

# GMS500C / GMS500CS

## Features:

- Excitation system: self-excited (AREP and PMG are optional)
- ATS (automatic transfer switch) receptacle
- Lockable battery isolator switch
- Stainless galvanized zinc plates with strong corrosion resistance
- Vibration isolators between the engine/alternator and base frame
- Integrated wiring design
- Base fuel tank for at least 8 hours running
- Equipped with an industrial muffler
- Engine oil pump
- 50 C radiator
- Top lifting and steel base frame with forklift holes
- Drainage for fuel tank
- Complete protection functions and safety labels
- IP54 (soundproof sets), IP56 (control system)
- Water jacket preheater, oil heater and double air cleaner, etc. are available.



### Output Ratings

Generating Set Model	Prime	Standby
<b>GMS500C/S</b>	500kVA/400kW	550kVA/440kW

Ratings at 0.8 power factor.

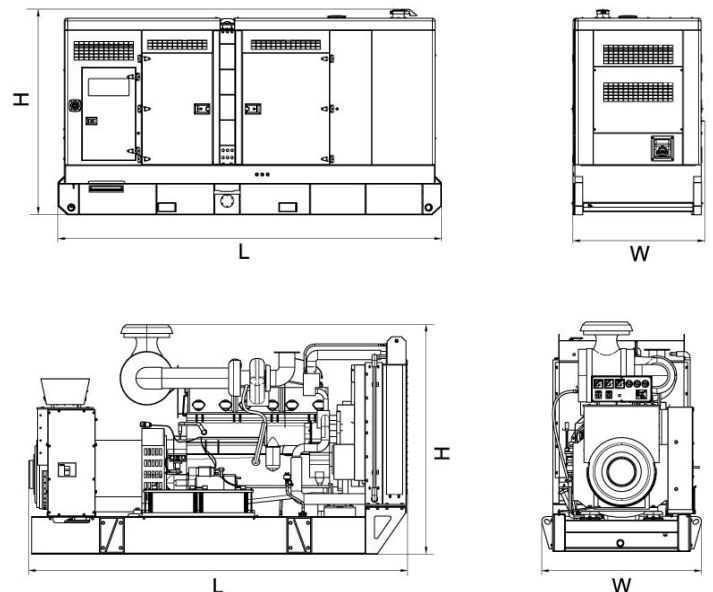
### Ratings and Performance Data

<b>Engine Make &amp; Model:</b>	KTA19-G4	
<b>Alternator Model:</b>	HCI544D	
<b>Alternator Brand:</b>	STAMFORD	
<b>Control System:</b>	PLC-920 / PLC-7420	
<b>Noise Level@7m:</b>	72.9-82.8	
<b>Frequency &amp; Phase:</b>	50Hz & 3PH	
<b>Engine Speed: RPM</b>	1500	
<b>Structure Type:</b>	GMS500C	A
	GMS500CS	R
<b>Fuel Tank Capacity: L</b>	GMS500C	940
	GMS500CS	1016
<b>Fuel Consumption: l/hr (100% Load)</b>	Prime	107
	Standby	121

### Dimensions and Weights

Generating Set Model	Length (L) mm (in)	Width (W) mm (in)	Height (H) mm (in)	Dry kg (lb)
<b>GMS500C</b>	3385	1460	2194	4243
<b>GMS500CS</b>	4512	1500	2560	6208

Dry = With Lube Oil      Wet = With Lube Oil and Coolant



Also available in the following voltages: 415/240V-380/220V-220/127V-200/115V;

ESP: Standby Power Standby duty, operation under variable load, without over load;

PRP: Prime Power-Continuous duty operation, under variable load 24/24h-10% over load permissible 1 hour/12 hours;

The data is only for your reference but not for use of sales.

M: Mechanical speed governor, E/ECU: Electronic speed governor;

NA: Naturally aspirated, TC: Turbocharged, TCA: Turbocharged and air-air aftercooled. TCW: Water-cooled Turbocharged;

The weights are approximate and without fuel.

## Engine model: KTA19-G4

### Description

The KTA19-Series benefits from years of technical development and improvement to bring customers an innovative and future proof diesel engine that keeps pace with ever changing generator set requirements.

Recognised globally for its performance under even the most severe climatic conditions, the KTA19-Series is widely acknowledged as the most robust and cost-effective diesel engine in its power range for the generator set market.



