

GXC520S-BG

Special Gas CHP Unit

Main configuration and features:

- Highly efficient gas engine
- AC synchronous alternator
- Gas safety train and gas protection device against leakage
- Exhaust 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 and cylinder temp. protection system
- Strict shop test for all CHP units
- Able to be used directly outdoors with durable and firm characteristics and design against rain and dust
- Industrial silencer with silencing ability of 12-20dB(A)
- Unattached switch cabinet and electric control cabinet
- Multi-functional control system with simple operation
- Data communication interfaces integrated into control system
- Internal lighting system
- Monitoring battery voltage and charging automatically
- Auto refilling oil system
- Bus interface for connecting to higher level control unit



Power and efficiency @50Hz

| | | | |
|--------------------|------|---------------------|-------|
| Electric power -kW | 520 | Electric efficiency | 38.3% |
| Heat power -kW | 654 | Heat efficiency | 48.2% |
| Input power -kW | 1358 | Total efficiency | 86.5% |

Structure and control cabinet

| | |
|----------------------------|------------------------------|
| Structure | Soundproof canopy |
| Canopy painting | High-class powder coating |
| Electrical control cabinet | Integrated into canopy, IP54 |
| Noise level @7m, dB(A) | < 60 |

Dimension and weight

| | |
|--------------------------|----------------|
| Dimension (LxWxH) , mm | 5820x2180x2620 |
| Weight, kg | 8600 |

Special statement :

- 1、 The technical data are based on a gas mixture of 60% methane and 40% carbon dioxide with a calorific value of 6,0 kWh/Nm³ 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、 Dimension and weight 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.

Fuel and emission

| | |
|--|--|
| Fuel type | Special gas |
| Fuel component | 60%-CH ₄ /40%-CO ₂ |
| Methane number | MN > 100 |
| Excess air factor (Lambda) | 1.55 |
| NO _x , 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 |
| Fuel consumption @100% load, m ³ /h | 226 |
| Supply gas pressure range, kPa | 10~20 |

CHP Unit performance data and manufacturing technology

| | | | |
|---------------------------------------|------------|--|---------------------|
| Model | GXC520S-BG | Frequency recovery time(s) | ≤3 |
| Frequency (Hz) | 50 | Steady-state frequency band | 0.5% |
| Electric output power (kW) | 520 | Recovery time response(s) | 0.5 |
| Heat output power (kW) | 654 | Telephone interference factor(TIF) | ≤50 |
| Electric efficiency | 38.3% | Telephone harmonious factor(THF) | ≤2% , as per BS4999 |
| Heat efficiency | 48.2% | Manufacturing technology <ul style="list-style-type: none"> ● Special welded base frame, inner vibration isolators and design for whole lifting ● With high-class paint, enduring brightness as well resistance against abrasion and defacing ● Installation manual, operation and maintenance manual wiring program Standards and certificate <ul style="list-style-type: none"> ● ISO3046 , ISO8528 , GB2820 ● BS5000PT99 , AS1359 , IEC34 <ul style="list-style-type: none"> ● ISO9001:2008 quality system certification | |
| Total efficiency | 86.5% | | |
| Heating water temp. outlet(°C) | 90~95 | | |
| Heating water temp. return(°C) | 70~75 | | |
| 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% | | |

