DIESEL GENERATING SETS

GMS30CS

NOISE LEVEL: 63dBA@7m
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Manufacturing standards and environmental conditions

Design Standards

The designs and the productions are in conformity with:
- Conformite Europeenne (CE)
- China Compulsory Certification (CCC)
- ISO8528-1995
- GB/T2820-1997

Design Conditions

The designs and the productions are in conformity with:
- Installation place: Outdoors or indoors (well ventilated).
- Ambient temperature: -25°C to 45°C. The coolant heater is needed when the temperature is below 5°C.
- Humidity: Less than 80%.
- Altitude: Below one thousand (1000) meters above sea level.

Relevant materials with the genset as follows:

- Certificate of Conformity
- Test Report
- Maintenance Manual
- Warranty Service Manual
- Installation Manual of Genset
- Circuit Diagram of Genset
- Certificate of Origin of Diesel Engine
- Installation and Maintenance Manual of Diesel Engine
- Installation and Maintenance Manual of Alternator

Optional technical materials for genset as follows:

- Three-view Drawing of Genset
- Technical Specifications
- Parts Manual of Genset
- Parts Manual of Diesel Engine
- Operation Instructions of Control System Module

Factory Inspection

- Inspection items.
- Protection devices working test.
- Starting ability in normal temperature.
- 50% rated power load moment capability.
- Voltage deviation and speed variation: 0%, 25%, 50%, 75%, 100%, 110% Load.

Painting Process

- Painting process specifications and colors are based on the manufacturer’s standard.
- The customer could also choose the color which the manufacturer offers.

POWERLINK also provides parts list, specifications, engineer handbook etc. Contact POWERLINK for complete information or technical support through the website, phone, fax, or email if you encounter a problem when using your product or product documentation.
Product Features

Strong Power, Stable Performance

**ENGINES AND ALTERNATORS**

- Excellent engines and alternators featured with strong power, high torque, quick start, easy maintenance and operation.

**HIGH QUALITY STEEL AND PAINT PROCESS**

The canopies are made of high quality steel and powder coated. The paint is highly endurable against erosion and scratch, and strongly rustproof.

**ADVANCED WATERPROOF AND DUSTPROOF DESIGN**

The control panel, service doors and canopy board adopt waterproof design and effectively stop rain and dust intrusion.

**COMPACT STRUCTURE**

Compact structure, small size, and longer service life.

**EXCELLENT ANTI-VIBRATION DEVICES**

- Anti-vibration mountings between the engines, alternators and the base significantly reduce the vibrations during operation, ensuring stable operation.
- All movable devices are fixed firmly, and therefore help reduce vibration.

**EXCELLENT SPEED GOVERNING CONTROL**

Scientific suspension system design.

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**High torque reserves**

- High torque reserves
- Standard curve
- Transmitted driving power torque
- Hydrostatic load

**Ultra-low power loss**

- Engine speed - RPM
  - Synchronism
    - 0%
    - 5-10%
    - 15-40%
  - Hydrostatic load

**Vibration-resonance frequency**

- CCB/Container and Bracket
  - Recommended Limit
  - At (60 ± 1) Hz, Frequency 31x ± 0.45
Enhanced Safety

**ELECTRIC SAFETY**

- The double protection for the cable connection panel lowers the probability of leakage caused by unintended touch or rain falling.
- Three-dimensional CABLING design for all the generator cables, providing reasonable, accurate and perfect protection.
- Automatic turn-on circuit breaker with undervoltage protection system inside maximally avoids human misoperation.
- Automatic control module for multi-directional monitoring meets multilevel demands and considerate protection of or for customers.

**OPERATION SAFETY**

- The radiator and high-voltage parts are guarded to avoid accidents caused by touch.
- The control panel is lockable. Current changeover switch, voltage regulator and circuit breakers are installed behind the door.
- Anti-vibration rubbers are installed in the two sides of the doors to avoid damage to the machines when open the doors.
- Lockable fuel filling cap.

**ENVIROMENTAL**

**POWERFUL ENGINES**

- Adopts world-famous engines, with low noise and low emission.
- Rigid structure ensures lowest vibration.
- Common rail system: (for some models) significantly lowers the combustion temperature, and also leads to cleaner exhaust.
- For the turbocharged machines, the carbon dioxide (CO₂) emission is reduced.

**EXCELLENT SILENCERS**

Silencer and muffler pipe system dramatically reduce the noise during operation, and therefore cause less effect on daily life.

**HIGH QUALITY SOUND ABSORBING MATERIAL**

The interior is lined with new type fire retardant and sound absorbing cotton, and the door is airproof with rubber specific for car doors use only, which helps absorb massive noise and heat during the operation.

