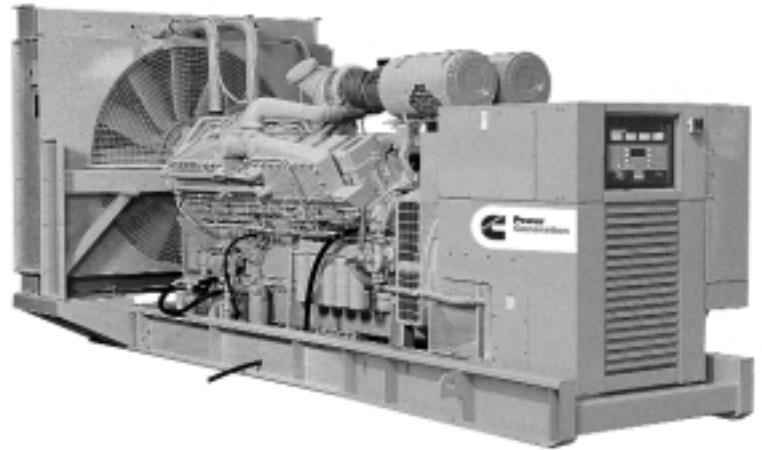


## Diesel Powered Generating Sets 1200 kW - 1340 kW 50 Hz KTA50GS8 Series Engine



Typical model with optional entrance box

### Standard Genset Features

#### Single Source Responsibility

Design, manufacture and testing of engine, alternator, control system and complete generating set are all produced by companies within the Cummins Group

#### International Integrity

Assurance and strength of a worldwide major corporation backing the product

#### Global Backing

24 hour spares and service availability in 72 countries

#### Single Source Warranty

Total product guaranteed by Cummins Power Generation

#### Packaged Self-Contained Units

Integrated unit with built-in anti-vibration system, control panel, starting system and provision for base fuel tank and other accessories

#### Cummins Engine

- Heavy duty 4 cycle water cooled engine
- Electronic governor control

#### Cooling System

- 40°C cooling package (50°C option)

#### Ready Filled

Every set comes filled with lube oil and anti-freeze

#### Alternator

- Brushless Group made machine
- Close voltage regulation
- Rotor and exciter impregnated with oil and acid resisting resin
- 12 lead reconnectable
- Exceptional short circuit capability
- Low waveform distortion with non linear loads
- Permanent magnet exciter with MX321 AVR fitted as standard

#### Ratings

All kW Power ratings based on a 40°C ambient temperature reference

#### Chassis

Built-in anti-vibration system  
Bonded rubber units fitted as standard eliminates need for rubber mats or spring mountings

#### PCL 'Power Control' System

- CE compliant
- Full AC instrumentation
- Emergency stop button
- Safety shutdowns
- Key or Remote starting

#### Alternative PCC PowerCommand Control System

- Microprocessor control
- Integrates governor and voltage regulation systems
- Superior alternator and genset protection system
- Accurate battery monitoring system
- Totally reliable and proven system




**Quality Assurance**  
Registered Firm Certificate Number FM509 in accordance with:  
BS EN ISO 9001  
Quality Assurance Schedule 3420/1



Cummins Power Generation, Cummins Engines and Newage Alternators are all part of the same group

50 Hz Ratings				
Model Prime	Prime kW (kVA)	Model Standby	Standby kW (kVA)	Engine Model
1200 DFLF	1200 (1500)	1340 DFLF	1340 (1675)	KTA50GS8

## A Single Source for *all* Power System Solutions

# Specifications

## Generator Set Performance

### Voltage Regulation

Maintains voltage output to within  $\pm 0.5\%$ .  
At any power factor between 0.8 lagging and unity.  
At any variations from No load to Full load.  
At any variations from Cold to Hot.  
At speed droop variations up to 4.5%.

### Frequency Regulation

Isochronous under varying loads from no load to 100% full load.

### Random Frequency Variation

Will not exceed  $\pm 0.25\%$  of its mean value for constant loads – no load to full load.

