



## INTRODUCTION

The new Twin Power Series offers flexibility and performance like never before. With two gensets under one hood, it ensures the backup and reliability twice. The two engines work, in synchronization and back2back mode, which ensures the 24/7 power supply. The centralized control and monitoring system enables easy startup and commissioning. It provides the customer with savings in total investment and operating cost benefits.

### Power (kVA)

3 Phase, 50 Hz, PF 0.8

VOLTAGE	STANDBY RATING (ESP)		PRIME RATING (PRP)		Standby Amper
	kW	kVA	kW	kVA	
400/231	1320,00	1650,00	1200,00	1500,00	2381

**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	AD 1650 TWIN POWER
Frequency (Hz)	50
Fuel Type	Diesel
Engine Make and Model	DOOSAN DP222LC
Alternator Make and Model	AK 6600
Control Panel Model	ComAp IntelliGen NT
Canopy	AK98 TWIN POWER

## ENGINE SPECIFICATIONS

Engine	DOOSAN
Engine Model *	DP222LC
Number of Cylinder (L)	12 cylinders - V type
Bore (mm.)	128
Stroke (mm.)	142
Displacement (lt.)	21.927
Aspiration	Turbo Charged and Intercooled (Air to Air)
Compression Ratio	15.0:1
Engine Speed (rpm)	1500



Oil Capacity (Total With Filter) (lt) *	40
Standby Power (kW/HP) *	723/983
Prime Power (kW/HP) *	657/894
Block Heater QTY *	1
Block Heater Power (Watt)	3000
Fuel Type	Diesel
Injection Type and System	Direct
Type of Fuel Pump	Bosh In-Line P Type
Governor System	Electronic
Operating Voltage (Vdc)	24 Vdc
Battery and Capacity (Qty/Ah) *	2x143
Charge Alternator (A)	45
Cooling Method	Water Cooled
Cooling Fan Air Flow (m3/min)	860
Coolant Capacity (engine only / with radiator) (lt) *	23/104.2
Air Filter	Dry Type
Fuel Cons. Prime With %100 Load (lt/hr) *	161
Fuel Cons. Prime With %75 Load (lt/hr) *	119.1
Fuel Cons. Prime With %50 Load (lt/hr) *	79.3

\* The information is provided for a single engine. It must be considered that the genset consists of two engines.

### ALTERNATOR CHARACTERISTICS

Manufacturer	Aksa
Alternator Model **	AK 6600
Frequency (Hz)	50
Power (kVA) **	750
VOLTAGE (V)	400
Phase	3
A.V.R.	SX440
Voltage Regulation	(+/-)1%%
Insulation System	H
Protection	IP23
Rated Power Factor	0.8
WEIGHT COMP. GENERATOR (Kg) **	1850
COOLING AIR (m <sup>3</sup> /min)	62.1

\*\* The information is provided for a single alternator. It must be considered that the genset consists of two alternators.

