

# GRS16S-NG

## Natural Gas Genset

### Main Features

- Highly efficient gas engine
- AC synchronous alternator
- Gas safety train and gas protection device against leakage
- Cooling system suitable for ambient temperature up to 50°C
- Advanced engine ECU control system, including: ignition system, speed control system, air/fuel ratio control system
- Strict shop test for all gensets
- Able to be used directly outdoors with durable and firm characteristics and design against rain and dust
- Industrial silencer reduces the noise by 12-20dB(A)
- Integrated the control & switch cabinet
- Multi-functional control system with easy operation
- Data communication interfaces integrated into control system
- Monitoring battery voltage and charging from mains
- Bus interface for connecting to higher level control unit



#### Structure and control cabinet

Structure Type	Soundproof
Spraying Process	High quality powder coating
Electrical control cabinet	Integrated, IP54
Noise level @ 1m, dB(A)	75.7
@ 7m, dB(A)	62.8
@ 10m, dB(A)	60.9

#### Dimension and weight

Dimension ( LxWxH ) , mm	1960x985x1275
Weight, kg	870

#### Special statement :

- The technical data are based on natural gas with a lower calorific value of 36.0MJ/Nm<sup>3</sup>. The technical data indicated is based on standard conditions according to ISO8528/1, ISO3046/1 and BS5514/1.
- 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	16	32	30
400	16	32	29
415	16	32	28
440	16	32	26

#### Fuel and emission

Fuel type	Natural gas
Methane number	MN > 80
Excess air factor ( Lambda )	1.2
Fuel consumption @ 100% load, m <sup>3</sup> /h	5.0
Supply gas pressure range ( gage pressure), kPa	10~20
<b>Emission without catalytic converter</b>	
NOx , 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>
<b>Emission with catalytic converter(optional)</b>	
NOx , mg/Nm <sup>3</sup>	≤ 250 mg/Nm <sup>3</sup>

### Genset performance data and manufacturing technology

Genset model	GRS16S-NG	Telephone interference factor(TIF)	≤50
Frequency(Hz)	50	Telephone harmonious factor(THF)	≤2% , as per BS4999
Electrical output power (kW)	16	<p><b>Manufacturing technology</b></p> <ul style="list-style-type: none"> <li>● Special welded base frame, inner vibration isolators and design for whole lifting</li> <li>● With high quality paint, enduring brightness as well resistance against abrasion and defacing</li> <li>● Installation manual, operation and maintenance manual circuit diagram</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>	
Genset electrical efficiency	32%		
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 degree	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		

Gas engine		AC alternator	
Brand	PowerLink	Brand	PowerLink
Model	GR2.7 E01N	Model	PL1E
NO. of cylinders	4	Rated output power @400V (kW)	18
Cylinders arrangement	In line	Power factor	0.8
Bore x Stroke (mm)	90x105	Rated current @400V (A)	32
Displacement (L)	2.67	Excitation system	Self excited,SHUNT
Cooling system	Water cooled	THF (BS EN60034- 1)	<2%
Rated speed (rpm)	1500	TIF (NEMA MG 1-22)	<50
Rated output power (kW)	19	Winding material	100% copper
Excess air factor	1.20	Wiring connection	Star
Intake system	Natural aspirated	Rotor insulation class	H
Lube oil consumption (kg/h)	0.005	Winding pitch	2/3
Combustion type	Stoichiometric	A.V.R. model	SX460
Battery voltage	12V	Voltage fluctuation(no load to full load)	± 0.5%
Coolant type	Glycol mixture	Drip proof	IP23
Gas consumption(m³/h)@ 100%load	5.0	Excitation method	Brushless
75%load	3.7	Rated ambient temperature(°C)	40
50%load	2.6	Rated stator temperature rise(°C)	125

### GCC92 control system



#### Features

- Auto start and stop
- Voltage and PF control
- Engine monitor: speed, oil pressure, coolant temperature, battery voltage, running time and so forth
- Alternator data : U, I, Hz, kW, kVA, kVAr, PF, kWh, kVAh
- Grid data : voltage, frequency
- USB port
- Remote control with internet
- Data logging & trending and PLC functionality
- Manual, auto and remote control mode optional
- CAN and modbus communication

#### 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	
<b>Alternator protection</b> - Overload - Overcurrent - Overvoltage - Undervoltage - Over/underfrequency - Unbalanced current	<b>Powercontrol</b> - RPM control	<b>Voltage control</b> - Voltage control(island)
	<b>Valve control</b> - Cooling system	<b>Pump control</b> - Cooling system
<b>Busbar/grid protection</b> - voltage - Frequency	<b>Engine protection</b> - Various routine and customized protectionfunctions - Monitoring	<b>Lubrication control</b> - Auto refilling - Warning and monitoring

### Standard configuration

Engine	Alternator	Canopy and base	Electrical cabinet
Gas engine Ignition system Lambda controller Speed control system Electrical start motor Battery system Lockable isolator switch	AC alternator H class insulation IP23 protection AVR voltage regulator	Steel monocoque base frame Engine bracket Vibration isolators Alternator base	GCC92 control system LCD screen Main circuit breaker Electrical switch cabinet Communication interfaces Mains float charger
Gas supply system	Lubrication system	Standard voltage	Intake/ exhaust system
Gas safety train Air/fuel mixer Throttle valve	Oil filter	380/220V 400/230V 415/240V 440/254V	Air filter Exhaust silencer Exhaust bellows
Cooling system	Service and documents		
Jacket water 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	Oil tank Auto refilling oil system
Electrical system	Gas supply system	Service and documents
ATS control cabinet Electric power gauge	Gas flow gauge	Service tools Maintenance and service parts
Voltage	Exhaust system	
220V 230V 240V	Three-way catalytic converter	