

### 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, detonation control system, speed control system, air/fuel ratio control system and cylinder temp. protection system
- Strict shop test for all gensets
- Expansion tank and water jacket heater
- 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
- Monitoring battery voltage and charging automatically
- Auto refilling oil system
- Bus interface for connecting to higher level control unit



#### Structure and control cabinet

Structure type	Open type
Container painting	High-class paint
Electrical control cabinet	Integrated, IP54
Noise level @ 1m, dB(A)	107.8
@ 7m, dB(A)	92.1
@ 10m, dB(A)	85.8

#### Dimension and weight

Dimension ( LxWxH ), mm	7000X2000X2200
Weight, kg	17000

#### Special statement :

- The technical data are based on natural gas with a lower calorific value of 36MJ/Nm<sup>3</sup>. The technical data indicated is based on standard conditions according to ISO 8528/1, ISO 3046/1 and BS 5514/1.
- The technical data is measured in standard conditions:  
Absolute atmospheric pressure: 100kPa  
Ambient temperature : 25°C  
Relative air humidity : 30%
- Rating adaptation at ambient conditions acc to DIN ISO 3046/1. The tolerance for the specific fuel consumption is + 5 % at rated output.
- 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.

#### Electric data @50Hz

Voltage-V	Power-kW	Efficiency-%	Current-A
380	1000	38.7	1899
400	1000	38.7	1804
415	1000	38.7	1739
440	1000	38.7	1640

#### Fuel and emission

Fuel type	Natural gas
Methane number	MN > 80
Excess air factor ( Lambda )	1.7
Fuel consumption @ 100% load, m <sup>3</sup> /h	258
Supply gas pressure range, kPa	25~35
<b>Emission without catalytic converter</b>	
NOx , mg/Nm <sup>3</sup>	≤480
CO, mg/Nm <sup>3</sup>	≤870
HCHO (formaldehyde) , mg/Nm <sup>3</sup>	≤60
NMHC, mg/Nm <sup>3</sup>	≤150
<b>Emission with catalytic converter (optional)</b>	
NOx , mg/Nm <sup>3</sup>	≤250 mg/Nm <sup>3</sup>

# GE1000-NG

Natural Gas Genset

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



### Dimension and Noise Level

Optional container (mm) (customized container modeling serviceavailable)	<input type="checkbox"/>	12192*2438*2896
	<input type="checkbox"/>	12192*3000*2896
	<input type="checkbox"/>	13500*3000*2896
	<input type="checkbox"/>	15000*3200*3000
	<input type="checkbox"/>	17000*3200*3000
Noise Level@ 1m , dB(A)		86
@ 7m , dB(A)		75
@ 10m , dB(A)		70

- 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



### Genset performance data and manufacturing technology

Genset model	GE1000-NG	Telephone interference factor(TIF)	≤50
Electrical output power (kW)	1000	Telephone harmonious factor(THF)	≤2% , as per BS4999
Genset electrical efficiency	38.7%	<p><b>Manufacturing technology</b></p> <ul style="list-style-type: none"> <li>● Specialwelded base frame, inner vibration isolators and design for whole lifting</li> <li>● With high-class paint, enduring brightness as well resistance against abrasion and defacing</li> <li>● Installation manual, operation and maintenance manual wiring program</li> </ul> <p><b>Standards and certificate</b></p> <ul style="list-style-type: none"> <li>● ISO3046 , ISO8528 , GB2820</li> <li>● BS5000PT99 , AS1359 , IEC34</li> <li>● ISO9001:2008 quality system certification</li> </ul>	
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		

### AC alternator performance data

	Leroy-Somer	Voltage	Power
Alternator brand	Leroy-Somer		
Alternator model	LSA50.2L8	380V	1200 kW
Rated output power (kW)	1200	400V	1200 kW
Power factor	0.8	415V	1200 kW
Rated current @ 400V and 100% load (A)	2165	440V	1150kW
Excitation system	Brushless		
THF (BS EN60034- 1)	<2%		
Bearing number	2		
Winding material	100% copper		
Wiring connection	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(°C)	40		
Rated stator temperature rise(°C)	125		

### Efficient gas engine

#### General data

NO. of cylinders		16
Engine type		4-stroke, turbo charged and air to water cooled, lean burn
Cylinder arrangement		V-form , 60°
Bore x stroke	mm	160x190
Displacement	L	61.123
Compression ratio		12 : 1
Rated speed	rpm	1500
Rated output power	kW	1042
Excess air factor		1.7
Rotation direction		Anti-clockwise viewed on flywheel
Ignition timing	°BTDC	26

#### Induction/exhaust system

Exhaust flow	m <sup>3</sup> /h	12632
Max. exhaust temp. before turbo	°C	600
Max. exhaust temp. after turbo	°C	468
Max. exhaust back pressure	mmH <sub>2</sub> O	400
Max. suctionrestriction	mmH <sub>2</sub> O	380
Exhaust outlet flange size	mm	2x152

#### Lubrication system

Total capacity	L	286
Sump maximum	L	257
Sump minimum	L	147
Oil temperature	°C	88
Oil pressure at rated speed	kPa	470
Oil flow - 1500rpm	L/min	402
Max. consumption	g/kWhr	0.25
Oil type		Single grade
Oil pump		Gear driven

#### Ignition system

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

#### Cooling system

Total coolant capacity	L	95
Jacket water pressure in crankcase	kPa	≤100
Total coolant flow	L/min	950
Max. coolant exit temperature	°C	96
Max. coolant entry temperature	°C	81
Charge coolant flow	L/min	600
Charge coolant exit temperature	°C	40
Charge coolant entry temperature	°C	36
Coolant type	Mixture of 50% Inhibited ethylene glycol or propyleneglycol and 50% clean fresh water. Lower ambient temp, highercontent of antifreeze.	

#### Fuel consumption

100% load	m <sup>3</sup> /h	258
75% load	m <sup>3</sup> /h	191
50% load	m <sup>3</sup> /h	132

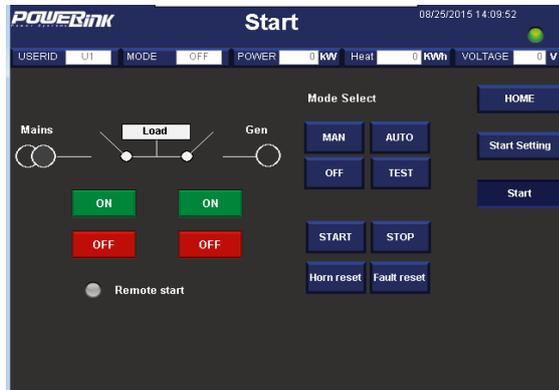
Fuel: Natural Gas - LHV = 34.71 MJ/m<sup>3</sup>

#### Fuel control system

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

### PCC-300 control system

Open 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
- 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

### Standard configuration

Engine	Alternator	Canopy and base	Electrical cabinet
Gas engine Ignition system Lambda controller Electronic governor actuator Electrical start motor Battery system Auto charging system Detonation control system Cylinder temp. protection 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 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	Lubrication system
Heavy duty air filter Backfire safety control valve Jacket water radiator Jacket water heater	Space heater Treatments against humidity and corrosion	Oil consumption gauge
Canopy and base	Gas supply system	Exhaust system
SECC base frame	Gas flow gauge	Guard shield from touch Residential silencer Three-way catalytic converter
Service and documents	Voltage	
Service tools Maintenance and service parts	220V 230V 240V	