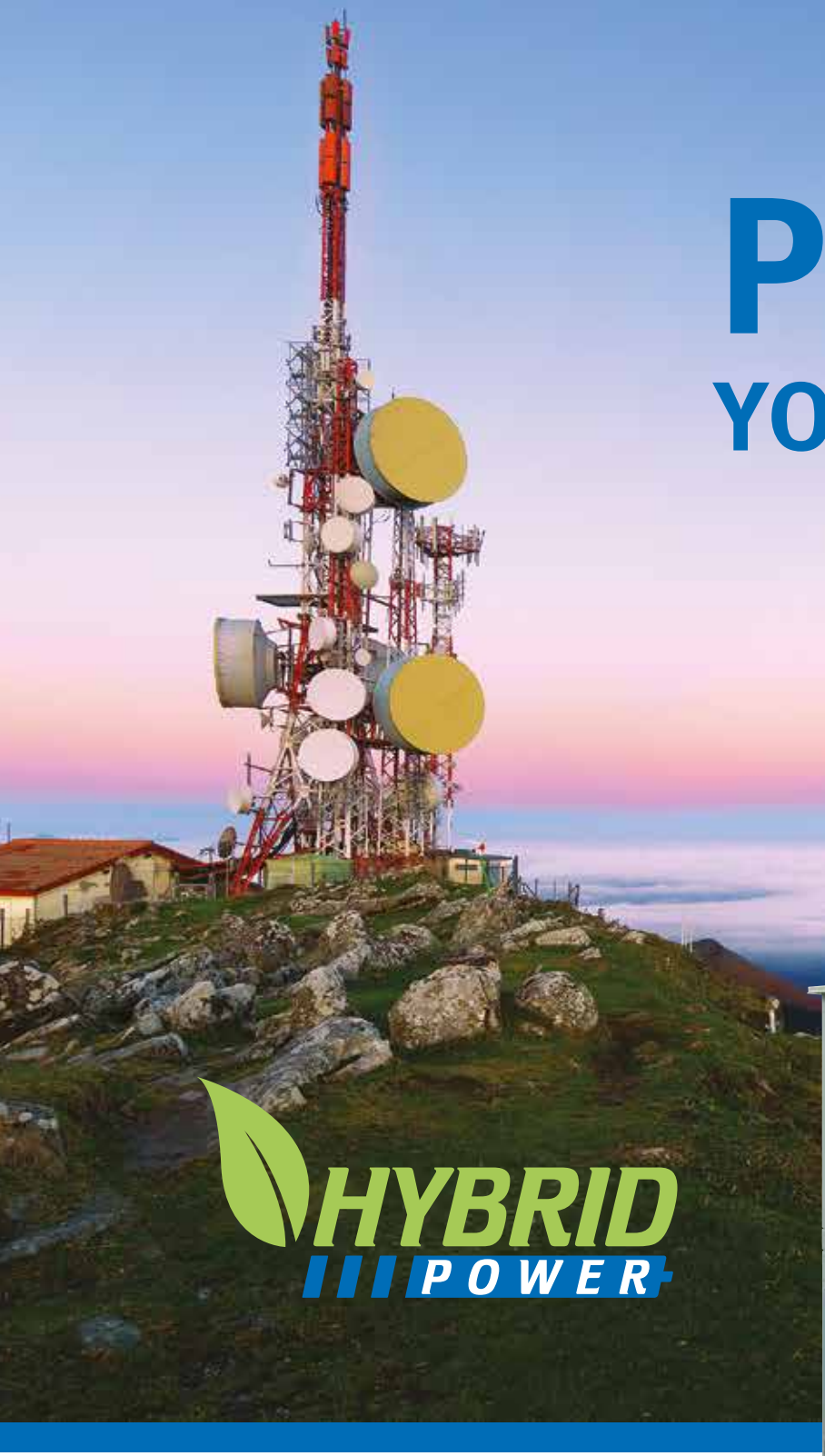
POWER
YOUR FUTURE!



HYBRID POWER

aksa POWER GENERATION

TSACO
توسعه صنایع دیزلی مینا

www.aksa.com.tr

Aksa China Factory, Changzhou - CHINA

Being one of the first natural gas generating sets manufacturers in the world, Aksa 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.

Aksa 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 Aksa Rental's eferences:

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.

Aksa Service & Spare Parts company provides around the clock emergency parts and service support for Aksa products. To keep Aksa 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 Mahmutbey Factory Istanbul - TURKEY

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; Aksa Power Generation takes place among the top 100 industrial enterprises and exporter firms in Turkey.

In addition, Aksa 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 3000 kVA manufactured per year in its four production facilities, one of in Istanbul - Turkey and the other genset factories in China and U.S.A.

Today, exporting more than %50 of its production, Aksa Power Generation progresses towards the goal of succes globally. With its 13 international offices, Aksa supplies generating sets all around the world. Aksa Power Generation keeps continually investing in technology to be a pioneer of innovation.

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.

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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 form 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
ENGINE				
Engine Brand		Perkins	Perkins	Perkins
Engine Model		402D-05	403D-07	403D-11
Operation Speed(Variable)	Rpm	1500-3000	1500-3000	1500-3000
Fuel Type		Diesel	Diesel	Diesel
Internal Fuel tank	Lt	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 RPM	8,8/11,8	13,2/17,7	19,7/26,4
Total Displacement	lt	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	lt	2,01	3,05	4,4
Start System	VDC	12	12	12
ALTERNATOR				
Type		PMG	PMG	PMG
Power		6,5kW	12,5 kW	17kW
Speed		Variable	Variable	Variable
BATTERY				
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
EXPECTED PERFORMANCE VALUES				
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 Consuption	lt/h	1,8	2,7	4
Fuel Consuption Per Month	lt	545	778	1285
Fuel Transfer Period	Day	33	33	33
HYBRID+P.V PANEL				
Panel Type		MONO / POLY	MONO / POLY	MONO / POLY
Solar Panel Power	Wp	250	250	250
Number of Panel		8	16	24
Total Panel Power	Wp	1700	3400	5100
Total Panel Current	Adc	31,25	62,5	93,75
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
CANOPY DIMENSION (WxLxH)	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

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
- Dc/dc convertor
- 12 volt start battery
- 24 pices OPzV gel battery
- Start battery charger
- Step motor
- Step motor driver
- Can Current sensor
- As option,Mppt Module for PV Panels.
- As Option,P.V Panels
- Fuel Tank
- As option,Support of mains

***Manufacturer reserves the right to make changes in model, technical specifications, color, equipment and accessories without prior notice.

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