**FULLY-CLOSED NOISE REDUCTION**

Besides applying airproof rubber around the doors, the concept of noise reduction has also been fully integrated into the inlet/outlet and other aspects.

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Short circuit current diagram

Genset overload diagram
Product Features

Easy to Operate

CONTROL SYSTEM
- Micro-processor cored digital system.
- Multiple languages for option, automatic control.
- Connected with the mains through ATS, which can help realize automatic transfer between the mains and the generators. Also, multiple generators can be paralleled for bigger power need.

CONVENIENT REFUELING AND WATERING INSTALLATIONS
- Outer filling fuel port.
- 8-12 hours base fuel tank in soundproof generator sets prevent against leakage and fuel spray when cleaning the interior. The fuel tank abides by European environment protection standards
- Drainage outlet.
- Water feeder is located on top of the canopy;

CONVENIENT CONNECTION
- Terminal connection lugs (L1, L2, L3, and LN) make connection and wiring more simple and well-ordered.
- Emergency stop provides convenient operation in emergent situation and when servicing.

EASY TO TRANSPORT
- The machines below 500kVA have holes for forklift and dragging in the base for easy transport.
- Lifting eyes located on top of the canopy make easier move by cranes.

EASY TO MAINTAIN
- The daily maintenance work can be performed on both sides of the machine, and wide door allows you easily get in touch with the machine.
- An integral waste drainage outlet located at the bottom of the machine makes easier regular maintenance.
- For generators above 300kVA, a ladder for climbing is equipped. It makes easier to check and service.
**Product configuration—GMS30CS**

Technical Requirement:
1. The arithmetic difference is less than 1/1000 of diagonal.
2. All the figures on the drawings are in millimeters.
3. All the dimensions must be flat and smooth.
4. Scratch and damage are not allowable on the surface of components.

<table>
<thead>
<tr>
<th>Dimensions L x W x H</th>
<th>Fuel Tank capacity</th>
<th>Dry weight</th>
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<tbody>
<tr>
<td>2380x1350x1550mm</td>
<td>240L</td>
<td>1120kg</td>
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### Configuration

<table>
<thead>
<tr>
<th>Generation Model</th>
<th>GMS30CS</th>
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<tbody>
<tr>
<td><strong>Engine</strong></td>
<td></td>
</tr>
<tr>
<td>4 stroke water-cooled Diesel engine</td>
<td>●</td>
</tr>
<tr>
<td>Industrial Silencer</td>
<td>●</td>
</tr>
<tr>
<td>Switch in the Negative Pole</td>
<td>●</td>
</tr>
<tr>
<td>Oil Sump Pump</td>
<td>●</td>
</tr>
<tr>
<td>Water Jacket Preheater 220/240V</td>
<td>○</td>
</tr>
<tr>
<td>Oil Preheater</td>
<td>○</td>
</tr>
<tr>
<td>Standard Air Filter</td>
<td>●</td>
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<tr>
<td><strong>Alternator</strong></td>
<td></td>
</tr>
<tr>
<td>PMG</td>
<td>○</td>
</tr>
<tr>
<td>Anti-condensing Heater</td>
<td>○</td>
</tr>
<tr>
<td>Winding Temperature Measuring Instrument</td>
<td>○</td>
</tr>
<tr>
<td>IP23 Single Bearing Class H insulation</td>
<td>●</td>
</tr>
<tr>
<td>Alternator Preheater</td>
<td>○</td>
</tr>
<tr>
<td>AVR</td>
<td>●</td>
</tr>
<tr>
<td><strong>Cooling Systems</strong></td>
<td></td>
</tr>
<tr>
<td>Radiator for 43°C</td>
<td>●</td>
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<tr>
<td>Coolant Integrated with genset</td>
<td>●</td>
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<tr>
<td>Coolant Protection Port</td>
<td>●</td>
</tr>
<tr>
<td>Shelter of Water Tank</td>
<td>●</td>
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<tr>
<td><strong>Starting Systems</strong></td>
<td></td>
</tr>
<tr>
<td>Start-up and Charging</td>
<td>●</td>
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<tr>
<td>Batteries with cables and Switch</td>
<td>●</td>
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<tr>
<td>Protecting Jacket of Soldered Terminal</td>
<td>●</td>
</tr>
<tr>
<td><strong>Control Systems</strong></td>
<td></td>
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<tr>
<td>Key Start</td>
<td>●</td>
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<tr>
<td>AVR</td>
<td>○</td>
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<tr>
<td>Paralizing</td>
<td>X</td>
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</tbody>
</table>