### Waveform

Total harmonic distortion open circuit voltage waveform in the order of 1.5%. Three-phase balanced load in the order of 5.0%.

### Telephone Influence Factor

TIF better than 50.  
THF to BS4999 Part 40 better than 2%.

### Alternator Temperature Rise

Class H insulation. Temperature rise up to 125°C permitted.

### Radio Interference

In compliance with BS800 and VDE levels G and N.

## Engine

Cummins KTA50GS8 sixteen-cylinder vee formation, direct injection, four-cycle diesel engines.

### Type

Water cooled, turbocharged and aftercooled.

### Construction

Four valves per cylinder, forged steel crankshaft and connecting rods, cast iron block, with replaceable wet liners.

### Starting

24 volt negative earth, battery charging 35 amp alternator. Cranking current 1800 amps Amps at 0°C.

### Fuel System

24 volt fail safe actuator, dual spin-on paper element fuel filters, Cummins PT fuel injection systems with integral electronic governor. Dual flexible fuel lines with connectors.

### Filters

Dry element air filters with restriction indicator and spin-on paper element full flow and by pass lube oil filters. Spin on corrosion resistor filter.

### Cooling

High ambient 40°C radiator as standard with 50°C ambient as option. Oil cooler.

## Alternator

### Type

Brushless, single bearing, revolving field, 4-pole, drip proof, screen protected. Class H insulation.  
Enclosed to IP22 (NEMA 1) standard. IC 01 cooling system.  
Fully interconnected damper winding. AC exciter and rotating rectifier unit. Epoxy coated stator winding.  
Rotor and exciter impregnated with tropical grade insulating oil and acid resisting polyester resin. Dynamically balanced rotor to BS5625 grade 2.5.  
Sealed for life bearings.  
Layer wound mechanically wedged rotor.

### Exciter

Triple dipped in moisture, oil and acid resisting polyester varnish and coated with anti-tracking varnish.  
Sealed solid state automatic voltage regulator – self-exciting, self-regulating. Output windings with 2/3 pitch for improved harmonics and parallelling ability.  
Close coupled engine/alternator for perfect alignment.

**Permanent magnet exciter with MX321 AVR fitted as standard.**

## Compliance Standards

To BS4999/5000 pt 99,  
VDE 0530, UTE5100,  
NEMA MG1-22, CEMA,  
IEC 34, CSA A22.2,  
AS1359, BSS5514,  
ISO 3046

## Chassis

Fabricated and welded steel chassis  
Built-in anti-vibration mountings  
Optional sub-base fuel tank with eight hour capacity, dual flexible fuel lines, dial type fuel gauge and drain bung

### Finish

Etch undercoated and finished in high gloss durable green

### General

Complete set of operating and instruction manuals

## Generator Set Options

### Engine

- Heavy duty air cleaner
- Coolant heater and thermostat
- Tool kit
- Lead acid batteries, cable and fitted tray
- NiCad batteries
- Sump drain pump
- Oil and water drain taps
- CE Compliance (guarding)
- Exhaust temperature monitoring (PCC only)

### Cooling

- 50°C ambient radiator
- Remote radiator cooling (built to order)
- Oil temperature indication

### Alternator

- Anti-Condensation heater
- Thermistors
- PMG Exciter and MX321 AVR
- 105°C rise alternator

### Exhaust System

- Industrial type silencer
- Residential type silencer
- Length of flexible exhaust and bellows

### Fuel System

- Sub-base tanks
- Hand fuel transfer pump
- Automatic fuel transfer pump
- Free-standing 450, 900 and 1350 litre fuel tanks with stand
- Fuel tank level switch
- High fuel level warning
- Low fuel level warning
- Low fuel level shutdown

### Generator Set

- Weather protective enclosures
- Silenced enclosures

### Control Panel

- See separate list on Control Panel pages
- 3 or 4 pole circuit breaker
- Battery charger 5 amp or 10 amp
- CE Compliance PCL and PCC systems
- Cable entrance box

