

Diesel Generator set KTA50 series engine

1120kW - 1286kW 60 Hz
Data Center Continuous



Description

Cummins Power Generation commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for Data Center applications.

Features

Data Center Continuous (DCC) -

Applicable for supplying power continuously to a constant or varying electrical load for unlimited hours in a data center application.

Uptime Compliant - Meets the requirement of a Tier III and IV data center site by being rated to run for unlimited hours of operation when loaded to 'N' demand for the engine generator set.

Cummins® heavy-duty engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Permanent magnet generator (PMG) - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class F or H insulation.

Control system - Standard PowerCommand® electronic control provides total system integration including remote start/stop, precise frequency and voltage regulation, alarm and status message display, AmpSentry protection, output metering, auto-shutdown.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Enclosures - Optional weather-protective and sound-attenuated enclosures are available.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

Model	60 Hz kW (kVA)	Data sheets 60 Hz
C1250 D6	1120 (1400)	DS84-CPGK-DC
C1500 D6	1286 (1608)	DS85-CPGK-DC

Generator set specifications

Governor regulation class	ISO 8528 G2
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMC compatibility	BS EN 61000-6-4 / BS EN 61000-6-2

Engine specifications

Design	4 cycle, V-black, turbo charged and after-cooled
Bore	158.8 mm (6.25 in)
Stroke	158.8 mm (6.25 in)
Displacement	50 L (3067 in ³)
Cylinder block engine	Sixteen-cylinder vee formation, direct injection, four-cycle diesel
Battery capacity	1800 amps at ambient temperature 32°F (0°C)
Battery charging alternator	55 amps
Starting voltage	24- volt, negative ground
Fuel system	Direct injection
Fuel filter	Dual spin on paper element fuel filters with standard water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Spin-on paper element full flow and bypass lube oil filters
Standard cooling system	104°F (40°C) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip proof revolving field
Stator	2/3 pitch
Rotor	Direct coupled by flexible disc
Insulation system	Class H
Exciter type	PMG (Permanent magnet generator)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion	No load <1.5%. Non distorting balanced linear load <5%
Telephone influence factor (TIF)	< 50% per NEMA MG1-22.43
Telephone harmonic factor (THF)	No load <1.5%. Non distorting balanced linear load <5%

Available voltages

60 Hz line – neutral / line - line

- | | |
|-----------|--------------|
| • 219/380 | • 2400/4160 |
| • 254/440 | • 7200/12470 |
| • 277/480 | • 7620/13200 |
| • 347/600 | • 7970/13800 |

Please consult the factory for details.

Generator set options

Engine

- Heavy duty air filter
- Water jacket heater
220/240 v

Cooling

- Antifreeze 50/50 (Ethylene glycol)

Enclosure

- High-cube 40 ft container

Alternator

- Alternator heater
- High humidity isolation
- Exciter voltage regulator (PMG)

Control panel

- PCC3100
- 3 pole main circuit breaker
- 4 pole main circuit breaker

Warranty

- 5 years for standby application
- 2 years for prime application

Silencer

- 9 dB attenuation critical silencer
- 25 dB residential – delivered loose

Data Center Options

- Automatic oil make up system
- Closed crank ventilation system
- Oil sampling valve
- Propylene glycol coolant
- Triplex fuel filters
- Customized testing

Note: Some options may not be available on all models - consult factory for availability. Data Center options are available through RFQ with the Custom Applications Group and could result in additional leadtimes. Please consult with the Custom Applications Group to understand feasibility

PowerCommand 3.3 Control System



An integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1570 for more detailed information on the control.

AmpSentry – Includes integral AmpSentry protection, which provides a full range of alternator protection functions that are matched to the alternator provided.

Power management – Control function provides battery monitoring and testing features and smart starting control system.

Advanced control methodology – Three phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.

Communications interface – Control comes standard with PCCNet and Modbus interface.

Regulation compliant – Prototype tested: UL, CSA and CE compliant.

Service – InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Easily upgradeable – PowerCommand controls are designed with common control interfaces.

Reliable design – The control system is designed for reliable operation in harsh environment.

Multi-language support

Operator panel features

Operator/display functions

- Displays paralleling breaker status
- Provides direct control of the paralleling breaker
- 320 x 240 pixels graphic LED backlight LCD
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches
- Alpha-numeric display with pushbuttons
- LED lamps indicating genset running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop

Paralleling control functions

- First Start Sensor System selects first genset to close to bus
- Phase Lock Loop Synchronizer with voltage matching
- Sync check relay
- Isochronous kW and kVar load sharing
- Load govern control for utility paralleling
- Extended Paralleling (baseload/peak shave) Mode
- Digital power transfer control, for use with a breaker pair to provide open transition, closed transition, ramping closed transition, peaking and base load functions,

Alternator data

- Line-to-neutral and line-to-line AC volts
- 3-phase AC current
- Frequency
- kW, kvar, power factor kVA (three phase and total)

Engine data

- DC voltage
- Engine speed
- Lube oil pressure and temperature
- Coolant temperature
- Comprehensive FAE data (where applicable)

Other data

- Genset model data
- Start attempts, starts, running hours, kW hours
- Load profile (operating hours at % load in 5% increments)
- Fault history
- Data logging and fault simulation (requires InPower)

Standard control functions

Digital governing

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase, 4-wire line-to-line sensing
- Configurable torque matching

AmpSentry AC protection

- AmpSentry protective relay
- Over current and short circuit shutdown
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shutdown
- Over and under frequency shutdown
- Overload warning with alarm contact
- Reverse power and reverse var shutdown
- Field overload shutdown

Engine protection

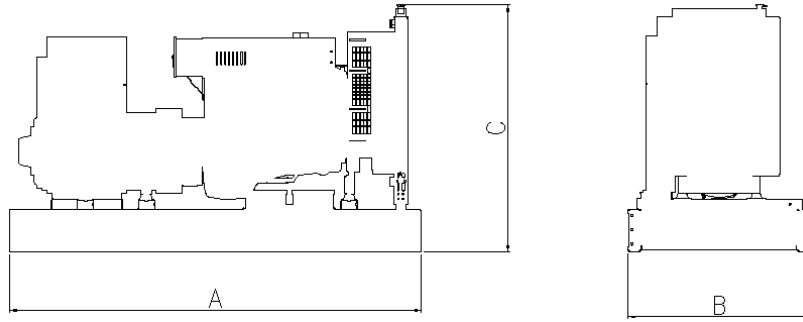
- Battery voltage monitoring, protection and testing
- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- Full authority electronic engine protection

Control functions

- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed
- Configurable inputs and outputs (4)
- Remote emergency stop

Options

Auxiliary output relays (2)



This outline drawing is to provide representative configuration details for Model series only.



See respective model data sheet for specific model outline drawing number.

Do not use for installation design

Model	Dim "A" mm	Dim "B" mm	Dim "C" mm	Set Weight* dry kg	Set Weight* wet kg
C1250 D6	5105	2000	2238	9009	10075
C1500D6	5690	2033	2330	10024	10326

* **Note:** Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

	<p>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</p>	<p>2000/14/EC</p>	<p>All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.</p>
	<p>This generator set is available with CE certification.</p>	<p>ISO 8528</p>	<p>This generator set has been designed to comply with ISO 8528 regulation.</p>

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