This engine has been built to comply with CE certification.



This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.

### Features

**Turbocharger** – Cummins Turbo technologies (CTT) exhaust gas driven turbocharger mounted at top of engine.

**Fuel System** – Cummins PT™ self-adjusting system. Integral dual flyweight governor provides overspeed protection independent of main governor.

**Aftercooler** – Large capacity aftercooler results in cooler, denser intake air for more efficient combustion and reduced internal stresses for longer life.

**Cylinder Block** – Alloy cast iron with removable wet liners. Cross bolt support to main bearing cap provides extra strength and stability.

**Service and Support** - G-Drive products are backed by an uncompromising level of technical support and after sales service, delivered through a world class service network.

### 1500 rpm (50 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
504/675	488/600	355/475	479/642	428/573	335/449	440	550	400	500	315	393

### 1800 rpm (60 Hz Ratings)

Gross Engine Output			Net Engine Output			Typical Generator Set Output					
Standby	Prime	Base	Standby	Prime	Base	Standby (ESP)		Prime (PRP)		Base (COP)	
kWm/BHP			kWm/BHP			kWe	kVA	kWe	kVA	kWe	kVA
563/755	507/680	429/575	520/697	470/630	392/525	500	625	455	569	368	460

## Engine model: KTA19-G4

### General Engine Data

Type	4 cycle, in-line, Turbo Charged
Bore mm	159
Stroke mm	159
Displacement Litre	18.9 litre
Cylinder Block	Cast iron, 6 cylinder
Battery Charging Alternator	35A
Starting Voltage	24V
Fuel System	Direct injection
Fuel Filter	Spin-on fuel filters with water separator
Lube Oil Filter Type(s)	Spin-on full flow filter
Lube Oil Capacity (l)	50
Flywheel Dimensions	SAE 0

### Coolpac Performance Data

Cooling System Design	Jacket Water After Cooled
Coolant Ratio	50% ethylene glycol; 50% water
Coolant Capacity (l)	Engine only – not applicable
Limiting Ambient Temp (°C)**	
Fan Power (kWm)	
Cooling System Air Flow (m <sup>3</sup> /s)**	
Air Cleaner Type	Dry replaceable element with restriction indicator

\*\* @ 13 mm H<sub>2</sub>O

### Ratings Definitions

**Emergency Standby Power (ESP):**  
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

**Limited-Time Running Power (LTP):**  
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

**Prime Power (PRP):**  
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

**Base Load (Continuous) Power (COP):**  
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN6271 and BS 5514.

### Weight & Dimensions

Length	Width	Height	Weight (dry)
mm	mm	mm	kg
1859	868	1728	1855

### Fuel Consumption 1500 rpm (50 Hz)

%	kWm	BHP	L/ph	US gal/ph
<b>Standby Power</b>				
100	504	675	121	31.9
<b>Prime Power</b>				
100	448	600	107	28.4
75	336	450	82	21.6
50	224	300	57	14.9
25	112	150	30	8.1
<b>Continuous Power</b>				
100	355	475	86	22.8

### Fuel Consumption 1800 rpm (60 Hz)

%	kWm	BHP	L/ph	US gal/ph
<b>Standby Power</b>				
100	563	755	136	35.9
<b>Prime Power</b>				
100	507	680	122	32.3
75	380	510	94	24.8
50	254	340	65	17
25	127	170	36	9.6
<b>Continuous Power</b>				
100	429	575	104	27.3

# GMS500C / GMS500CS

## Alternator model: HCI544D

CONTROL SYSTEM	SEPARATELY EXCITED BY P.M.G.		
A.V.R.	MX321	MX341	
VOLTAGE REGULATION	± 0.5 %	± 1.0 %	With 4% ENGINE GOVERNING
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVES (page 7)		

CONTROL SYSTEM	SELF EXCITED		
A.V.R.	AS440		
VOLTAGE REGULATION	± 1.0 %		With 4% ENGINE GOVERNING
SUSTAINED SHORT CIRCUIT	SERIES 4 CONTROL DOES NOT SUSTAIN A SHORT CIRCUIT CURRENT		