Gas engine

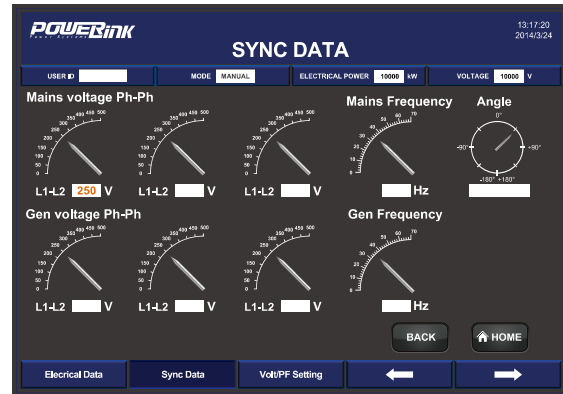
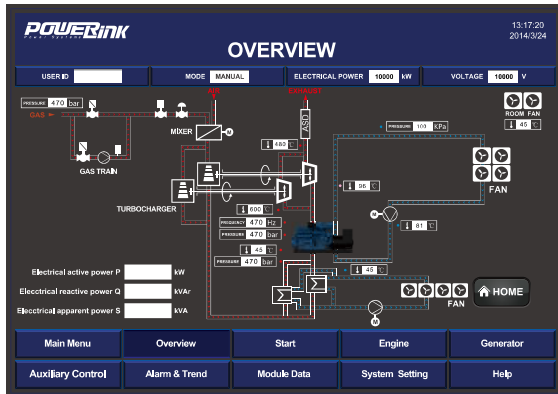
| | | | |
|-----------------------|---------------------------|------------------------------------|------|
| Brand | MAN | Energy balance and gas flow | |
| Model | GX28M-LE02 | Mechanical power (kW) | 550 |
| NO. of cylinders | V12 | Coolant heat (kW) | 264 |
| Bore x Stroke (mm) | 132x157 | Mixture heat HT (kW) | 75 |
| Displacement (L) | 25.8 | Mixture heat LT (kW) | 38 |
| Cooling system | Water cooled | Exhaust heat up to 120°C (kW) | 315 |
| Rated speed (rpm) | 1500 | Energy input (kW) | 1358 |
| Excess air factor | 1.55 | Combustion air flow(kg/h) | 2598 |
| Intake system | Turbocharged, intercooled | Exhaust gas flow(kg/h) | 2875 |
| Oil consumption(kg/h) | 0.175 | Exhaust gas temperature(°C) | 464 |
| Combustion type | Lean burn | Gas consumption(m³/h) @ 100% load | 226 |
| Battery voltage(V) | 24 | 75% load | 173 |
| Coolant type | Glycol mixture | 50% load | 113 |

AC alternator

| | | | |
|-------------------------------|-------------|---|-----------|
| Brand | Leroy-Somer | Wiring connection | Star |
| Model | LSA49.1S4 | Rotor insulation class | H |
| Rated output power @400V (kW) | 528 | Winding pitch | 2/3 |
| Power factor | 0.8 | A.V.R. model | R450 |
| Rated current @400V (A) | 953 | Voltage fluctuation(no load to full load) | ± 0.5% |
| Excitation system | PMG | Housing protection | 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

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 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 project
- 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/mains protection**
- 1xOvervoltage
 - 1xUndervoltage
 - 1xOver/under frequency
 - 1xPhase sequence
 - 1xROCOF alarm

Standard control functions

- Powercontrol**
- 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

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Special Gas CHP Unit



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 | PMG AC alternator H class insulation IP23 protection AVR voltage regulator | Steel monocoque base frame Engine bracket Vibration isolators Alternator base Soundproof canopy | Air circuitbreaker Paralleling control system 10-inch touch screen Communication interfaces Breaker cabinet Lighting system Mains float charger Paralleling protection |
| Gas supply system | Lubrication system | Standard voltage | Induction/ exhaust system |
| Gas safety train Gas leakage protection Air/fuel mixer Throttle valve Flame arrester | Oil filter Daily auxiliary oil tank Auto refilling oil system | 380/220V 400/230V 415/240V | Air filter Exhaust silencer Exhaust bellows Ventilation fan |
| 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 Emergency 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 | |
|--|---|--|--|
| Heavy duty air filter Oil heater Jacket water heater | Space heater Treatments against humidity and corrosion | Oil consumption gauge New and used oil tank | |
| Electrical system | Exhaust system | Service and documents | |
| RCD Grounding bar Lightning protection | Three-way catalytic converter Silencer with spark arrester | Service tools Maintenance and service parts | |
| Voltage | Gas supply system | | |
| 220V 230V 240V | Gas flow gauge Emergency relief flare | Refrigerated gas drier Free water separator | Gas compressor Gas purification plant |