

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.

Power

3 Phase, 50 Hz, PF 0.8

VOLTAGE (V)	STANDBY RATING (ESP)		DCC RATING		DCC Current (A)
	kW	kVA	kW	kVA	
400/231	1320	1650	1200	1500	2165.13

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 utility.

DCC:Data Center Continuous Power ratings, as defined, meet the Uptime Institute Tier III and IV requirements as detailed in the Uptime Institute Tier Standards:Topology. The power ratings of Standby and DCC data, given above have been identified according to conditions of 100kPa barometric pressure (110m. altitude), 25 C ambient temperature.

* Data tolerance %+- 5.

General Characteristics

Model Name	APD 1650 M
Frequency (Hz)	50
Fuel Type	Diesel
Engine Made and Model	MITSUBISHI S12R-PTAA2
Alternator Made and Model	ECO 46-1S/4 A
Control Panel Model	InteliGen NT

ENGINE SPECIFICATIONS

Engine	MITSUBISHI
Engine Model	S12R-PTAA2
Number of Cylinder (L)	12 cylinders - V type
Bore (mm.)	170
Stroke (mm.)	180
Displacement (lt.)	49.03
Aspiration	Turbo Charged and AfterCooled
Compression Ratio	13.5:1
Engine Speed (rpm)	1500



Oil Capacity (Total With Filter) (lt)	180
Standby Power (kW/HP)	1441/1932
DCC Rating (kW/HP)	1314/1761
Block Heater QTY	2
Block Heater Power (Watt)	3000
Fuel Type	Diesel
Injection Type and System	Direct
Type of Fuel Pump	Mitsubishi PS6x2 (In-Line)
Governor System	Electronic
Operating Voltage (Vdc)	24 Vdc
Battery and Capacity (Qty/Ah) / CCA	4x150 / 1150
Charge Alternator (A)	30
Intake Air Flow (DCC) (m3/min)	118
Cooling Method	Water Cooled
Cooling Fan Air Flow (m3/min)	1860
Coolant Capacity (engine only / with radiator) (lt)	33/317
Air Filter	Dry Type
Fuel Cons. Prime With %100 Load (lt/hr)	308
Fuel Cons. Prime With %75 Load (lt/hr)	234.2
Fuel Cons. Prime With %50 Load (lt/hr)	163.3

ALTERNATOR CHARACTERISTICS

Manufacturer	Mecc Alte
Alternator Made and Model	ECO 46-1S/4 A
Frequency (Hz)	50
Power (kVA)	1500
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)	3010
COOLING AIR (m ³ /min)	135

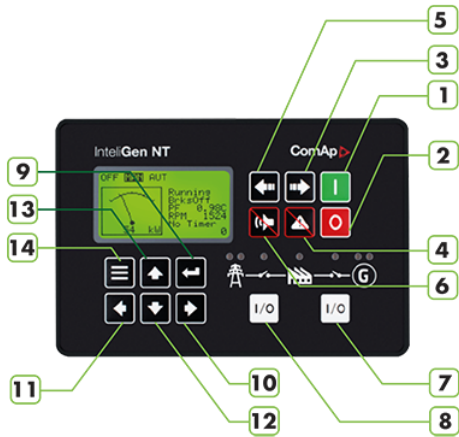
Open Gen.Set Dimensions (mm)

LENGTH	4980
WIDTH	2192
HEIGHT	3022
DRY WEIGHT (kg.)	11400
TANK CAPACITY (lt.)	2000



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

- 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

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
- 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-sets operating in standby or paralleling modes
- To be used in conjunction with detachable colour displays IntelliVision 5 or IntelliVision 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 control (AVR)
- True RMS (TRMS) is used with Voltage, Current and Power measurement

Instruments

ENGINE	PROTECTION CIRCUITS	STOP ALARMS
Engine Speed	Charge failure	Start failure
Oil Pressure	Low Battery Voltage	Emergency stop
Water Temperature	Stop Failure	Low oil pressure
Engine Running Hours	Low Fuel Level (ops)	High engine temperature
Battery Voltage	Overload kW	Low water level
Maintenance Plan	Reverse phase sequence	Low / High engine speed
GENERATOR	PRE-ALARMS	Low / High generator frequency
Voltage (L-L, L-N)	Low Oil Pressure	Low / High generator voltage
Current (L1-L2-L3)	High engine temperature	Oil pressure sensor open circuit
Frequency	Low Engine Temperature	Phase direction
Earth leakage	Low / High engine speed	
kW	Low / High generator frequency	
Power Factor	Low / High generator voltage	
kVAr	ECU warning	
kWh, kVAh, kVArh		
MAINS		
Voltage (L-L, L-N)		
Frequency		



Options

High oil temperature - Shutdown

Low fuel level - Shutdown

Low fuel level - Alarm

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 IntelliVision displays

Active e-mail messaging and SMS with communication module

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 optimized for charging all types of Lead Acid batteries (including jell type sealed Lead Acid batteries), protecting the battery and extending 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 output current, when ever required.



STANDARD SPECIFICATIONS

- Water cooled diesel engine
- Radiator and belt-driven fan
- Protective cage to prevent rotating and touching hot parts
- Output breaker
- Electric starter and charge alternator
- Battery (lead acid), cables and stand
- Automatic synchronization and power control system (multiple parallel generator)
- Circulation pump (for engine block heater)
- Engine block water heater
- Steel chassis and anti-vibration wedges
- Fuel tank separate from the group (Openset 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

OPTIONAL EQUIPMENTS

ENGINE

- Remote radiator cooling
- Fuel-water separator filter
- Oil heater

ALTERNATOR

- Anti-condensation heater,
- Bigger Power rate alternator

CONTROL PANEL

- 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, critical type

Enclosure cabinet; soundproof type or open area type

Tool kit (for maintenance)

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