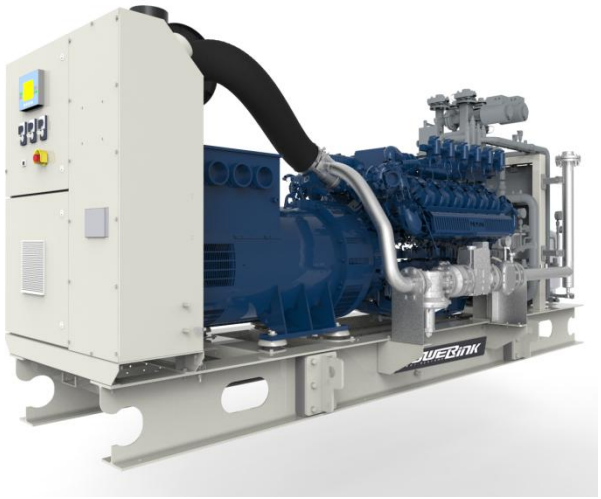
GE520-BG

Biogas Genset

We Produce Green Energy...

Standard Basic Module -Open Type

- Highly efficientgas engine
- AC synchronous alternator
- Gas safety train
- Cooling system suitable for ambient temperature up to 50℃
- Advanced engine control system, including: ignition system, detonation control system ,speed control system , air/fuel ratio control system
- Strict shop test for all gensets
- Expansion tank and water jacket heater
- Industrial silencer with silencing ability of 12-20dB(A)
- Unattachedswitch cabinet and electric control cabinet
- Multi-functional control system with simple operation
- Data communication interfaces integrated into control system
- Monitoring battery voltage and chargingautomatically
- Auto refilling oil system
- Bus interface for connecting to higher level control unit



Structure and control cabinet

Structure type	Open type
Canopy painting	High-class powder coating
Electrical control cabinet	Integrated,IP54
Noise level@1m, dB(A)	101.1
@7m, dB(A)	89.1
@10m, dB(A)	84.5

Dimension and weight

Dimension (LxWxH) , mm	5300X2000X2100
Weight,kg	7200

Electric data @50Hz

Voltage-V	Power-kW	Efficiency-%	Current-A
380	520	38.3	988
400	520	38.3	938
415	520	38.3	904

Fuel and emission

Fuel type	Biogas
Fuel composition	60%-CH_4/40%-CO_2
Methane number	MN＞100
Excess air factor（Lambda）	1.55
Fuel consumption @100% load, m^3/h	226
Supply gas pressure range, kPa	10~20
Emission without catalytic converter	
NOx , mg/Nm^3	<500mg/Nm^3
CO , mg/Nm^3	<650mg/Nm^3
HCHO (formaldehyde) , mg/Nm^3	<60mg/Nm^3
NMHC , mg/Nm^3	<50mg/Nm^3
Emission with catalytic converter(optional)	
NOx , mg/Nm^3	≤250 mg/Nm^3

Special statement :

1、The technical data are based on a gas mixture of 60% methane and 40% carbondioxid with a calorific value of 6,0 kWh/Nm^3 and a methane no. > 100.

2、The technical data is measured in standard conditions:
Absolute atmospheric pressure：100kPa
Ambient temperature : 25°C
Relative air humidity : 30%

3、Rating adaptation at ambient conditions acc to DIN ISO 3046/1. The tolerance for the specific fuel consumption is + 5 % at rated output.

4、Technical data above are just for standard product ,and may be subject to change. As this document is used only for presale reference, take the specification supplied by PowerLink before ordering as final.

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Standard Basic Module + Acoustic Attenuated Canopy (Optional)

Dimension and Noise Level	
Canopy Size	5420*2180*2620mm
Noise Level@ 1m，dB(A)	87.01
@ 7m，dB(A)	82.5
@ 10m，dB(A)	76.7

☐ Modular designed and manufactured for plug and play□ Environmental friendly low emission

☐ Small indoor space required for installation□ Low noise does not affect the surrounding environment

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Biogas Genset

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Standard Basic Module + Acoustic Attenuated Container (Optional)

Dimension and Noise Level

Optional container（mm）（customized container modeling serviceavailable）	☐ 12192*2438*2896 ☐ 12192*3000*2896 ☐ 13500*3000*2896 ☐ 15000*3200*3000 ☐ 17000*3200*3000
Noise Level@ 1m，dB(A)	85
@ 7m，dB(A)	80
@ 10m，dB(A)	74