INSULATION SYSTEM	CLASS H		
PROTECTION	IP23		
RATED POWER FACTOR	0.8		
STATOR WINDING	DOUBLE LAYER LAP		
WINDING PITCH	TWO THIRDS		
WINDING LEADS	12		
STATOR WDG. RESISTANCE	0.0049 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED		
ROTOR WDG. RESISTANCE	1.77 Ohms at 22°C		
EXCITER STATOR RESISTANCE	17 Ohms at 22°C		
EXCITER ROTOR RESISTANCE	0.092 Ohms PER PHASE AT 22°C		
R.F.I. SUPPRESSION	BS EN 61000-6-2 & BS EN 61000-6-4, VDE 0875G, VDE 0875N. refer to factory for others		
WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%		
MAXIMUM OVERSPEED	2250 Rev/Min		
BEARING DRIVE END	BALL. 6220 (ISO)		
BEARING NON-DRIVE END	BALL. 6314 (ISO)		

	1 BEARING	2 BEARING
WEIGHT COMP. GENERATOR	1393 kg	1395 kg
WEIGHT WOUND STATOR	657 kg	657 kg
WEIGHT WOUND ROTOR	563 kg	535 kg
WR <sup>2</sup> INERTIA	8.0068 kgm <sup>2</sup>	7.7289 kgm <sup>2</sup>
SHIPPING WEIGHTS in a crate	1485 kg	1485 kg
PACKING CRATE SIZE	166 x 87 x 124(cm)	166 x 87 x 124(cm)

	50 Hz	60 Hz
TELEPHONE INTERFERENCE	THF<2%	TIF<50
COOLING AIR	1.035 m <sup>3</sup> /sec 2202 cfm	1.312 m <sup>3</sup> /sec 2780 cfm

	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE SERIES STAR								
VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
VOLTAGE SERIES DELTA	220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138
kVA BASE RATING FOR REACTANCE VALUES	500	550	500	500	575	594	625	644
X <sub>d</sub> DIR. AXIS SYNCHRONOUS	3.02	2.99	2.53	2.25	3.52	3.25	3.13	2.96
X' <sub>d</sub> DIR. AXIS TRANSIENT	0.16	0.15	0.13	0.12	0.17	0.16	0.15	0.14
X'' <sub>d</sub> DIR. AXIS SUBTRANSIENT	0.11	0.11	0.09	0.08	0.12	0.11	0.11	0.10
X <sub>q</sub> QUAD. AXIS REACTANCE	2.48	2.46	2.08	1.85	2.87	2.65	2.55	2.41
X'' <sub>q</sub> QUAD. AXIS SUBTRANSIENT	0.27	0.28	0.23	0.20	0.31	0.29	0.28	0.26
X <sub>L</sub> LEAKAGE REACTANCE	0.05	0.04	0.04	0.04	0.06	0.06	0.05	0.05
X <sub>2</sub> NEGATIVE SEQUENCE	0.19	0.19	0.16	0.14	0.22	0.20	0.20	0.19
X <sub>0</sub> ZERO SEQUENCE	0.10	0.10	0.08	0.07	0.10	0.09	0.09	0.08

REACTANCES ARE SATURATED		VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED	
T' <sub>d</sub> TRANSIENT TIME CONST.		0.08s	
T'' <sub>d</sub> SUB-TRANSTIME CONST.		0.012s	
T' <sub>do</sub> O.C. FIELD TIME CONST.		2.2s	
T <sub>a</sub> ARMATURE TIME CONST.		0.018s	
SHORT CIRCUIT RATIO		1/X <sub>d</sub>	

**GMS500C / GMS500CS**

# Control System PLC-920 (Optional)

PowerLink PLC-920 generator controllers integrating digital, intelligent and network techniques are used as the automatic control systems for diesel generators. It can carry out functions including pre-alarm, warning & electrical trip, fail monitoring and controls etc.

## FEATURES

- Parameter configuration via RS-232 serial communication;
- Log last 50 events & alarm information with measured values;
- Statistics records;
- Remote start/stop;
- Speed sensing from alternator voltage or magnetic pickup;
- Configurable 3 inputs and 6 outputs;
- ECU powers, ECU stop, STOP or fuel solenoid selection;
- Automatic transfer switching control and engine control;
- Adjustable start, load and stop timers.



