## INTRODUCTION

Aksa is committed to providing the most effective solution to the Data Center industry with the power it takes from engineering, production, distribution, and customer-oriented experience and knowledge. We are constantly improving designs, products and infrastructure to offer the highest level of reliability for Emergency Power Systems. While serving the industry in hundreds of countries Globally, we design our products and systems in line with the needs of Data Center practitioners at the center of our focus. Aksa generator group provides continuity, reliability and ideal performance for Data Centers. For all generator groups produced, preliminary product testing and factory manufacturing testing are performed according to the Uptime Institute's Tier Standards

## Power (kVA)

3 Phase,50 Hz, PF 0.8

| Voltage | STANDBY RATING (ESP) | | DCP Rating | | Standby Amper |
|---|---|---|---|---|---|
| | kW | kVA | kW | kVA | |
| 400/231 | 2000,00 | 2500,00 | 1800,00 | 2250,00 | 3608,55 |

**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 perod of operation.

**Data Center Continuous (DCC)** The maximum power which a generating set is capable of delivering while supplying a variable or continuous electrical load and during unlimited run hours. Depending on the sites to supply and the availability of reliable utility.

## General Characteristics

| | |
|---|---|
| Model Name | AC2500 |
| Frequency (Hz) | 50 |
| Fuel Type | Diesel |
| Engine Made and Model | CUMMINS QSK60-G8 |
| Alternator Made and Model | PI734H |
| Control Panel Model | InteliGen NT |
| Canopy | UNKNOWN |

## ENGINE SPECIFICATIONS

| | |
|---|---|
| Engine | CUMMINS |
| Engine Model | QSK60-G8 |
| Number of Cylinder (L) | 16 cylinders - V type |
| Bore (mm.) | 159 |
| Stroke (mm.) | 190 |

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| | |
|---|---|
| Displacement (lt.) | 60.2 |
| Aspiration | Turbocharged and Low Temperature Aftercooled |
| Compression Ratio | 14.5:1 |
| RPM (d/dk) | 1500 |
| Oil Capacity (Total With Filter) (lt) | 176 |
| Standby Power (kW/HP) | 2145/2876.5 |
| Block Heater QTY | 2 |
| Block Heater Power (Watt) | 3000 |
| Fuel Type | Diesel |
| Injection Type and System | Direct |
| Type of Fuel Pump | Cummins HPI-PT |
| Governor System | Electronic |
| Operating Voltage (Vdc) | 24 Vdc |
| Battery and Capacity (Qty/Ah) | 4x143 |
| Charge Alternator (A) | 55 |
| Cooling Method | Water Cooled |
| Cooling Fan Air Flow (m3/min) | 2570 |
| Coolant Capacity (engine only / with radiator) (lt) | 159/ |
| Air Filter | Dry Type |
| Fuel Cons. Prime With %100 Load (lt/hr) | 449 |
| Fuel Cons. Prime With %75 Load (lt/hr) | 335 |
| Fuel Cons. Prime With %50 Load (lt/hr) | 228 |

## ALTERNATOR CHARACTERISTICS

| | |
|---|---|
| Manufacturer | Stamford |
| Alternator Made and Model | PI734H |
| Frequency (Hz) | 50 |
| Power (kVA) | 2325 |
| Voltage (V) | 400 |
| Phase | 3 |
| A.V.R. | MX341 |
| Voltage Regulation | (+/-)1% |
| Insulation System | H |
| Protection | IP23 |
| Rated Power Factor | 0.8 |
| WEIGHT COMP. GENERATOR (Kg) | 4329 |
| COOLING AIR (m³/min) | 177 |

## Open Gen.Set Dimensions (mm)

| | |
|---|---|
| LENGTH | 5900 |
| WIDTH | 2500 |

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| | |
|---|---|
| HEIGHT | 3100 |
| DRY WEIGHT (kg.) | 13400 |

