you look at the Gen.Set. from Alternator side)

**Engine**

- Engine speed
- Oil pressure
- Coolant temperature
- Run time
- battery volts
- Configurable timing

**Shut Down**

- Fail to start
- Emergency stop
- Low oil pressure
- High coolant temperature
- Over /Under speed
- Under/over generator frequency
- Under/over generator voltage
- Oil pressure sensor open
- Coolant temperature sensor open

**Warnings**

- Charge failure
- Battery Low/High voltage
- Fail to stop.
- Low /High generator voltage
- Under /Over generator frequency
- Over /Under speed
- Low oil pressure
- High coolant temperature

**Generator**

**Electrical Trip**



- Voltage (L-L, L-N)
- Current (L1-L2-L3)
- Frequency
- Gen. Set ready
- Gen. Set enabled

- Generator over current

### Mains

- Mains ready
- Mains enabled

### Options

- Flexible sensor can be controlled with temperature, pressure, percentage (warning/shutdown/electrical trip)
- Local setting parameters and monitoring from PC to control module with USB connection (max 6 mt).

### Control Panel Compliance List

- Electrical Safety / Electro Magnetic Compatibility (EMC)
- BS EN 60950 Electrical Safety
- BS EN 61000-6-2 EMC Generic Immunity Standard
- BS EN 61000-6-4 EMC Generic 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 and output is 5 amper, 13,8 V for 12 volt and 27,6 V for 24 V . Input 198 - 264 volt AC.
- The charger is fitted with a protection diode across the output.
- Connect charge fail relay coil between positive output and CF output.
- They are equipped with RFI filter to reduce electrical noise radiated from the device.
- Galvanically isolated input and output typically 4kV for high reliability.

### Standard Equipment

- 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

### Optional Equipment

#### Engine

- Fuel-Water Separator Filter
- Oil heater

#### Alternator

- Anti-Condensation Heater
- Over sized alternator
- PMG excitation + AVR
- Main line circuit breaker



### 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

### Transfer Panel

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

### Auxiliary Equipment

- Main Fuel Tank
- Automatic or manual fuel filling system
- Electrical or manual 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)

### Exhaust

- Residential Silencer
- Silencer Spark Arrester
- Critical Silencer
- Catalytic Converter

### Canopy

- Galvanized Coating
- ISO Container
- Marine Grade Paint

### 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