### Feat. Systems

- Breather Valve
- Fuel Level Sensor
- Fuel F-walkers
- Outside Refueling
- Outside Watering
- Rainhat of Hush Pipe
- Lifting Lugs
- Shock Absorbers
- Emergency stop button Outlaid
- Control Cabinet with windows and doors
- Air Inlet
- Air Outlet
- Silencer
- Base Fuel Tank
- Noses for Forklift
- Pulling slots
- Wiring hole
- Earthed Protection
- Drain Outlet
- Parts Manual
- Operation manual
- Warranty manual
- Records notebook of Maintenance
## Optional

<table>
<thead>
<tr>
<th>Engine</th>
<th>Alternator</th>
<th>Generator Set</th>
<th>Fuel System</th>
<th>Canopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Water Jacket Preheater&lt;br&gt;● Oil Preheater</td>
<td>● Winding Temperature Measuring Instrument&lt;br&gt;● Alternator Preheater&lt;br&gt;● PMG&lt;br&gt;● Anti-damp and anti-corrosion treatment&lt;br&gt;● Anti-condensation heater</td>
<td>● Tools with the machine</td>
<td>● Low fuel level alarm&lt;br&gt;● Automatic fuel feeding system&lt;br&gt;● Fuel T-valves</td>
<td>● Trailer</td>
</tr>
</tbody>
</table>

### Lubricating System
- ● Oil with the machine

### Exhaust System
- ● Protection board from hotness

### Cooling System
- ● Front heat protection<br>● Coolant (-30°C)

### Control Panel
- ● Remote control panel<br>● PLC-7320<br>● PLC-702HC<br>● ATS

### Voltaes
- ● 415/240V<br>● 400/230V<br>● 380/220V<br>● 220/127V<br>● 200-115V

## Trailer Plate

Road Standard

Off-road Standard
### Genset Specification

#### General technical data

- **Engine Manufacturer/Brand**: Cummins
- **Engine Model**: 4B3.9G1
- **Dimensions L×W×H**: 765×582×908mm
- **Dry Weigh (approx.)**: 308kg
- **Number of Cylinders**: 4
- **Bore**: 102mm
- **Stroke**: 120mm
- **Displacement**: 3.9L
- **Compression Ratio**: 16.5
- **Type of injection**: Direct injection
- **Intake System**: Natural aspirated
- **Intake Resistance**: ≤4.98kPa
- **Cooling System**: Water cooled
- **Fan**: Pusher
- **Battery Voltage**: 12/24V
- **Type of Fuel**: 0# or ASTM2
- **Type of Oil**: API-CG4/CH4 or ACEA-E3/E5
- **Oil Capacity**: 9.5L
- **Type of Coolant**: Glycol mixture
- **Coolant Capacity**: 19.6L
- **Back Pressure**: ≤10.1kPa
- **Standby Power**: 33kVA/26kW
- **Prime Power**: 30kVA/24kW
- **Voltage Regulation**: ±1.0%
- **Total harmonic TGH / THCat no load < 1.5 % - on load < 5%
- **Telephone Interference**: THF<2%; TIF<50

<table>
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<tr>
<th>Voltage</th>
<th>380V</th>
<th>400V</th>
<th>415V</th>
<th>440V</th>
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<tr>
<td>Ampere</td>
<td>46A</td>
<td>43A</td>
<td>42A</td>
<td>39A</td>
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</tbody>
</table>

#### Alternator

- **Alternator Manufacturer/Brand**: Stamford
- **Alternator Model**: PI144G
- **Exciter**: Brushless
- **Cooling Fan**: Cast alloy aluminum
- **Windings**: 100% copper
- **Insulation Class**: H
- **Winding Pitch**: 2/3
- **Terminals**: 12
- **Drip Proof**: IP23
- **Altitude**: ≤1000m
- **Overspeed**: 2250rpm
- **Air Flow**: 0.100 m³/sec(50Hz), 0.122 m³/sec(60Hz)
- **Voltage Regulation**: ±1.0%
- **Total harmonic TGH / THCat no load < 1.5 % - on load < 5%
- **Telephone Interference**: THF<2%; TIF<50

#### Diesel engine

- **Engine Manufacturer/Brand**: Cummins
- **Engine Model**: 4B3.9G1
- **Dimensions L×W×H**: 2338×1050×1560mm
- **Dry Weigh**: 1126kg
- **Noise level @7m**: 63.8dB
- **Model**: GMS30CS
- **Structure type**: R
- **Tank capacity**: 240L
- **Dry weigh**: 1126kg
- **Number of Cylinders**: 4
- **Bore**: 102mm
- **Stroke**: 120mm
- **Displacement**: 3.9L
- **Compression Ratio**: 16.5
- **Type of injection**: Direct injection
- **Intake System**: Natural aspirated
- **Intake Resistance**: ≤4.98kPa
- **Cooling System**: Water cooled
- **Fan**: Pusher
- **Battery Voltage**: 12/24V
- **Type of Fuel**: 0# or ASTM2
- **Type of Oil**: API-CG4/CH4 or ACEA-E3/E5
- **Oil Capacity**: 9.5L
- **Type of Coolant**: Glycol mixture
- **Coolant Capacity**: 19.6L
- **Back Pressure**: ≤10.1kPa
- **Standby Power**: 27kW
- **Continuous Power**: 24kW
- **Fuel Consumption(100%load)**: 229g/kW.h
The PLC-702HC Key Manual Start Module is a Manual Engine Control Module designed to control the engine via the key switch and pushbuttons on the front panel. The module is used to start and stop the engine and indicated fault conditions, automatically shutting down the engine and indicating the engine failure by LED, giving true or fault annunciation.