## Gen.Set Canopy Dimensions (mm)

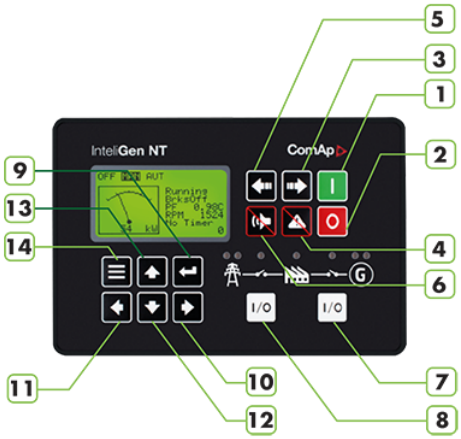
| | |
|---|---|
| LENGTH | 0 |
| WIDTH | 0 |
| HEIGHT | 0 |
| DRY WEIGHT (kg.) | 17400 |
| TANK CAPACITY (lt.) | 0 |

## INTRODUCTION

No Data

## Control Panel

| | |
|---|---|
| Control Module | Comap |
| Control Module Model | InteliGen NT |
| Communication Ports | MODBUS |




1.Start
2.Stop
3.Mode > OFF > MAN > AUT > TEST
4.Fault Reset
5.Mode < OFF < MAN < AUT < TEST
6.Horn Reset
7.GCB control (Open/Close)
8.MCB control (Open/Close)
9.Enter
10.5% Increase of edited setpoint`s value.
11.5% decrease of edited setpoint`s value.
12.Decrease setpoint value.
13.Increase setpoint value.
14.Escape.

## Devices

InteliGen NT 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

195Vac to 264Vac input volt-age range

45Hz to 440Hz input supply frequency range

Capability to work direct from 240Vdc to 365Vdc sup-ply voltage

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27.6Vdc factory set DC out-put terminal voltage (option up to 29.4Vdc)

5.0Adc continuous output current into load

Capability to work continu-ously into short-circuit

Parallel connection for higher output current rating and redundant operation

Series connection capability for higher output voltage requirements

No cooling fans used for high operational reliability

Aluminum alloy case for ro-bust handling and easy mounting

**STANDARD SPECIFICATIONS**

Comprehensive gen-set controller for both single and multiple gensets Parallel operation up to 32 gen-setsoperating in standby or paralleling modes

To be used in conjunction with detachable colour displays InteliVision 5 or InteliVision 8

Support of engines with ECU (Electronic Control Unit)

Complete integrated gen-set solution and signal sharing via CAN bus – minimum external components needed

Many communication options – easy remote supervising and servicing

Load sharing and VAr sharing via CAN Virtual shared inputs and outputs via CAN Support of wide range of applications

Single or multiple gen-sets in parallel to mains operation with automatic back up function, multiple island operation

Advanced power management function

Customizable load control in parallel to mains

Wide range of ECU support

Highly configurable

Timers, Internal PLC, Force values and more

Active e-mail messaging and SMS with optional communication module

Stop, Manual, Automatic, Test, Start, Silent / Lamp test,

Automatic synchronization and power control AMF function, Baseload, Import / Export, Peak shaving, Voltage and PF kontrol (AVR)

True RMS (TRMS) is used with Voltage, Current and Power measurement

**Instruments**

ENGİNE

Engine Speed

Oil Pressure

Water Temperature

Engine Runing Hours

Battery Voltage

Maintenance Plan

GENERATOR

Voltage (L-L, L-N)

Current (L1-L2-L3)

Frequency

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Earth leakage

kW

Power Factor

kVAr

kWh, kVAh, kVArh

MAINS

Voltage (L-L, L-N)

Frequency

PROTECTION CIRCUITS

Charge failure

Low Battery Voltage

Stop Failure

Low Fuel Level (ops)

Overload kW

Reverse phase sequence

PRE-ALARMS

Low Oil Pressure

High engine temperature

Low Engine Temperature

Low / High engine speed

Low / High generator frequency

Low / High generator voltage

ECU warning

STOP ALARMS

Start failure

Emergency stop

Low oil pressure

High engine temperature

Low water level

Low / High engine speed

Low / High generator frequency

Low / High generator voltage

Oil pressure sensor open circuit

Phase direction

**Options**

High oil temperature - Shutdown

Low fuel level - Shutdown

Low fuel level - Alarm

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High fuel level - Alarm

Customizable load control in parallel with the network

Wide range of ECU support

Highly configurable

Timers, Internal PLC, Force values and more are compatible with ComAp's InteliVision displays

