

GXC200-6NG

Natural Gas CHP Unit

Standard Basic Module

- Highly efficient gas engine
- Highly reliable AC synchronous alternator
- Gas train
- Exhaust/water heat exchanger
- Water/water heat exchanger
- Heating circulation system
- Advanced engine control system, including: ignition system, detonation control system, speed control system, air/fuel ratio control system
- Industrial silencer
- Control cabinet and switch cabinet
- Multi-functional control system with simple operation
- Data communication interfaces integrated into control system
- Battery charger
- Automatic oil refilling system
- Island mode or connecting to the grid mode



Structure and Control Cabinet

Dimension and Weight

| | |
|------------------------|----------------|
| Dimension (LxWxH) , mm | 4250x1300x2000 |
| Weight, kg | 4400 |

Special statement :

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.

Power and Efficiency @60Hz

| | | | |
|--------------------|-------|---------------------|-------|
| Electric power -kW | 200 | Electric efficiency | 37.2% |
| Thermal power-kW | 280 | Thermal efficiency | 52.1% |
| Fuel Input -kW | 537.6 | Total efficiency | 89.3% |

Fuel and Emission

| | |
|--|-------------|
| Fuel type | Natural gas |
| Methane number | MN > 80 |
| Excess air factor (Lambda) | 1.59 |
| Fuel consumption @100% load, m ³ /h | 53.8 |
| Supply gas pressure range (gage pressure), kPa | 10~20 |

Emission

| | |
|--|------------------------|
| 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 | <150mg/Nm ³ |

GXC200-6NG

Natural Gas CHP Unit

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Standard Basic Module + Soundproof (Optional)



Dimension and Noise Level

| | |
|------------------------|------------------|
| Canopy Size | 4500*1400*2400mm |
| Noise Level@ 1m, dB(A) | 80.2 |
| @ 7m, dB(A) | 72.9 |
| @ 10m, dB(A) | 68.9 |

- 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



GXC200-6NG

Natural Gas CHP Unit

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Standard Basic Module + 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 |
| Noise Level@ 1m, dB(A) | 78 |
| @ 7m, dB(A) | 70 |
| @ 10m, dB(A) | 66 |

- 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



GXC200-6NG

Natural Gas CHP Unit

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CHP Unit performance data and manufacturing technology

| Model | GXC200-6NG | Power and efficiency | | | |
|---|--------------------|----------------------|-------|-------|-------|
| Frequency (Hz) | 60 | Load | 100% | 75% | 50% |
| Electric output power (kW) | 200 | Electric power (kW) | 200 | 150 | 100 |
| Thermal output power (kW) | 280 | Heat power (kW) | 280 | 210 | 140 |
| Electric efficiency | 37.2% | Electric efficiency | 37.2% | 36.8% | 36.5% |
| Thermal efficiency | 52.1% | Heat efficiency | 52.1% | 51.8% | 51.6% |
| Total efficiency | 89.3% | Total efficiency | 89.3% | 88.6% | 88.1% |
| Heating water temp. outlet(°C) | 90~95 | | | | |
| Heating water temp. return(°C) | 82~87 | | | | |
| Hot water production @inlet 82°C/outlet 90°C[t/h] | 28.5 | | | | |
| 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