☐ Outdoor application enabled, weatherproof and dustproof, corrosion preventive□ Environmental friendly low emission

☐ Modular designed and manufactured for plug and play□ Low noise does not affect the surrounding environment

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Genset performance data and manufacturing technology

Genset model	GE520-BG	Telephone interference factor(TIF)	≤50
Electrical output power (kW)	520	Telephone harmonious factor(THF)	≤2% , as per BS4999
Genset electrical efficiency	38.3 %		
Overload runtime at 1.1xSe(hour)	1		
Steady-state voltage deviation	≤±1%		
Transient-state voltage deviation	-15%~20%		
Voltage recovery time(s)	≤4		
Voltage unbalance	1%		
Steady-state frequency regulation	±0.5%		
Transient -state frequency regulation	±5%		
Frequency recovery time(s)	≤3		
Steady-state frequency band	0.5%		
Recovery time response(s)	0.5		

Manufacturing technology

- Specialwelded base frame, inner vibration isolators and design for whole lifting
- With high-class paint, endurable brightness as well resistance against abrasion and defacing
- Installation manual, operation and maintenance manual wiring program

Standards and certificate

- ISO3046 , ISO8528 , GB2820
- BS5000PT99 , AS1359 , IEC34
- ISO9001:2008 quality system certification

AC alternatorperformance data

		Voltage	Power
Alternator brand	Leroy-Somer		
Alternator model	LSA49.3M6	380V	584kW
Rated output power (kW)	584	400V	584kW
Power factor	0.8	415V	584kW
Rated current @ 400V and 100% load (A)	1054	440V	584kW
Excitation system	Brushless		
THF (BS EN60034- 1)	<2%		
Bearing number	2		
Winding material	100% copper		
Wiring connection	Series star		
Rotor insulation class	H		
Winding pitch	2/3		
A.V.R. model	R450		
Voltage fluctuation(no load to full load)	± 0.5%		
Housing protection	IP23		
TIF (NEMA MG 1-22)	<50		
Excitation method	AREP		
Rated ambient temperature(℃)	40		
Rated stator temperature rise(℃)	125		

GE520-BG

Special Gas Genset

POWERink Power Systems

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Efficient gas engine

General data

NO. of cylinders		12
Engine type		4-stroke, turbo charged and air to water cooled, lean burn
Cylinder arrangement		V-form
Bore x stroke	mm	132×157
Displacement	L	25.8
Compression ratio		12 : 1
Rated speed	rpm	1500
Rated output power	kW	550
Excess air factor		1.55
Rotation direction		Anti-clockwise viewed on flywheel
Ignition timing	°BTDC	20°

Cooling system

Max. jacket wateroperating pressure	kPa	300
Min. jacket watercirculation flow	L/min	780
Min. jacket water temperature	°C	80
Max. jacket water temperature	°C	88
Max. jacket water difference(inlet-outlet)	K	6
Min. circulation flow LT	L/min	114
Min. circulation flow HT	L/min	322
Coolant type	Mixture of 40％antifreeze and 60％ clean fresh water. Lower ambient temperature, higher content of antifreeze.	

Induction/exhaust system

Exhaust flow(wet)	kg/h	2875
Combustion air flow	kg/h	2598
Exhaust temperature	°C	464
Max. exhaust back pressure	mbar	40
Max. suction restriction	mbar	15

Fuel consumption

100% load	m³/h	226
75% load	m³/h	173
50% load	m³/h	121

Fuel: Special Gas - LHV = 21.6 MJ/m³

Lubrication system

Max. refilling capacity	L	102
Max. consumption	kg/h	0.175
Lubrication oil pump	Gear driven	

Fuel control system

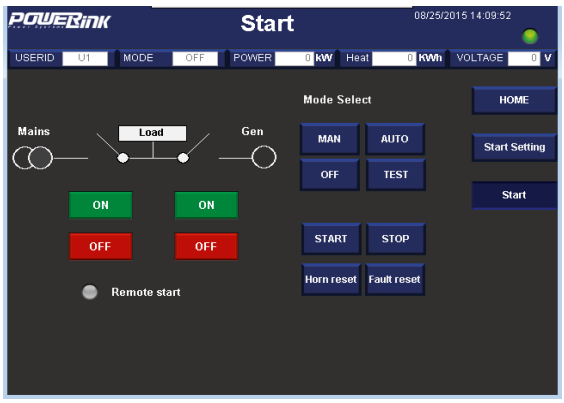
Gas train，Including：	ball valves
	filters
	gas pressure gauge
	safety solenoid valves
	constant pressure regulator etc
	gas pressure relief valve

Ignition system

Ignition type	Electronic ignition system
Polarity	Negative earth
Spark plug	Separate for every cylinder

PCC-300 control system

Open control system is adopted with touch screen display , and various functions, including: engine protection and control, paralleling between gensets or gensets and mains, and CHP control functions,as wellas communication functions，etc.



