

# POWER YOUR FUTURE!



**HYBRID  
III POWER**



**aksa** POWER GENERATION

[www.aksa.com.tr](http://www.aksa.com.tr)



## Akxa Turkey Production Facility - TÜRKİYE

The roots of Kazanci Holding were established in 1950's. Embracing principles of "customer satisfaction and reliance" as its main priority, Kazanci Holding has been one of the leading firms in the Turkish energy market with manufacturing generating sets, natural gas distribution and installation-operation of power plants.

Since its foundation in 1984, being the leading company in the Turkish market; Akxa Power Generation takes place among the top 200 industrial enterprises and exporter firms in Turkey.

In addition, Akxa is rightfully proud of being one of the leading generating sets manufacturers in the world with

the total amount of 40.000 gasoline, diesel and natural gas generating sets ranging from 1 to 3125 kVA manufactured per year at its four production facilities, in Cerkezkoy - Turkey, Changzhou - China, Louisiana - The U.S.A. Our trade centers are located in the Netherlands and Dubai.

Today, exporting more than of its production, Akxa Power Generation progresses towards the goal of succes globally. With its 24 overseas offices, 1 representative office, Akxa supplies generating sets all around the world. Akxa Power Generation keeps continually investing in technology to be a pioneer of innovation.





## Akxa China Production Facility, Changzhou - CHINA

Being one of the first natural gas generating sets manufacturers in the world, Akxa also has a quite advantage in synchronization projects and progressively pursues improvements in generating sets with less fuel consumption, lower sound levels, and lower amounts of exhaust emission through its research and development works.

Akxa Rental is established to meet urgent and mobile power needs of its customers and serves internationally with its wide product range and experienced staff both from Istanbul and Dubai head offices. Mentioned organizations below are some of Akxa Rental's references:

NATO Istanbul Summit 2004; UEFA Champions League Final 2005; Redbull Air Race Golden Horn 2006 - 2007 - 2008; Formula 1 Istanbul Park Grand Prix 2006, 2007, 2008, Troya 2008 - 2009, FIFA U20 World Cup Turkey 2013.

Akxa Service & Spare Parts company provides around the clock emergency parts and service support for Akxa products. To keep Akxa products in top condition throughout the world, the company is dedicated to offer "the best" to its customers with 110 country-wide authorized dealerships, 300 technical support employees and spare parts stocks in after sales service, assistance and support.



# Aksa Power Generation Hybrid Solutions...

## We create different solutions for Telecom companies...

Aksa Power Generation understands the needs of the sector in the best way and offers effective solutions with special projects and custom designed products made for the telecommunication companies throughout Turkey and around World such as Hybrid Generators, custom made Silent Hybrid Generators for special events, power systems for highly populated centres. Also Aksa Power Generation has products that can be operated in remote high altitude locations with extreme climate conditions.

We produce custom tailored solutions for all kind of your needs.

We keep improve Aksa Power Generation for long lasting innovative and sustainable business cooperation around the globe. We work harder for providing the best service with our solution-oriented and creative projects with the timely interventions where it's necessary.



**m2m**  
**Technology**



## Aksa Telecom Hybrid DCDG Power System Main Features:

- Hybrid DCDG system offers very high price/performance ratio, which cuts down in CAPEX and OPEX,
- Hybrid DCDG Power System is based on PMG alternator and S/S Power Conditioning Module (PCM) design concept for high efficiency and high quality power for all Telecom-site loads,
- Output voltage with less than 100mV signal noise and compliance with ETSI 300 386 V.1.3.2. (Telecommunication Networks), EN61000-6-1, EN61000-6-2 standards,
- Capability to operate without any battery bank connection (48VDC Power Supply operation function with better than 100mV voltage regulation),
- Full protection against output short circuit, reverse polarity connection, reverse power and over-voltage conditions,
- System design allows high reduction in fuel consumption and maintenance expenses. Minimum fuel savings are in the range of 25% to 30% compared to traditional AC installation. With integral battery bank management, fuel savings can reach up to 70%
- Fully variable, continuous engine speed control with electronic speed governor, based on load demand and optimum engine performance data,
- DC output voltage does not depend on engine speed. Output voltage can be set between 40VDC to 60VDC,
- Full "Battery Management System" (BMS) algorithm built into the control unit for maximum battery life and performance management,
- Programmable "charge pattern" control menu for VRLA, AGM, OPzV type batteries with temperature compensation,
- True "Hybrid" performance with integrated Telecom battery bank (optional) and "Renewable Power Source" connection (optional) for SOLAR and WIND power,
- Mains power integration is possible with built-in "Mains Charger Unit" (optional) with integrated charge management control algorithm,
- "Remote Monitoring System" (RMS) software package is integrated for remote access and control of all system parameters and data logging. Full Generator control is possible from remote location. Map monitoring of all installed sites in the world, including status indication by colour coding,

- Extensive alarm monitoring ensures minimum system down-time,
- "Extended Service" periods up to 1000 hours of operation,
- Operating ambient temperature range between -40°C to +55°C (tropical models are available on request), auto power-derating at higher temperature levels,
- Integrated Battery Bank temperature conditioning and control for optimum battery performance and life-time management,
- Multiple charging system for 12V starter battery,
- Canopy temperature control for reliable and high performance operation
- Correct power sizing is possible for all type of applications, ranging from 1kW to 20kW power packages,
- Multiple DCDG Hybrid generators can be connected in parallel, without any additional control units, to add redundancy or to increase output DC power capacity,
- "Real-Time" programming for time scheduled tasks,
- Remote messaging for service and alarm status,