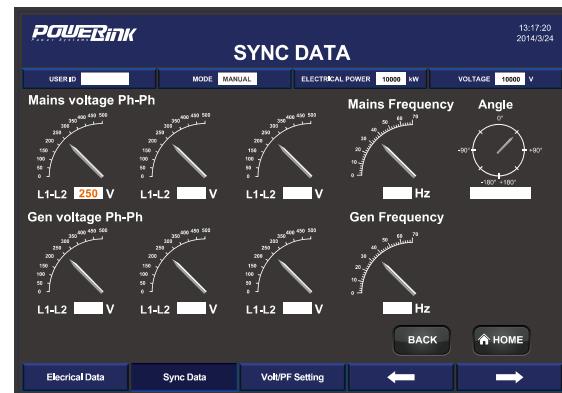
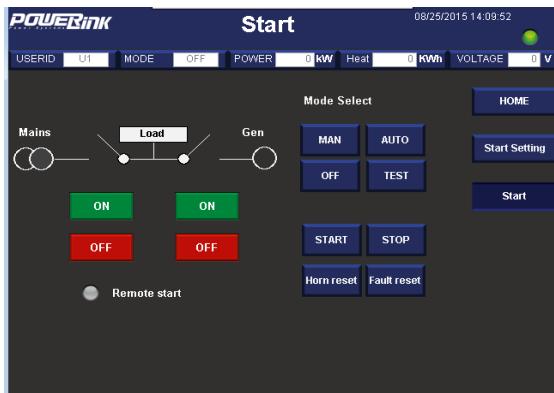
| Brand | PowerLink | Energy balance and gas flow | |
|----------------------------|---------------------------|-----------------------------------|------|
| Model | GX12T-LE02C | Mechanical power (kW) | 230 |
| NO. of cylinders | 6 in-line | Coolant heat (kW) | 115 |
| Bore x Stroke (mm) | 126X155 | Radiation heat max. (kW) | 21 |
| Displacement (L) | 12 | Exhaust heat up to 120°C (kW) | 156 |
| Cooling system | Water cooled | Fuel Input (kW) | 560 |
| Rated speed (rpm) | 1800 | Combustion air flow(kg/h) | 996 |
| Intake system | Turbocharged, intercooled | Exhaust gas flow(kg/h) | 1079 |
| Lube Oil consumption(kg/h) | 0.06 | Exhaust gas temperature(°C) | 570 |
| Combustion type | Lean burn | Gas consumption(m³/h) @ 100% load | 53.8 |
| Battery voltage(V) | 24 | 75% load | 40.3 |
| Coolant type | Glycol mixture | 50% load | 26.9 |

AC alternator

| | | | |
|-------------------------------|-------------|---|-----------|
| Brand | PowerLink | Wiring connection | Star |
| Model | PL4MS | Rotor insulation class | H |
| Rated output power @480V (kW) | 235.2 | Winding pitch | 2/3 |
| Power factor | 0.8 | A.V.R. model | MX341 |
| Rated current @480V (A) | 424 | 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, kVA, 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

- Accurate 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 <ul style="list-style-type: none"> - 2xReverse power - 2xOverload - 4xOvercurrent - 1xOvervoltage - 1xUndervoltage - 1xOver/underfrequency 1xUnbalanced current | Powercontrol <ul style="list-style-type: none"> - RPM control(synchronization) - Power control(grid connection) - Load share(island) |
| Busbar/ Gridprotection <ul style="list-style-type: none"> - 1xOvervoltage - 1xUndervoltage - 1xOver/under frequency - 1xPhase sequence - 1xROCOF alarm | Lubrication control <ul style="list-style-type: none"> - Auto refilling - Warning and monitoring |
| | Fan control <ul style="list-style-type: none"> - Ventilation for engine room - Radiator fan - Emergency radiator fan |
| | Engine protection <ul style="list-style-type: none"> - Various routine and customized protection functions - Monitoring |
| | Voltage control <ul style="list-style-type: none"> - Voltage tracking (synchronization) - Voltage control(island) - PF control(grid connection) - Reactive power share (island) |
| | Pump control <ul style="list-style-type: none"> - Cooling system - Emergency radiator |
| | Valve control <ul style="list-style-type: none"> - 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 Lockable isolator switch Turbocharger & intercooler Jacket water heater | PMG AC alternator H class insulation IP23 protection AVR voltage regulator | Steel monocoque base frame Engine bracket Vibration isolators Alternator base | Air circuitbreaker PCC300 control system 10.4-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 waste oil tank (Only applicable to container) | 380/220V 416/240V 440/254V 480/277V | Air filter Exhaust silencer Exhaust bellows Gas leakage protection(Only applicable to canopy and container) |
| Heat exchange system | Service and documents | | |
| Exhaust/water heat exchanger Jacket water circulation pump Water/water heat exchanger Mixture circulation pump Expansion tank Heating circulation pump Three-way valves Intercoolerradiator | 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 | |

Optional configuration

| Engine/Alternator | Electrical system | Gas supply system |
|--|---|---|
| Jacket water radiator Space heater Treatments against humidity and corrosion | RCD ATS control cabinet Thermal power gauge Electric power gauge | Gas flow gauge Emergency pressure relief torch Water separator Gas compressor Gas purification device |
| Voltage | Exhaust system | Exhaust gas using |
| 208V 220V 230V240V | Three-way catalytic converter | Steam boiler LiBr refrigerator |