Active e-mail messaging and SMS with communication modüle

**Standards**

EN 60068-2-6 ed.2:2008

EN 60068-2-30, May 2000

EN 61010-1:2003

EN 60068-2-27 ed.2:2010

EN 60068-2-64

VDE AR N 4105:2011; DIN VDE V 0124-100:2012 (Cl. 5.3.3, 5.3.4, 5.3.6, 5.4.3, 5.4.5, 5.4.6, 5.5)

BDEW Medium-Voltage Guideline: 2008; FGW TR3:2013 (Clauses 4.2.2, 4.2.3, 4.2.4, 4.3.2, 4.3.3, 4.3.4., 4.5, 4.6., 4.7)

## STATIC BATTERY CHARGER

EBC 2405M is designed and opti-mized for charging all types of Lead Acid batteries (including jell type sealed Lead Acid batteries), protecting the battery and extend-ing its useful life time

EBC 2405M can deliver continuous charging current of 5A into 24V battery system (voltage is set to 27.6Vdc, with an option of up to 29.4Vdc) These battery chargers are designed with performance in mind and special care is taken for protecting and extending the life-time of the battery.

EBC 2405M is designed with “Switched Mode” technology, where the switching transistor has only two states, ON or OFF, which increases the overall efficiency, hence reduces the excess heat dissipation and in return, increasing the device life-time and reliability.

The control system is also designed in such a way that; battery is charged in three stages:

Constant current mode (protecting battery cells)

Constant voltage mode (reducing the charge current)

Float charge (compensation of internal self-discharge)

Constant current mode makes sure that; when the battery is drained down below its rated capacity, the high charge current flow into the battery is limited in order to protect the cells and reduce damage to the plates.

As the battery capacity is recovered, each cell voltage reaches up to 2.30Vdc to 2.45Vdc level, which means that the required charging current starts to reduce.

When the required battery terminal voltage is fully reached, the charger keeps supplying just enough current in order to compensate for the internal self-discharge (float charge). This ensures that the battery can maintain its high charge state and deliver its rated out-put current, when ever required.

## STANDARD SPECIFICATIONS

- Water cooled diesel engine
- Radiator and mechanical fan
- Protective cage to prevent rotating and touching hot parts
- Electric starter and charge alternator
- Battery (lead acid), cables and stand
- Engine block water heater

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- Steel chassis and anti-vibration wedges
- Fuel tank separate from the group (Açıkset group)
- Flexible fuel connection hoses
- Alternator with single bearing and H insulation class
- Industrial capacity muffler and flexible steel compensator
- Electronic battery charger
- Operating and installation instructions
- The frequency and voltage regulation of the groups lifts 100% load according to NFPA110 in accordance with ISO 8528-5.

## OPTIONAL EQUIPMENTS

Remote radiator cooling

Fuel-water separator filter

Oil heater

ALTERNATOR

Anti-condensation heater

Bigger Power rate alternator

Output Breaker

CONTROL PANEL

Automatic synchronization and power control system (multiple parallel generator)

Continuous parallel system with the network

• Network synchronization system

• Remote communication and control

Remote alarm panel

Alarm output relays

• Earth leakage, single generator

Charging ammeter

TRANSFER BOARD

• Three or four-pole ATS system

• Three or four-pole motorized output breaker

AUXILIARY EQUIPMENT

Main Fuel Tank

Automatic or manual fuel filling system

Oil drain, electric pump

• Low and high fuel level alarm

Exhaust muffler, built-in type

• Enclosure cabinet; soundproof type or open area type

Air duct adapter (radiator front)

Motorized roller shutter (air inlet and outlet circuit)

Soundproof duct (air inlet and outlet circuit)

Tool kit (for maintenance)

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- Maintenance kit for 1500/3000 working hours
- Antifreeze and engine lubricating oil (for -30 ° C ambient temperature)

## AKSA CERTIFICATES

- ISO 14001-2004
- TS ISO 8528
- TS ISO 9001-2008
- CE
- SZUTEST
- 2000/14/EC

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