**External Emergency stop button**



**Safety locks on all cabin doors**



**Integrated Cooling system to increase battery life and prformans**



**Fork-lift pockets for easy handling and lifting for each cabin**



**Easy access for fueling and level monitoring without opening cabin doors**



**Deep-cycle long life, mainteance free batteries**

# OFF-GRID SYSTEM TECHNICAL FEATURES

TOTAL OPEX SAVINGS PER YEAR		55%	53%	53%	
SYSTEM		AP 6H	AP 10H	AP 14H	
Dc Bus Voltage	Vdc	54,40	54,40	54,40	
BTS Load current	Adc	27,57	45,96	82,72	
BTS Power	kW	1,50	2,50	4,50	
Non BTS Load Power	W	200,00	400,00	400,00	
Non BTS Load Current	Adc	3,68	7,35	7,35	
Air condition Load Current	Adc	7,00	7,00	7,00	
Total Site Load Current	Adc	38,25	60,31	97,07	
Total Site Power	kW	2,08	3,28	5,28	
Max.required generator current	Adc	108,25	180,31	257,07	
Max.required generator power(Continuous)	kW	5,89	9,81	13,98	
<b>ENGINE</b>					
Engine Brand		Perkins	Perkins	Perkins	
Engine Model		402D-05	403D-07	403D-11	
Operation Speed(Variable)	r.p.m	1500-3000	1500-3000	1500-3000	
Fuel Type		Diesel	Diesel	Diesel	
Internal Fuel tank	L	600	850	1300	
Lube Oil Change Period	hr	500	500	500	
No.of Cylinders and Build		2 in-line	3 in-line	3 in-line	
Aspiration and Cooling		Naturally Aspirated	Naturally Aspirated	Naturally Aspirated	
Maximum Power	kW/hp @3000 r.p.m.	8,8/11,8	13,2/17,7	19,7/26,4	
Total Displacement	L	0.507	0.762	1.131	
Bore and Stroke	mm	67 x 72	67 x 72	77 x 81	
Compression Ratio		23.5:1	23.5:1	23:1	
Governor		Step Motor	Step Motor	Step Motor	
Oil Capacity	L	2,01	3,05	4,4	
Start System	Vdc	12	12	12	
<b>ALTERNATOR</b>					
Type		PMG	PMG	PMG	
Power		6,5kW	12,5 kW	17kW	
Speed		Variable	Variable	Variable	
<b>BATTERY</b>					
Type		AGM-OPzV	AGM-OPzV	AGM-OPzV	
Capacity	Ah	350	600	800	
Number of Cells	Piece	24	24	24	
DoD(Battery Discharge Level)	%	52	52	52	
Operation Temp.	°C	-20 to 45	-20 to 45	-20 to 45	
Battery Charge Rate	%	20	20	20	
Battery Charge Current	A	70	120	160	
<b>EXPECTED PERFORMANCE VALUES</b>					
Battery Charging Time	hr	4	4	4	
Battery Discharge Time	hr	5,52	6	6	
Total Cycle Time	hr	9,52	10,01	8,98	
Battery Discharge Type		C10	C10	C10	
Number of Cycle Per Day		2,52	2,40	2,67	
Number of Cycle Per Month		76	72	80	
Total Runtime Per Day	hr	10,09	9,60	10,71	
Total Runtime Per Month	hr	302,71	288,14	321,21	
Number of Cycle Per Year	hr	907	864	963	
Battery life	Year	2,9	3	2,7	
Fuel Consumption	L/hr	1,8	2,7	4	
Fuel Consumption Per Month	L	545	778	1285	
Fuel Transfer Period	Day	33	33	33	
<b>HYBRID+P.V PANEL</b>					
Panel Type		MONO	MONO	MONO	
Maximum Panel Power	Wp	400	400	400	
Number of Panel		5	9	13	
Total Maximum Panel Power	Wp	2000	3600	5000	
Total Engine Runtime per day	hr	6,66	5,46	6,40	
Total Engine Runtime per month	hr	199,67	163,72	191,95	
Battery Life	Year	4,78	5,83	4,97	
Fuel Transfer Period	Day	50,1	57,7	50,8	
<b>CANOPY DIMENSION (WxLxH)</b>		mm	1520 x 2180 x 2060	1520 x 2380 x 2160	1820 x 2380x 2400

## STANDARD FEATURES

- Battery Air Condition
- Battery Temperature probe
- Sound and Weather Proof Canopy
- Padlock Can be fitted for Canopy Door
- Canopy Door Switch
- RS 485 Scada Suit
- Internal Battery Bank
- Remote communication

## OPTIONS

- Automatic Oil filling
- MPPT Solar Controller
- Support of Mains
- P.V Panel
- Oil lube Level Maintainer

## PARTS OF HYBRID SYSTEM

- Dc alternatör
- Diesel Engine
- Rectifier system
- 12 volt start battery
- 24 pices OPzV gel battery
- Start battery charger
- Step motor
- Step motor driver
- Current sensor
- As option,Mppt Module for PV Panels.
- As Option,P.V Panels
- Fuel Tank
- As option,Support of mains



AMERICAN  
STANDARDS

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