Main functions

- Engine monitor：coolant, lubrication, exhaust, battery
- Supply gas circuit monitor：pressure,temperature and CH4 content
- Auto paralleling and load share
- Voltage and PF control
- Alternator data：U, I, Hz, kW, kVA, kVAr, PF, kWh, kVAh
- Mains data：U, I, Hz, kW, kVAr, PF
- Modbus communicationprotocol based on RS232 and RS485 interfaces
- SMS message
- Internet connection and USB 2.0 interface
- 10-inch touch screen
- Internet monitor, auto orientation and cloud communication
- 1000 history events log

Advantages

- Accordant with consumer requirement
- Complete control project
- Convenient remote monitor and service
- Simplified engine start/stop control
- Enhanced stability and safety

Standard protection functions	Standard control functions	
Alternator protection - 2xReverse power - 2xOverload - 4xOvercurrent - 1xOvervoltage - 1xUndervoltage - 1xOver/underfrequency 1xUnbalanced current	**Powercontrol** - RPM control(synchronization) - Power control(grid connection) - Load share(island)	**Voltage control** - Voltage tracking (synchronization) - Voltage control(island) - PF control(grid connection) - Reactive power share (island）
	Lubrication control - Auto refilling - Warning and monitoring	**Pump control** - Cooling system - Emergency radiator
Busbar/mains protection - 1xOvervoltage - 1xUndervoltage - 1xOver/under frequency - 1xPhase sequence - 1xROCOF alarm	**Fan control** - Ventilation for engine room - Radiator fan - Emergency radiator fan	**Valve control** - Cooling system - Heating system - Emergency radiator
	Engine protection - Various routine and customized protection functions - Monitoring	

GE520-BG

Special Gas Genset

POWERINK Power Systems
We Produce Green Energy...

Standard configuration

Engine	Alternator	Canopy and base	Electrical cabinet
Gas engine Ignition system Lambda controller Electronic governor actuator Electrical start motor Battery system Auto chargingsystem Detonation control system Coupling	AREP AC alternator H class insulation IP23 protection AVR voltage regulator PF control	Steel monocoque base frame Engine bracket Vibration isolators Alternator base	Air circuitbreaker Paralleling control system 10-inch touch screen Communication interfaces Electrical switch cabinet
Gas supply system	**Lubrication system**	**Standard voltage**	**Induction/exhaust system**
Gas safety train Air/fuel mixer	Oil filter Daily auxiliary oil tank Auto refilling oil system New and used oil tank (Only applicable to container , two inch with the daily oil tank)	380/220V 400/230V 415/240V 440/254V	Air filter Exhaust silencer Exhaust bellows Gas leakage protection(Only applicable to canopy and container)
Cooling system	**Service and documents**		
Jacket water circulation pump Mixture circulation pump Intercoolerradiator Jacket water radiator Jacket water constanttemp. valve Intercooler water constant temp. valve Expansion tank	Tools package Installation and operation manual Maintenance manual Software manual Parts manual	Engine operation and maintenance manual Gas quality specification Control system manual After service guide Standard package	

Optional configuration

Engine	Alternator	Service and documents	Lubrication system	Voltage
Heavy duty air filter Backfire safety control valve Jacket water heater	Space heater Treatments againsthumidity and corrosion	Service tools Maintenance and service parts	Oil consumptiongauge	200V 220V 230V 240V
Canopy and base	**Exhaust system**	**Electrical system**	**Gas supply system**	
SECC base frame	Guard shield from touch Residential silencer Three-way catalytic converter		Gas flow gauge Refrigerated gas drier Gas compressor	Emergency relief flare Free water separator Gas purification plant

POWERINK Power Systems
Web: www.powerlinkworld.com

Data is subject to change without prior notice as new products are always developed.
Please contact PowerLink or local agent with any doubts or for more information