# Power Control System (PCL)

## PCL – Power Control System

- Choice of manual/key start or remote/automatic system
- Set mounted control panel on anti-vibration mounts
- Integrated circuit breaker (optional)

## PCL-006 Control System



PCL-006 Controller

### Standard Features

- Monitors engine performance and AC power output
- Microprocessor based design
- Automatic controls generator set, start and shutdown
- Clear digital backlit display with easy to read icons
- Four configurable warning LED's
- Scrolling digital display

### Standard Specification

- AC Voltmeter display
- AC Ammeter display
- Generator Frequency Hz
- Engine RPM
- Engine Oil Pressure (PSI & Bar)
- Engine Temperature (°C & °F)
- Plant battery Volts
- Engine Hours run
- Start delay
- Automatic shutdown on fault conditions
- External remote start input
- LED and LCD alarm indication
- 3 position key switch Manual-Auto-Off
- Emergency stop
- PC Configurable via MS-Windows based software
- Real time diagnostics via MS-Windows

## PCL-001 (Option) Manual Start System

- Key switch off/manual start positions
- Manual start pushbutton

## PCL-002 (Option) Remote/Auto Start System

- Key switch off/auto and manual position
- Manual start pushbutton
- Fail to start LED indication
- Remote start 'active' LED indication
- Run on timer
- 3 attempts to start (adjustable) in auto mode
- Set will automatically start in event of receiving an external signal



PCL-001 Controller

### Standard Specification

- Three ammeters 72 mm scale
- Voltmeter and selector switch
- Frequency (Hz) and RPM meter
- Hours run meter
- Oil pressure gauge
- Engine temperature gauge
- Battery condition meter
- Emergency stop shutdown pushbutton
- Dual scale indication
- Starting module (Manual or Remote)
- High engine temperature protection shutdown
- Low oil pressure protection shutdown
- Loss of coolant alarm and shutdown
- Overspeed/over frequency alarm and shutdown
- Underspeed/under frequency alarm and shutdown
- Charge alternator fault warning
- Common alarm indication
- Status and fault conditions display by LED illumination
- Remote emergency stop connections

### CE Conformity

- For countries where applicable the equipment will meet CE conformity regulations and standards

## Optional Features on PCL-001 and PCL-002

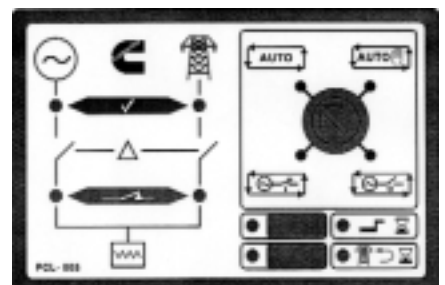
- Audible alarm - fitted or loose
- Volts adjustment control
- Low fuel level alarm and/or shutdown
- Overload current protection
- Common fault contact
- Annunciator units - 5 or 10 warnings
- Under/Over volts shutdown
- Low battery volts alarm
- Earth fault shutdown
- kW meter
- PF meter
- Oil temperature gauge
- 2 stage low oil pressure warning
- 2 stage high temperature warning
- High oil temperature warning or shutdown
- Speed trim adjustment
- Control panel heater
- Battery charger failure alarm
- Remote Only:
  - Ready to accept load indicator
  - System energised indicator
  - Selector switch not-in-auto position indicator

## PCL-005 System Automatic Mains Failure

- Module supplied loose or fitted in wall mounting cubicle
- Works in conjunction with System PCL-002 and PCL-006
- Adjustable voltage sensing on all three phases
- Provides signal to generator to start
- Provides signal to changeover switchgear
- Key control switch. Auto ON (2) RUN (2)
- Test positions permit RUN ON or off load
- LED indication for mains/power status
- Timers for mains fail, return time, warning time

