

### Standard Basic Module -Open Type

- Highly efficient gas engine
- AC synchronous alternator
- Gas safety train
- Cooling system suitable for ambient temperature up to 50°C
- Advanced engine control system, including: ignition system, speed control system, air/fuel ratio control system
- Strict shop test for all gensets
- Industrial silencer reduces the noise by 12-20dB(A)
- Integrated the control & switch cabinet
- Data communication interfaces integrated into control system
- Bus interface for connecting to higher level control unit



#### Structure and control cabinet

Structure Type	Open
Spraying Process	High quality powder coating
Electrical control cabinet	Integrated, IP54
Noise level @1m, dB(A)	91
@7m, dB(A)	87
@10m, dB(A)	84.7

#### Dimension and weight

Dimension (LxWxH) , mm	3000x1100x1600
Weight, kg	1850

#### Special statement:

1. The technical data is based on a gas mixture of 60% methane and 40% carbon dioxide with a calorific value of 6,0 kWh/Nm<sup>3</sup> 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.

#### Power and Efficiency @60Hz

Electric power -kW	90	Electric efficiency	35.6%
Thermal power-kW	128	Thermal efficiency	50.7%
Fuel Input -kW	252	Total efficiency	86.3%

Fuel type	Special gas
Methane number	60%-CH <sub>4</sub> /40%-CO <sub>2</sub>
Excess air factor ( Lambda )	1.4
Fuel consumption @100% load, m <sup>3</sup> /h	42
Supply gas pressure range (gage pressure), kPa	10~20
<b>Emission without catalytic converter</b>	
NO <sub>x</sub> , mg/Nm <sup>3</sup>	<500mg/Nm <sup>3</sup>
CO, mg/Nm <sup>3</sup>	<650mg/Nm <sup>3</sup>
HCHO (formaldehyde) , mg/Nm <sup>3</sup>	<60mg/Nm <sup>3</sup>
NMHC, mg/Nm <sup>3</sup>	<150mg/Nm <sup>3</sup>

# GXC90-6BG

Biogas CHP Unit

## Standard Basic Module + Acoustic Attenuated Canopy (Optional)



### Dimension and Noise Level

Canopy Size	3140*1350*1800mm
Noise Level@ 1m, dB(A)	78.21
@ 7m, dB(A)	67.9
@ 10m, dB(A)	63.5

- ☐ 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



# GXC90-6BG

Biogas CHP Unit



## Standard Basic Module + Acoustic Attenuated Container (Optional)



Dimension and Noise Level	
Optional container (mm) (customized container modeling service available)	<input type="checkbox"/> 7000*2300*2500
	<input type="checkbox"/> 6058*2438*2591
	<input type="checkbox"/> 12192*2438*2896
	<input type="checkbox"/> 12192*3000*2896
Noise Level@ 1m, dB(A)	76
@ 7m, dB(A)	65
@ 10m, dB(A)	61

- ☐ 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



### CHP Unit performance data and manufacturing technology

Model	GXC90-6BG	<b>Power and efficiency</b>	
Frequency (Hz)	50	Load	100%
Electric output power (kW)	90	Electric power (kW)	90
Thermal output power (kW)	128	Heat power (kW)	128
Electric efficiency	35.6%	Energy input (kW)	243
Thermal efficiency	50.7%	Electric efficiency	35.6%
Total efficiency	86.3%	Heat efficiency	50.7%
Heating water temp. outlet(°C)	90~95	Total efficiency	86.3%
Heating water temp. return(°C)	82~87	<b>Manufacturing technology</b> <ul style="list-style-type: none"> <li>Special welded base frame, inner vibration isolators and design for whole lifting</li> <li>With high-class coating, enduring brightness as well resistance against abrasion and defacing</li> <li>Installation manual, operation and maintenance manual wiring program</li> </ul> <b>Standards and certificate</b> <ul style="list-style-type: none"> <li>ISO3046, ISO8528, GB2820</li> <li>BS5000PT99, AS1359, IEC34</li> <li>ISO9001:2008 quality system certification</li> </ul>	
Hot water production @inlet 82°C/outlet 90°C[t/h]	10		
Voltage recovery time(s)	≤4		
Steady-state frequency regulation	±0.5%		
Transient -state frequency regulation	±5%		
Steady-state frequency band	0.5%		
Recovery time response(s)	0.5		
Frequency recovery time(s)	≤3		
Telephone interference factor(TIF)	≤50		
Telephone harmonious factor(THF)	≤2%, as per BS4999		

### Gas engine

Brand	PowerLink	<b>Energy balance and gas flow</b>	
Model	GX10T-E02	Mechanical power (kW)	94
NO. of cylinders	6 in-line	Coolant heat (kW)	55
Bore x Stroke (mm)	126X130	Radiation heat max. (kW)	9
Displacement (L)	9.7	Exhaust heat up to 120°C (kW)	63
Cooling system	Water cooled	Fuel Input (kW)	252
Rated speed (rpm)	1800	Combustion air flow(kg/h)	400
Intake system	Turbocharged, intercooled	Exhaust gas flow(kg/h)	430
Lube Oil consumption(kg/h)	0.045	Exhaust gas temperature(°C)	≤580
Combustion type	Lean burn	Gas consumption(m³/h) @100% load	42
Battery voltage(V)	24	75% load	31.6
Coolant type	Glycol mixture	50% load	21.1