**STANDARD CONTROL FUNCTION**

- Manual Engine Control Module
- Wide DC Input Range
- Protection and Indication of Low Oil Pressure, High Engine Temperature and Overspeed
- Charging Failure Warning without Stop
- Auxiliary Shutdown
- Speed Indication Transferred from Frequency
- Warning Display LED
- Run-hour Timer
- Built-in Frequency Toggle Switch (50/60Hz)
- Indication of Fuel, Start-up, Preheating and Shutdown
Control System

Digital, intelligent control system allows easier operation.

PLC-7320

Powerlink PLC-7320 generator controllers integrating digital, intelligent and network techniques are used for automatic control system of diesel generator. It can carry out functions including automatic start/stop, data measure and alarming.

Upon detection of a mains (utility) failure the module automatically starts the generating set. Once the mains (utility) power has been restored it instructs the generating set to stop.

FEATURES

- Microprocessor control, with high stability and credibility.
- Mains supply and generator operation monitoring.
- Indicating operation status and fault conditions.
- Multiple protections; multiple parameters display, such as pressure, temperature.
- Manual and automatic work mode selectable.
- Real time clock for time and date display, overall runtime display, 99 log entries.
- Overall power output display.
- Integral speed/frequency detecting, telling status of start, rated operation, overspeed.
- Communication with PC via RS485 or RS232 interface, using MODBUS protocol.
- Engine ECU is available.
- Common USB cable is usable for parameter configuration.
- Multi-language is available. It can be translated for only one time and imported in forever. The idiom can also be changed after translation, eg. “Failure” to be “Malfunction”.

![Diagram of PLC-7320 Control System]

1. Charge indicator
2. Control cabinet lamp
3. Control module
4. Main circuit breaker
5. Live wire terminals
6. Neutral wire terminal
7. Ground wire terminal
8. ATS connector
9. Key switch
10. Control cabinet lamp switch

a. Scroll button
b. Information button (Change the display page)
c. Mains supply available LED
d. Mains supply on load LED
e. Stop/Reset button
f. Decrease (Configuration mode only)
g. Manual button (Manual control mode)
h. Increase (Configuration mode only)
i. Test button (Test mode)
j. Auto button (Auto mode)
k. Accept (Configuration mode only)
l. Start button
m. Genset on load LED
n. Genset available LED
o. Text insert
p. LCD display
q. Control module name
Routine Maintenance Diagram

**Daily or After 8 Hours**
- Check hoses for leak (oil, fuel and coolant) or crack
- OR

**Monthly or After 100 Hours**
- Check battery charging system

**After 6 Months or 250 Hours**
- Drain water/sediment in fuel/water separator
- Drain water/sediment in fuel filter

**After 6 Months or 250 Hours**
- Tighten all electrical connections

**After 6 Months or 250 Hours**
- Change engine oil

**After 6 Months or 250 Hours**
- Clean gauze filter in oil-water separator
- Clean air filter element
- Change engine oil filter
- Drain water/sediment in fuel tank

**After 1 Year or 500 Hours**
- Check drive belt tension

**After 2 Years or 1000 Hours**
- Change coolant
- Clean the inside of the fuel tank
- Worn
- New
- Change oil and fuel pipes
Common Maintenance and Repair Parts (optional)

POWERLINK also provides spare parts such as filters, water-oil separators, oil filters or any other part if necessary.

The following lists are optional by the needs of customers.

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<thead>
<tr>
<th>No.</th>
<th>Part Name</th>
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<th>Remark</th>
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<tbody>
<tr>
<td>1</td>
<td>CARTRIDGE, LUB</td>
<td>1012Q-010(3908616)</td>
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<td>2</td>
<td>FILTER, FUEL</td>
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<td>3</td>
<td>WATER FUEL SEPERATOR</td>
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<td>CLEANER, AIR</td>
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<td>11</td>
<td>BEARING, CONNECTING ROD</td>
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<td>12</td>
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</table>

POWERLINK also provides spare parts such as filters, water-oil separators, oil filters or any other part if necessary.

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