### Option

- 3 or 4 pole changeover panel



System PCL-005

# Alternative PowerCommand Control System (PCC)

## PowerCommand® Control with AmpSentry™ Protection

- Integrated automatic voltage regulator and engine speed governor
- AmpSentry Protection guards the electrical integrity of the alternator and power system from the effects of overcurrent, over/under voltage, under frequency and overload conditions
- Control components designed to withstand the vibration levels typical in generator sets

### Standard Control Description

- Analog % of current meter (amps)
- Analog AC frequency meter
- Analog AC voltage meter
- Analog % of load meter (kW)
- Cycle cranking control
- Digital display panel
- Emergency stop switch
- Idle mode control
- Menu switch
- Panel backlighting
- Remote starting
- Reset switch
- Run-Off-Auto switch
- Sealed front panel, gasketed door
- Self diagnostics
- Separate customer interconnection box
- Voltmeter/Ammeter phase selector switch

### Standard Performance Data

#### AC Alternator Data

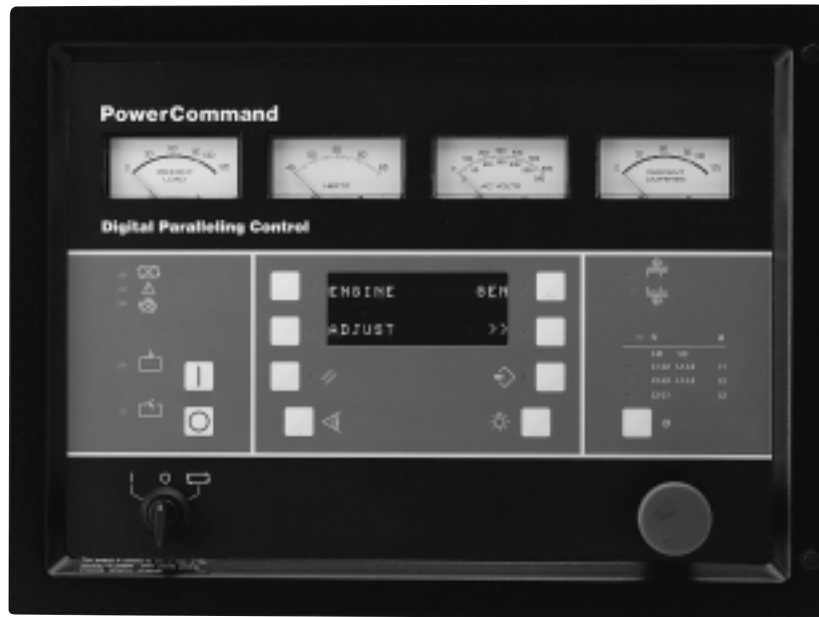
- Current by Phase
- Kilowatts
- Kilowatt Hours
- Power Factor
- Voltage Line to Line
- Voltage Line to Neutral

#### Engine Data

- Battery Voltage
- Coolant Temperature
- Engine Running Hours
- Engine Starts counter
- Oil Pressure
- RPM
- Oil Temperature

### EMC Compliance

The PCC control system meets EMC Shield Regulations.



PCC PowerCommand Control – standard configuration with optional contactor buttons shown

### Standard Protection Functions

#### Warnings

- High Coolant Temperature
- High DC Voltage
- Low Coolant Temperature
- Low DC Voltage
- Low Fuel – Day Tank
- Low Oil Pressure
- Over Current
- Oil Pressure Sender Fault
- Temperature Sender Fault
- Overload Load Shed Contacts
- Temperature Sender Fault
- Up to Four Customer Fault Inputs
- Weak Battery

#### Shutdowns

- Emergency Stop
- Fail to Crank
- Low Coolant Level (option for alarm only)
- Low Oil Pressure
- Magnetic Pickup Failure
- Overcrank
- Overcurrent
- Overspeed
- Short Circuit
- Underfrequency
- High/Low AC Voltage

### Disconnecter Switch\*

The addition of a circuit breaker is considered unnecessary when PowerCommand with Amp Sentry protection is fitted. For isolation purposes a switch disconnecter can be supplied and mounted in the normal circuit breaker position on either side of the control panel.

