



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	71.2	89	62.4	78	128

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 89 C
Frequency (Hz)	50
Fuel Type	Diesel
Engine Make and Model	CUMMINS 4BTA3.9-G11
Alternator Make and Model	Aksa AK 370
Control Panel Model	DSE 6120
Canopy	ACP 5
Noise Level @1m , @7m (dB(A))	85 / 74.5

Engine Specifications

General Data

Manufacturer	CUMMINS
Engine Model	4BTA3.9-G11
Number of Cylinders / Type	4 cylinders - in line



Bore mm (in)	102
Stroke mm (in)	120
Displacement l (cu. In)	3,90
Compression Ratio	17.3:1
Engine Speed (rpm)	1500
Standby Power (kW/hp)	80/107
Prime Power (kW/hp)	70/93
Block Heater (QTY)	1
Block Heater Power (Watt)	500
Governor System	Electronic
Air Filter	Dry Type
Aspiration	Turbo Charged and After Cooled

Lubrication System

Oil Capacity (l)	10,9
Max. Oil Temperature °C (F)	121

Fuel System

Fuel Type	Diesel
Injection Type	Direct
Type of Fuel Pump	BYC PB

Electrical System

Operating Voltage (Vdc)	24 Vdc
Battery and Capacity (Qty/Ah)	2x55
Charge Alternator (A)	40

Cooling System

Cooling Method	Water Cooled
Coolant Capacity (engine only) (l)	8.3

Exhaust System

Exhaust Gas Flow ft³/min (L/s)	8,04
Exhaust Back Pressure in-Hg (kPa)	10
Exhaust Gas Temperature °C (F)	548

Radiator

Total Coolant Capacity (l)	22.3
Cooling Fan Air Flow m³/min (ft³/min)	120
External Restriction to Cooling Airflow (Pa)	125



Fuel Consumption

Fuel Cons. @100% Prime Load kg/h (l/h)	17.6
Fuel Cons. @75% Prime Load kg/h (l/h)	13.2
Fuel Cons. @50% Prime Load kg/h (l/h)	9.1

Alternator Characteristics

Manufacturer	Aksa
Alternator Model	AK 370
Frequency (Hz)	50
Power (kVA)	87,5
Voltage (V)	400
Phase	3
A.V.R.	SX460
Voltage Regulation	1,5%
Insulation Class	H
Protection Class	IP22
Rated Power Factor	0.8
Weight Complete Generator (kg)	383
Cooling Air (m³/min)	12,96

Open Generator Set Dimensions

Length mm	2015
Width mm	950
Height mm	1420
Dry Weight kg	1080
Full Tank Capacity (l)	180

Canopy Characteristics

Length mm	2282
Width mm	1008
Height mm	1532
Dry Weight kg	1300
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 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**

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

Electrical Trip

- 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



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 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)

Canopy

- Galvanized Coating
- ISO Container
- Marine Grade Paint

- Main line circuit breaker

Transfer Panel

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

Exhaust

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

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

