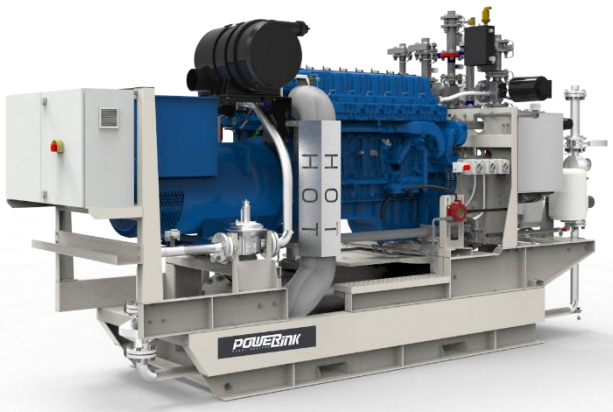
GXC150-NG

Natural Gas CHP Unit

POWERLINK Power Systems
We Produce Green Energy...

Standard Basic Module - Open Type

- Highly efficient gas engine
- Highly efficient AC synchronous alternator
- Gas safety train
- Exhaust flue and jacket water heat exchanger
- Heating water and jacket water circulation system
- Advanced engine control system, including: ignition system, detonation control system, speed control system, air/fuel ratio control system
- Strict shop test for all CHP units
- Industrial silencer reduces the noise by 12-20dB(A)
- Separate switch cabinet and electric control cabinet
- Multi-functional control system with easy operation
- Data communication interfaces integrated into control system
- Monitoring battery voltage and charging automatically
- Automatic oil refilling system
- Bus interface for connecting to higher level control unit



Structure and Control Cabinet

Structure Type	Open type
Spraying Process	High quality powder coating
Electrical control cabinet	Integrated,IP54
Noise level @1m, dB(A)	92.2
@7m, dB(A)	86.9
@10m, dB(A)	84.2

Dimension and Weight

Dimension (LxWxH) , mm	4000x1200x1750
Weight, kg	2500

Power and Efficiency @50Hz

Electric power -kW	150	Electric efficiency	35.6%
Thermal power-kW	203	Thermal efficiency	48.2%
Fuel Input -kW	421	Total efficiency	83.8%

Fuel and Emission

Fuel type	Natural gas
Methane number	MN > 80
Excess air factor（Lambda）	1.4
Fuel consumption @100% load, m³/h	44
Supply gas pressure range (gage pressure), kPa	10~20
Emission without catalytic converter	
NOx , mg/Nm^3	<500mg/Nm³
CO , mg/Nm^3	<650mg/Nm³
HCHO (formaldehyde) , mg/Nm³	<60mg/Nm³
NMHC , mg/Nm³	<150mg/Nm³
Emission with catalytic converter (optional)	
NOx , mg/Nm^3	≤250 mg/Nm³

Special statement :

1、The technical data is based on natural gas with a lower calorific value of 34.2MJ/Nm³.The technical data indicated is based on standard conditions according to ISO8528/1, ISO3046/1 and BS5514/1.

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	4200*1250*2000mm
Noise Level@ 1m，dB(A)	76.14
@ 7m，dB(A)	68
@ 10m，dB(A)	64.1

- ☐ Modular designed and manufactured for plug and play
- ☐ Small indoor space required for installation
- ☐ Environmental friendly low emission
- ☐ Low noise does not affect the surrounding environment

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Standard Basic Module + Acoustic Attenuated Container (Optional)

Dimension and Noise Level	
Optional container（mm）（customized container modeling service available）	☐ 7000*2300*2500 ☐ 6058*2438*2591 ☐ 12192*2438*2896 ☐ 12192*3000*2896 ☐ 13500*3000*2896 ☐ 15000*3200*3000
Noise Level@ 1m，dB(A)	74
@ 7m，dB(A)	66
@ 10m，dB(A)	62

☐ 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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CHP Unit performance data and manufacturing technology

Model	GXC150-NG
Frequency (Hz)	50
Electric output power (kW)	150
Thermal output power (kW)	203
Electric efficiency	35.6%
Thermal efficiency	48.2%
Total efficiency	83.8%
Heating water temp. outlet(℃)	90~95
Heating water temp. return(℃)	70~75
Hot water production @inlet 70℃/outlet 90℃[t/h]	8.14
Overload runtime at 1.1xSe(hour)	1
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