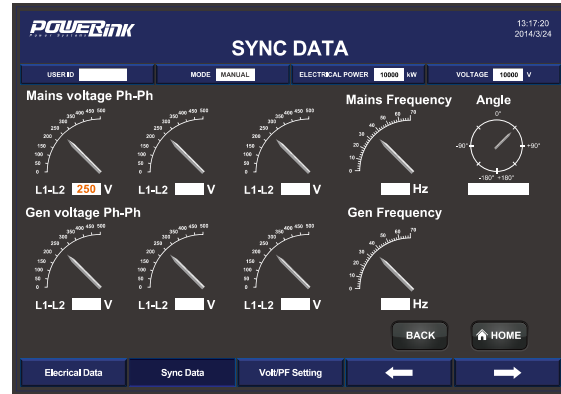
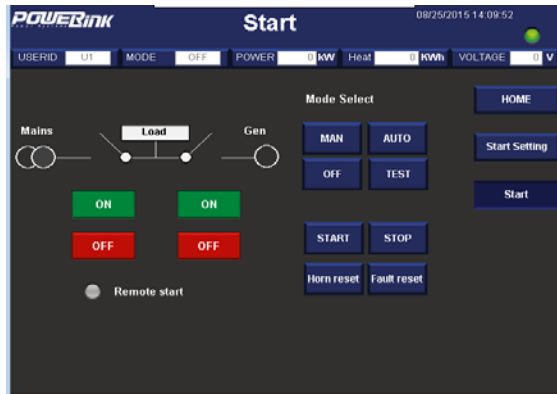
### AC alternator

Brand	LSA	Wiring connection	Star
Model	LSA44.3M6	Rotor insulation class	H
Rated output power @400V (kW)	100	Winding pitch	2/3
Power factor	0.8	A.V.R. model	R438
Rated current @400V (A)	181	Voltage fluctuation(no load to full load)	± 0.5%
Excitation system	PMG	Drip proof	IP23
THF (BS EN60034- 1)	<2%	Excitation method	Brushless
TIF (NEMA MG 1-22)	<50	Rated ambient temperature(°C)	40
Winding material	100% copper	Rated stator temperature rise(°C)	125



### PCC-300 control system

Programmable control system is adopted with touch screen display , and various functions, including: engine protection and control, CHP parallel and grid connection, and CHP control functions, as well as 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
- Grid data: U, I, Hz, kW, kVAr, PF
- Modbus communication protocol 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 solution
- Convenient remote monitor and service
- Simplified engine start/stop control
- Enhanced stability and safety

#### Standard protection functions

##### Alternator protection

- 2xReverse power
- 2xOverload
- 4xOvercurrent
- 1xOvervoltage
- 1xUndervoltage
- 1xOver/underfrequency
- 1xUnbalanced current

##### Busbar/ Grid protection

- 1xOvervoltage
- 1xUndervoltage
- 1xOver/under frequency
- 1xPhase sequence
- 1xROCOF alarm

#### Standard control functions

##### Power control

- RPM control(synchronization)
- Power control(grid connection)
- Load share(island )

##### Lubrication control

- Auto refilling
- Warning and monitoring

##### Fan control

- Ventilation for engine room
- Radiator fan
- Emergency radiator fan

##### Engine protection

- Various routine and customized protection functions
- Monitoring

##### Voltage control

- Voltage tracking (synchronization)
- Voltage control(island)
- PF control(grid connection)
- Reactive power share (island )

##### Pump control

- Cooling system
- Emergency radiator

##### Valve control

- Cooling system
- Heating system
- Emergency radiator

### Standard configuration

Engine	Alternator	Canopy and base	Electrical cabinet
Gas engine Ignition system Lambda controller Speed control system Electrical start motor Battery system Detonation control system Cylinder temp. protection system Lockable isolator switch Turbocharger & intercooler	AC alternator H class insulation IP23 protection AVR voltage regulator PMG	Steel monocoque base frame Engine bracket Vibration isolators Alternator base	PCC300 control system LCD screen Main circuit breaker Electrical switch cabinet Communication interfaces Mains float charger
Gas supply system	Lubrication system	Standard voltage	Induction/ exhaust system
Gas safety train Air/fuel mixer Throttle valve	Oil filter Daily auxiliary oil tank 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		
Circulation coolant pump Intercooler radiator	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	Lubrication system
Jacket water heater	Space heater Treatments against humidity and corrosion	Auto refilling oil system
Electrical system	Gas supply system	Service and documents
RCD ATS control cabinet Thermal power gauge Electric power gauge	Gas flow gauge	Service tools Maintenance and service parts
Voltage	Exhaust system	Exhaust gas using
220V 230V 240V	Three-way catalytic converter	Exhaust gas evaporator LiBr refrigerator