

Diesel Generator Set

QSB7 Series Engine
EU Stage IIIA @ 50Hz



> Specification sheet

136 kVA – 220 kVA 50Hz
113 kW – 200 kW 60Hz



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Description

This Cummins® Power Generation commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary standby, prime power, and continuous duty applications.



This generator set is designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.



The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins Power Generation products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.



All low voltage models are CSA certified to product class 4215-01.



This generator set is available with CE certification.

Features

Cummins® Heavy-Duty Engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Optional Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class H insulation.

Control system - The PowerCommand® electronic control is standard equipment and provides total genset system integration, including auto remote start/stop, alarm and status message display.

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 - Backed by a comprehensive warranty and worldwide distributor network.

| Model | Standby Rating | | Prime Rating | | Emissions Compliance | Controller | Datasheet |
|----------|----------------|---------------|---------------|---------------|----------------------|------------|------------|
| | 50Hz kVA (kW) | 60Hz kW (kVA) | 50Hz kVA (kW) | 60Hz kW (kVA) | | | |
| C150 D5e | 150 (120) | N/A | 136 (109) | N/A | Stage IIIA | 1.1 | DS89-CPGK |
| C175 D5e | 175 (140) | N/A | 158 (126) | N/A | Stage IIIA | 1.1/1.2 | DS329-CPGK |
| C200 D5e | 200 (160) | N/A | 182 (146) | N/A | Stage IIIA | 1.2 | DS330-CPGK |
| C220 D5e | 220 (176) | N/A | 200 (160) | N/A | Stage IIIA | 1.2 | DS331-CPGK |
| C125 D6e | N/A | 125 (156) | N/A | 113 (141) | N/A | 1.1 | DS90-CPGK |
| C150 D6e | N/A | 150 (188) | N/A | 135 (169) | N/A | 1.1/1.2 | DS332-CPGK |
| C175 D6e | N/A | 175 (219) | N/A | 160 (200) | N/A | 1.2 | DS333-CPGK |
| C200 D6e | N/A | 200 (250) | N/A | 180 (225) | N/A | 1.2 | DS334-CPGK |

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Generator Set Specifications

| | |
|--|--|
| Governor Regulation | ISO8528G3 |
| Voltage Regulation, No Load to Full Load | ± 1% |
| Random Voltage Variation | ± 1% |
| Frequency Regulation | Isochronous |
| Random Frequency Variation | ± 0.25% |
| EMC Compatibility | In compliance with BS 800 and VDE levels G and N |

Engine Specifications

| | |
|-----------------------------|--|
| Design | 4 cycle, in-line, Turbo Charged |
| Bore | 107 |
| Stroke | 124 |
| Displacement | 6.69 liter (408.0 in. ³) |
| Cylinder Block | Cast iron, 6 cylinder |
| Battery Capacity | 100 A/hr |
| Battery Charging Alternator | 70 amps |
| Starting Voltage | 12 volt, negative ground |
| Fuel System | Direct injection |
| Fuel Filter | Spin on fuel filters with water separator |
| Air Cleaner Type | Dry replaceable element with restriction indicator |
| Lube Oil Filter Type(s) | Spin on full flow filter |
| Standard Cooling System | 122°F (50°C) ambient radiator |

Alternator Specifications

| | |
|---------------------------------------|--|
| Design | Brushless single bearing, revolving field |
| Stator | 2/3 pitch |
| Rotor | Single bearing, flexible disc |
| Insulation System | Class H |
| Standard Temperature Rise | 125 - 163°C Standby |
| Exciter Type | Separately Excited by PMG |
| 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) | <2% |

Available Voltages

| 50Hz Line – Neutral / Line – Line | | 60Hz Line – Neutral / Line – Line | |
|-----------------------------------|----------|-----------------------------------|----------|
| •110/190 | •220/380 | •120/208 | •240/416 |
| •115/200 | •230/400 | •127/220 | •254/440 |
| •120/208 | •240/415 | •132/230 | •266/460 |
| •127/220 | | •139/240 | •277/480 |

Generator Set Options

Engine

- Water jacket heater 220/240 v

Cooling

- Antifreeze 50/50 (Ethylene glycol)

Enclosure

- Silent Power Canopy

Alternator

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

Control Panel

- PowerCommand 3.3
- 4 pole Main Circuit Breaker
- Motorised 3 or 4 Poles Circuit Breaker

Base frame

- Double wall fuel tank

Warranty

- 5 years for Standby application
- 2 years for Prime application

Silencer

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

*Note: Some options may not be available on all models – consult factory for availability.

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PowerCommand® 1.2 - Generator Set Control



Control system

The PowerCommand® control system is a microprocessor-based generator set monitoring, metering and control system designed to meet the demands of today's engine driven generator sets. The integration of all control functions into a single control system provides enhanced reliability and performance compared to conventional generator set control systems. These control systems have been designed and tested to meet the harsh environment in which gensets are typically applied.

Description

The PowerCommand generator set control is suitable for use on a wide range of generator sets in non-parallel applications. The PowerCommand control is compatible with shunt or PMG excitation style. It is suitable for use with reconnectable or non reconnectable generators, and it can be configured for any frequency, voltage and power connection from 120-600 VAC line-to-line.