### Voltage Regulation

±0.5% with PowerCommand fitted.

### Options

#### Control panel PowerCommand options

- Audible alarm and shutdown
- Key switch-operating mode
- Shutdown alarm-relay
- Running relays 4 pole D.T.
- Warning low fuel/high fuel

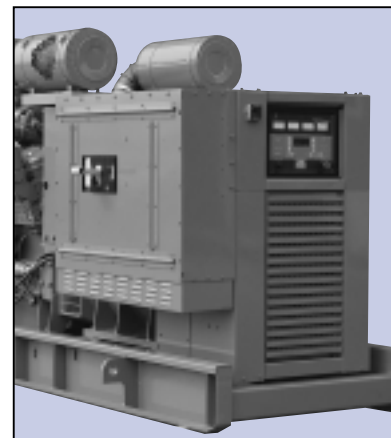
- Shut down – low fuel level
- Earth fault shutdown
- High alternator temperature alarm/shutdown
- PowerCommand Digital Paralleling

#### Cummins Optional Network Communications

- Echelon LonWorks multidrop communication. Communication network up to 1523 m (5000 ft) in length
- Allows for local and remote communications with PowerCommand network products
- Power system monitoring and control using PowerCommand software
- Flexible for interface with other manufacturers' control and monitoring systems

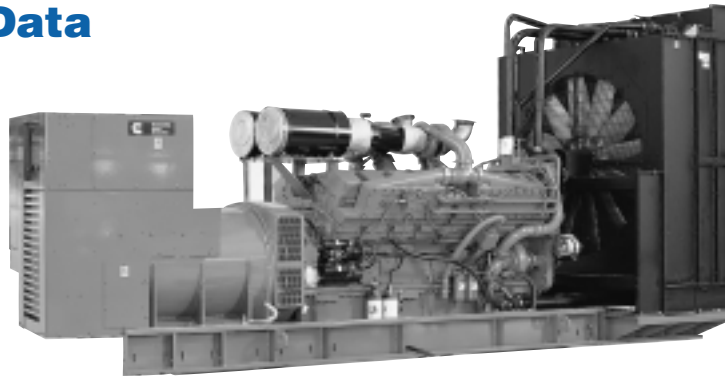
Other PowerCommand Control options are available

\*Floor mounted cubicle provided with air circuit breaker on ratings over 2000 amps.



Circuit breaker can be fitted either side of generator set.

# Technical Data



Typical Model with 50°C radiator fitted.

## Generating Sets – 50 Hz

Set output	380-440 V 50 Hz
Prime at 50°C ambient	1200 kW 1500 kVA
Model (Prime)	1200 DFLF
Standby at 50°C ambient	1340 kW 1675 kVA
Model (Standby)	1340 DFLF
Engine Make	Cummins
Model	KTA50GS8
Cylinders	Sixteen
Engine build	60° Vee
Governor / Class	Electronic / A1
Aspiration and cooling	Turbo Aftercooled
Bore and stroke	159 mm x 159 mm
Compression ratio	14.9:1
Cubic capacity	50.3 Litres
Starting / Min °C	Unaided / 7°C
Battery capacity	254 A/hr
Nett Engine output – Prime	1287 kWm
Nett Engine output – Standby	1429 kWm
Maximum load acceptance – single step (cold)	744 kW
Speed	1500 rpm
Alternator voltage regulation	±0.5%
Alternator insulation class	H
Single load step to NFPAIIO	100%
Fuel consumption (Prime) 100% load	309 l/hr
Fuel consumption (Standby) 100% load	345 l/hr
Lubrication oil capacity	204 Litres
Base fuel tank capacity – open set	2000 Litres
Coolant capacity – radiator and engine	315 Litres
Exhaust temp – full load prime	490°C
Exhaust gas flow – full load prime	14490 m <sup>3</sup> /hr
Exhaust gas back pressure max (standby)	51 mm Hg
Air flow – radiator (40°C ambient)†	21.7 m <sup>3</sup> /s
Pusher fan head (duct allowance) 40°C†	13 mm Wg
Air intake – engine (prime)	5600 m <sup>3</sup> /hr
Air flow – radiator (50°C ambient)†	28.4 m <sup>3</sup> /s
Pusher fan head (duct allowance) 50°C†	12 mm Wg
Total heat radiated to ambient	254 kW