## SPECIFICATION

- Dimensions: 111mm\*81mm\*61mm
- Protection: IP65 at front panel
- Operating temperature: -20 °C to 70 °C
- Max. Operating current is 360mA
- Sender measurement: 0 to 1300 ohm
- Panel cut-out: 81mm\*70mm
- Weight: approximately 0.3kg
- DC battery supply voltage: 8 to 32Vdc
- CT secondary: 5A
- Accuracy: 1%FS, resolution: 1 ohm

## FUNCTION

- Pre-Alarm
- Engine temperature
- Oil pressure
- Over/under voltage
- Over/under frequency
- Over/under speed
- Warning & Electrical trip
- Over current
- Short circuit
- Error
- Over/under speed
- Speed loss
- Battery low
- Battery high
- Maintenance
- Over current
- Short circuit
- Engine stop
- Can bus
- Charge alternator
- Fail monitoring
- Emergency stop
- Multiple engage fail
- Failed to start
- Low oil pressure
- High temperature
- Speed failure
- Voltage
- Charging fail
- Shutdown
- Warning
- Controls
- Fuel and stop solenoid
- ECU power and stop
- Starter motor
- Automatic generator start
- Preheat
- External alarm horn
- Engine cooling
- Idle mode

Control System function list				
	MODEL	PLC-920	PLC-7420	
General accessory	AVR	●	●	
	Electronic Governing	×	×	
	Glow plug control	●	●	
	Cycle Cranking	●	●	
	(MODBUS) Networking	×	●	
	Fault History	●	●	
Operator Interface	manual start/stop	●	●	
	Auto/remote start	●	●	
	Regular Test	●	●	
	Auto operation LED	●	●	
	Manual operation LED	●	●	
	Common Shutdown LED	●	●	
	Common warning LED	●	●	
	Fail to start LED	●	●	
	Emergency stop(local)	●	●	
	Alphanumeric screen	●	●	
Measurement and Instrumentation	Remote start input active LED	×	●	
	Alarm reset	●	●	
	Engine	Oil pressure	●	●
		Water Temperature	●	●
		Engine Speed	●	●
		Hours Run	●	●
		Number of Starts	●	●
	Alternator	Battery Voltage	●	●
		Coolant Temperature	●	●
		3Phase-L Voltage&Frequency	●	●
		3Phase Current	●	●
		Frequency	●	●
		kWh	●	●
		Apparent Power	●	●
		Active Power and Reactive Power	●	●
Power Factor		●	●	
Per PhasekW, kVAr		●	●	
Per Phase KVA	●	●		
Mains Expression	Phase Voltage	●	●	
	Output Power	×	●	
	Grid Line Voltage	×	●	
	Grid Phase Voltage	×	●	
Shutdown Protection and Indication	Grid Frequency	×	●	
	Engine	Low Fuel Level	●	●
		High Fuel Level	×	○
		Low Oil Pressure	●	●
		High Water Temperature	●	●
		Failure to Stop	●	●
	Alternator	Failure to Start	●	●
		Controllable start circles/times	×	●
		Overspeed	●	●
		Under/Over Voltage	●	●
Under/Over Frequency		●	●	
Threshold Warning/Indication	Overcurrent	●	●	
	Earth Leakage	○	○	
	Reverse Power	×	×	
	Reverse kW	×	×	
	Low Oil Pressure	●	●	
	Low Water Temperature	○	○	
	High Water Temperature	●	●	
	Low Water Level	●	●	
	Low/High Battery Voltage	●	●	
	Failure to Charge	●	●	
Paralleling Capability	Overcurrent	●	●	
	Overload	●	●	
	Genset Under/Over Voltage	●	●	
	Genset Under/Over Frequency	●	●	
	under/over Speed	●	●	
	High Engine Temperature	●	●	
	Earth Leakage	○	○	
	Synchroscope(Independent Bus)	×	×	
	Active and Reactive Power Control	×	×	
	Synchroscope(Shared Bus)	×	×	
Power Transfer Function	Synchronization Detector	×	×	
	Peak Lopping	×	×	
	Automatic Transfer	○	●	
	Hard Closed Transition	●	●	
	Soft Closed Transition	×	×	
	Gen/Mains Breaker	×	●	
	Gen/Mains Breaker Status Protection	×	●	
	Speed/Voltage Control	×	×	
	Power Indication	×	●	
	Fuel&Solenoid Valve Control	●	●	
Environment	Starter Control	●	●	
	Preheating	○	○	
	Mains Transfer Switch (Standard)	×	●	
	Mains Transfer Switch (Emergency)	×	●	
	Operating Temperature (-40 °C-70 °C)	●	●	
	Ambient Temperature (-25 °C-45 °C)	●	●	
	Humidity<=80%	●	●	
	Monitoring Function	Grid Over/Under Voltage Control	×	●
		Grid Over/Under Frequency Control	×	●
		Remote Start Output(Load/No-load)	●	●
Optional Relay Output		●	●	
Remote Telecom Control with All Functions		×	●	
Engine Instrument Monitoring		●	●	
Alternator Output Instrument Monitoring		●	●	
Connection Point with All-around Setting For 6 Users		●	●	
3 Users Input Connection Point		●	●	
LCD Light Control of Low Light Operation Environment		●	●	
Monitoring Function	Safe PIN Code	●	●	
	RS232/485 Interface	×	●	
	Language Selection	●	●	
	Multi-Language Function	●	●	