Power and efficiency

Load	100%	75%	50%
Electric power (kW)	150	113	75
Heat power (kW)	203	152	102
Energy input (kW)	421	314	218
Electric efficiency	35.6%	36%	34.4%
Heat efficiency	48.2%	48.4%	46.8%
Total efficiency	83.8%	84.4%	81.2%

Manufacturing technology

- Special welded 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

Gas engine

Brand	PowerLink
Model	GX10T-LE02C
NO. of cylinders	6 in-line
Bore x Stroke (mm)	126X130
Displacement (L)	9.7
Cooling system	Water cooled
Rated speed (rpm)	1500
Excess air factor	1.40
Intake system	Turbocharged, intercooled
Lube Oil consumption(kg/h)	0.045
Combustion type	Lean burn
Battery voltage(V)	24
Coolant type	Glycol mixture

Energy balance and gas flow

Mechanical power (kW)	160
Coolant heat (kW)	98
Mixture heat HT(kW)	/
Mixture heat LT(kW)	/
Exhaust heat up to 120°C (kW)	105
Fuel Input (kW)	421
Combustion air flow(kg/h)	/
Exhaust gas flow(kg/h)	902
Exhaust gas temperature(℃)	482
Gas consumption(m^3/h) @ 100% load	44
75% load	33
50% load	23

AC alternator

Brand	PowerLink
Model	PL3F
Rated output power @400V (kW)	160
Power factor	0.8
Rated current @400V (A)	289
Excitation system	PMG
THF (BS EN60034- 1)	<2%
TIF (NEMA MG 1-22)	<50
Winding material	100% copper

Wiring connection	Star
Rotor insulation class	H
Winding pitch	2/3
A.V.R. model	MX341
Voltage fluctuation(no load to full load)	± 0.5%
Drip proof	IP23
Excitation method	Brushless
Rated ambient temperature(℃)	40
Rated stator temperature rise(℃)	125

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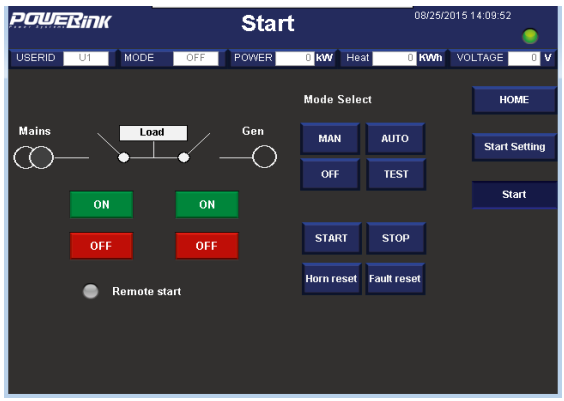
PCC-300 control system

Programmable control system is adopted with touch screen display , and various functions, including: engine protection and control, paralleling between gensets or gensets and grid, 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	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/ Grid 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	

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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 Lockable isolator switch Turbocharger & intercooler	PMG AC alternator H class insulation IP23 protection AVR voltage regulator	Steel monocoque base frame Engine bracket Vibration isolators Alternator base	Air circuit breaker Paralleling control system 10-inch touch screen Communication interfaces Breaker cabinet Mains floating charger Paralleling protection
Gas supply system	**Lubrication system**	**Standard voltage**	**Intake/ exhaust system**
Gas safety train Air/fuel mixer Throttle valve	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 flowmeter Gas leakage protection(Only applicable to canopy and container)
Heat exchange system	**Service and documents**		
Exhaust heat exchanger Jacket water circulation pump Jacket water heat exchanger Mixture circulation pump Expansion tank Heating circulation pump Three-way constant temp. valves Intercooler radiator	Tools package Installation and operation manual Maintenance manual Software manual Parts manual	Engine operation and maintenance manual Gas quality declaration Control system manual After service guide Standard package	

Optional configuration

Engine	Alternator	Lubrication system
Jacket water heater	Space heater Treatments against humidity and corrosion	
Electrical system	**Gas supply system**	**Service and documents**
RCD ATS control cabinet Thermal power gauge Electric power gauge	Gas flow gauge Emergency pressure relief torch Refrigerated gas drier Water separator Gas compressor Gas purification device	Service tools Maintenance and service parts
Voltage	**Exhaust system**	**Exhaust gas using**
220V 230V240V	Three-way catalytic converter	Exhaust gas evaporator LiBr refrigerator

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.