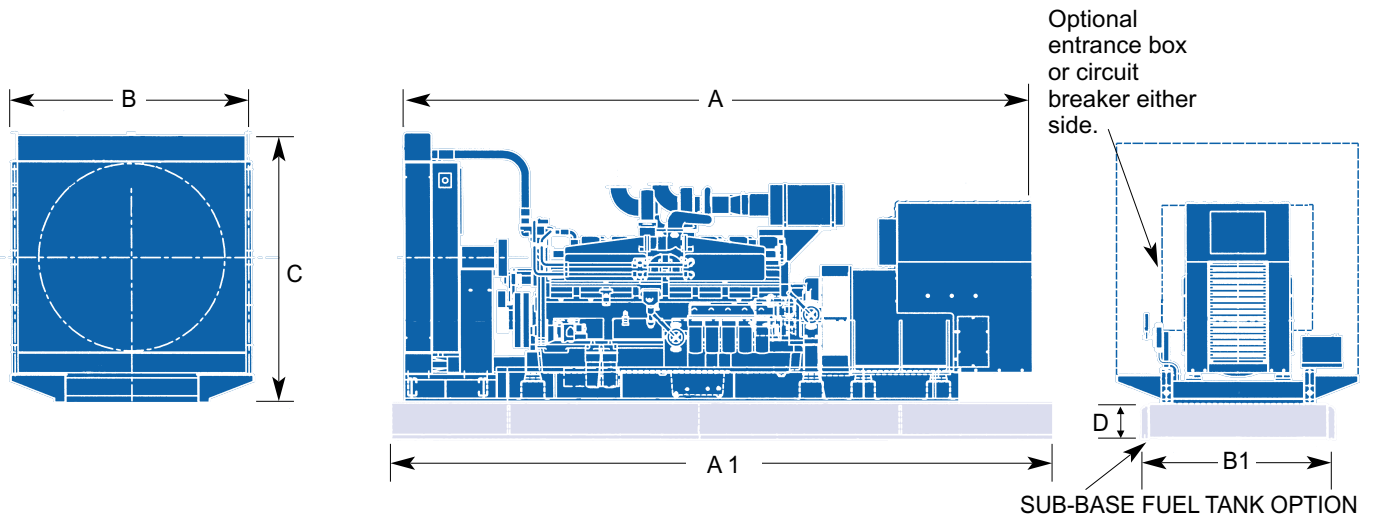
In accordance with BS5514 and ISO3046.

Prime: Continuous running at variable loads for an unlimited time with a 10% overload capability for 1 hour in every 12. Alternator in accordance with ISO8528-3.

Standby: Continuous running at variable load for duration of an emergency.

†Subject to factory verification.

# Dimensions and Weights – 50 Hz



2000 Model	Engine	Dimensions and Weights (mm/kg)						Set Weight kg Dry	Set Weight kg Wet	Tank Weight kg (wet)	Tank Weight kg (dry)
		A	A1	B1	B	C	D				
DFLF	KTA50GS8	5866	5690	1640	1785	2241	300	9743	10300	2755	1075

Floor mounted circuit breaker and load terminal cubicle (for use above 2000 amps)			
Capacity amps	Width mm	Depth mm	Height mm
1600	1000	1050	1500
2000	1000	1050	1500
2500	1000	1050	1500

Set weights are **without** sub-base tank.

Dimensions and weights are for **guidance** only. Do not use for installation design. Ask for certified drawings on your specific application. Specifications may change without notice.



See your distributor for more information.

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