# Control System

**Digital, intelligent control system allows easier operation.**

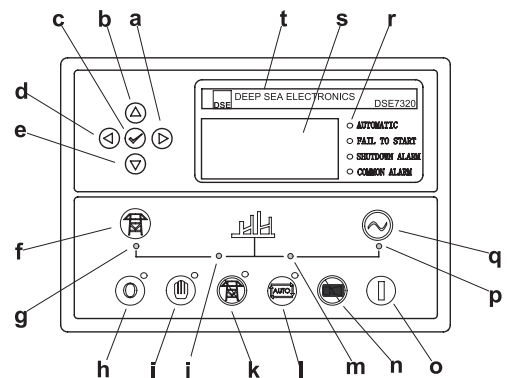
## PLC-7420

PLC-7420 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control and automatically start the engine when the mains is abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automatically shut down the engine and indicate the engine failure.



### FEATURES

- Microprocessor control, with high stability and credibility
- Monitoring and measuring operational parameters of the mains supply and genset
- Indicating operation status, fault conditions, all parameters and alarms
- Multiple protections; multiple parameters display, like pressure, temp. etc.
- Manual, automatic and remote work mode selectable
- Real time clock for time and date display, overall runtime display, 250 log entries
- Overall power output display
- Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- Communication with PC via RS485 OR RS232 interface, using MODBUS protocol



**Control Panel**

- a Button (next page)
- b Button (increase value / previous item)
- c Button (accept)
- d Button (previous page)
- e Button (decrease value / next item)
- f Button (transfer the load to the mains supply, when in Manual mode only)
- g Mains supply available LED
- h Stop / Reset button
- i Manual button (Manual control mode)
- j Mains supply on load LED
- k Test button (Test mode)
- l Auto button (Auto mode)
- m Genset on load LED
- n Mute/Lamp test button
- o Start button (Manual)
- p Genset available LED
- q Button (transfer the load to the genset, when in Manual mode only)
- r Alarm LED (4 alarm items)
- s LCD display
- t Control module name

## Optional

Engine	Alternator	Generator Set	Fuel System	Canopy
<ul style="list-style-type: none"> <li>• Water Jacket Preheater</li> <li>• Oil Preheater</li> </ul>	<ul style="list-style-type: none"> <li>• Winding Temperature Measuring Instrument</li> <li>• Alternator Preheater</li> <li>• PMG</li> <li>• Anti-damp and anti-corrosion treatment</li> <li>• Anti-condensation heater</li> </ul>	<ul style="list-style-type: none"> <li>• Tools with the machine</li> </ul>	<ul style="list-style-type: none"> <li>• Low fuel level alarm</li> <li>• Automatic fuel feeding system</li> <li>• Fuel T-valves</li> </ul>	<ul style="list-style-type: none"> <li>• Trailer</li> </ul>
Lubricating System	Exhaust System	Cooling System	Control Panel	Voltages
<ul style="list-style-type: none"> <li>• Oil with the machine</li> </ul>	<ul style="list-style-type: none"> <li>• Protection board from hotness</li> </ul>	<ul style="list-style-type: none"> <li>• Front heat protection</li> <li>• Coolant (-30°C)</li> </ul>	<ul style="list-style-type: none"> <li>• Remote control panel</li> <li>• PLC-920</li> <li>• PLC-7420</li> <li>• ATS</li> </ul>	<ul style="list-style-type: none"> <li>• 415/240V</li> <li>• 400/230V</li> <li>• 380/220V</li> <li>• 220/127V</li> <li>• 200-115V</li> </ul>