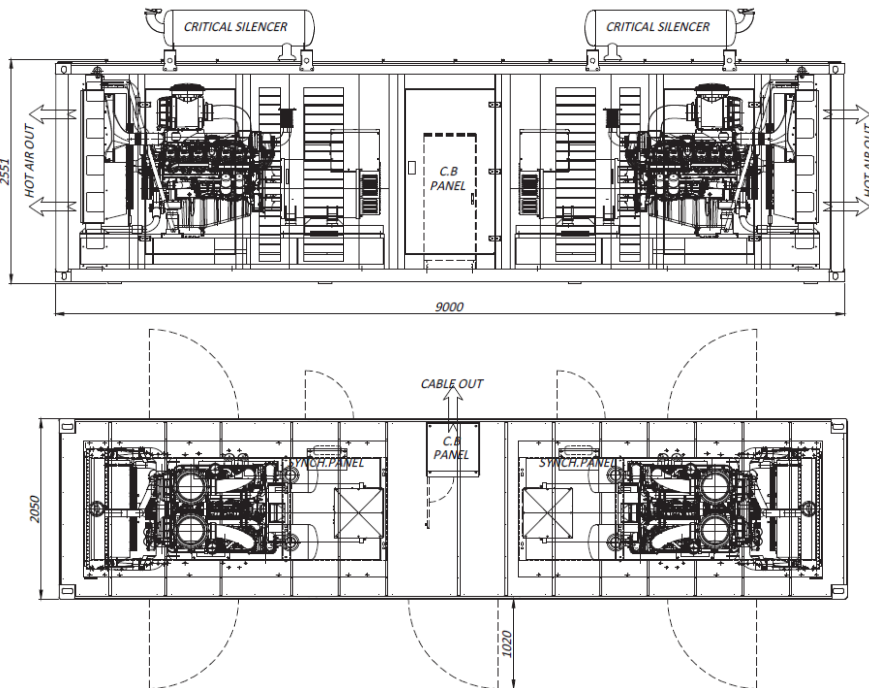


**Canopy Dimensions**

LENGTH (mm)	9000
WIDTH (mm)	2050
HEIGHT (mm)	2551
DRY WEIGHT (kg.)	13500 (approx.)
TANK CAPACITY (lt.)	2000

**INTRODUCTION**

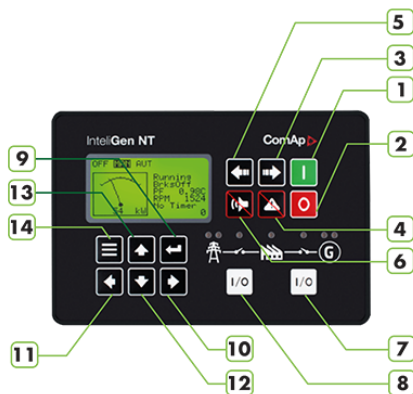
Sound-attenuated and weather protective enclosures for generating sets from Aksa, meet both the sound requirements and provide optimum protection from harsh weather conditions and developed by our specialist acoustic engineers. Our modular designed sound insulated containers provide ease of access for servicing and general maintenance, as well as, interchangeable components permitting on-site repair. Enclosures are designed to optimize genset cooling performance, providing confidence for genset ratings and ambient capability.



- Steel structure.
- Emergency stop push button.
- Control panel is mounted on the baseframe
- Corrosion-resistant locks and hinges.
- Oil could be drained via valve and a hose
- Special large access doors for easy maintenance
- In front and back side special large access doors for easy maintenance
- Base frame -fuel tank.
- Lifting points similar to ISO container , located on each top corner of the canopy.
- The cap on the canopy provides easy access to radiator cap.
- Sound proofing materials

**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

Manufacturer reserves the right to make change in the model, technical specifications, color, equipment, accessories and images without prior notice. (06.09.2021)



## 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-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**

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	MAINS
kW	Low / High generator frequency	Voltage (L-L, L-N)
Power Factor	Low / High generator voltage	Frequency
kVAr	ECU warning	
kWh, kVAh, kVArh		

**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 out-put current, when ever required.

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

## OPTIONAL EQUIPMENT

### ENGINE

Fuel-Water Separator Filter

Oil heater

### ALTERNATOR

Anti-Condensation Heater

Over sized alternator

PMG excitation + AVR

Main line circuit breaker

**CONTROL SYSTEM**

Transition synchronization with mains

Remote annunciator panel

Remote relay output

Alarm output relays

Remote communication with modem

Earth fault, single set

Charge Ammeter

**TRANSFER SWITCH**

Three Pole Contactor

Four Pole Contactor

Three or four pole motor operated circuit breaker

**OTHER ACCESSORIES**

Main Fuel Tank

Automatic or manual fuel filling system

Manual oil drain pump

Electrical oil drain pump

Low and high fuel level alarm

Residential silencer

Enclosure: weater protective or sound attenuated

Duct adapter ( on radiator)

Inlet and outlet motorised louvers

Inlet and outlet acoustic baffles

Trailer

Tool kit for maintenance

Automatic transfer switch

**AKSA CERTIFICATES**

- TS ISO 8528

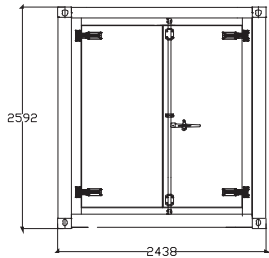
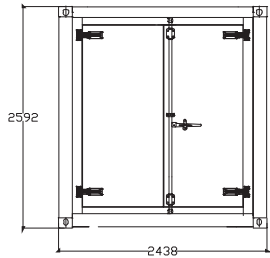
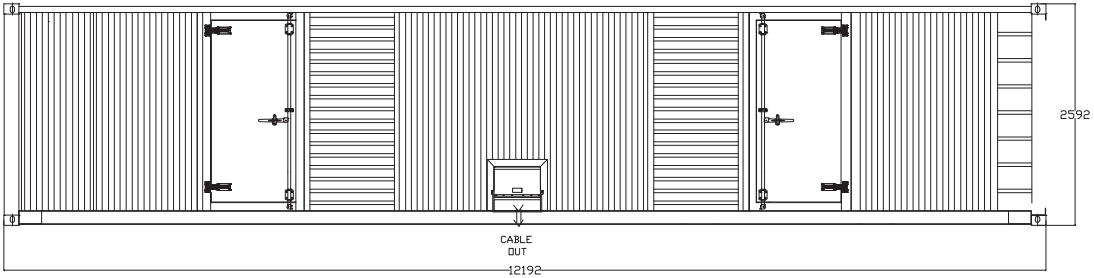
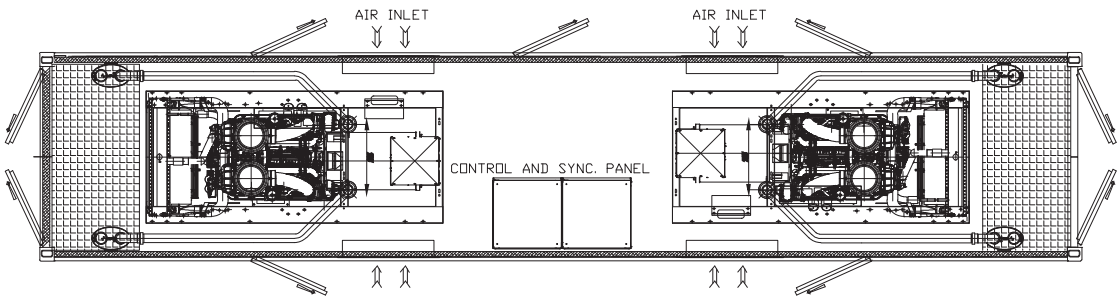
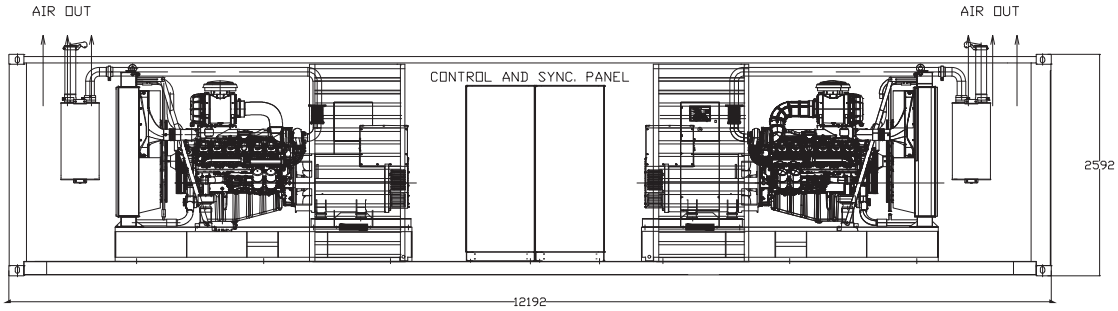
- TS ISO 9001-2008

- CE

- SZUTEST

- 2000/14/EC

# 40ft. CONTAINER (OPTIONAL) TECHNICAL DRAWING



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