Power for this control system is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 30 VDC.

Major Features

- 128 x 128 pixels graphic LED backlight LCD.
- Digital voltage regulation. Single phase full wave SCR type regulator compatible with either shunt or PMG systems.
- Digital engine speed governing (where applicable).
- Generator set monitoring and protection.
- Advanced over-current protection.
- Modbus® interface for interconnecting to customer equipment.
- 12 and 24 VDC battery operation.
- Warranty and service. Backed by a comprehensive warranty and worldwide distributor service network.
- Certification. Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC Mil Std., CE and CSA standards.

Base control functions

HMI capability

Operator adjustments - The HMI includes provisions for many set up and adjustment functions.

Data logs - Includes engine run time, controller on time, number of start attempts.

Fault history - Provides a record of the most recent fault conditions with control hours time stamp. Up to 10 events are stored in the control non-volatile memory.

Alternator data

- Voltage (single or three phase line-to-line and line-to-neutral)
- Current (single or three phase)
- KVA (three phase and total)
- Frequency

Engine data

- Starting battery voltage
- Engine speed
- Engine temperature
- Engine oil pressure
- Partial Full Authority Engine (FAE) data (where applicable)

Service adjustments - The HMI includes provisions for adjustment of generator set control functions. Adjustments are protected by a password.

Functions include:

- Engine speed governor adjustments
- Voltage regulation adjustments
- Cycle cranking
- Configurable fault set up
- Configurable output set up
- Meter calibration
- Units of measurement

Protective functions

Protective functions include:

- Battle short mode
- Configurable alarm and status inputs
- Emergency stop
- Hydro mechanical fuel system engine protection
- Overspeed shutdown
- Low lube oil pressure warning.
- High lube oil temperature warning/shutdown
- High engine temperature warning/shutdown
- Low coolant temperature warning
- Sensor failure indication
- Full authority electronic engine protection

- General engine protection
- Low and high battery voltage warning
- Weak battery warning
- Fail to start (overcrank) shutdown
- Fail to crank
- Cranking lockout

Alternator protection

- High AC voltage shutdown (59)
- Low AC voltage shutdown (27)
- Overcurrent warning/shutdown
- Under frequency shutdown (81 u)
- Over frequency shutdown/warning (81o)
- Loss of sensing voltage shutdown
- Field overload shutdown

Field control interface

Input signals to the base control include:

- Remote start
- Local and emergency stop
- Configurable inputs: Control includes (4) input signals from customer

Output signals from the PowerCommand control include:

- Configurable relay outputs: Control includes (2) relay output contacts rated at 2 A.

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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.

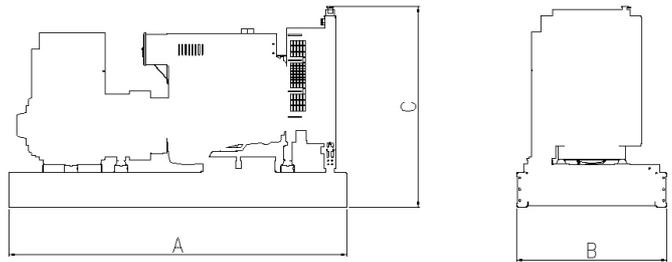
Prime Power (PRP):

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.

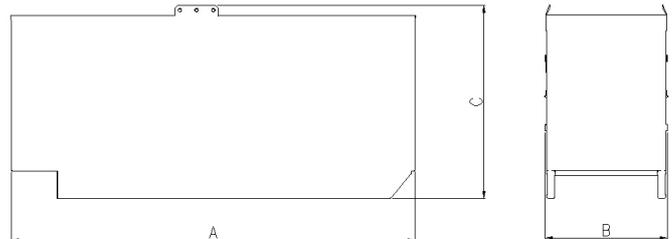
Base Load (Continuous) Power (COP):

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, DIN 6271 and BS 5514.

Open Set



Enclosed Set



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.

Open Set

| Model | Dim "A" mm | Dim "B" mm | Dim "C" mm | Set weight* dry kg | Set weight* wet kg |
|----------|------------|------------|------------|--------------------|--------------------|
| C150 D5e | 2656 | 1100 | 1658 | 1467 | 1506 |
| C175 D5e | 2656 | 1100 | 1658 | 1546 | 1572 |
| C200 D5e | 2656 | 1100 | 1658 | 1544 | 1670 |
| C220 D5e | 2656 | 1100 | 1658 | 1544 | 1670 |
| C125 D6e | 2656 | 1100 | 1658 | 1467 | 1506 |
| C150 D6e | 2656 | 1100 | 1658 | 1546 | 1572 |
| C175 D6e | 2656 | 1100 | 1658 | 1544 | 1670 |
| C200 D6e | 2656 | 1100 | 1658 | 1544 | 1670 |

Enclosed Set

| Model | Dim "A" mm | Dim "B" mm | Dim "C" mm | Set weight* dry kg | Set weight* wet kg |
|----------|------------|------------|------------|--------------------|--------------------|
| C150 D5e | 3980 | 1100 | 2062 | 2343 | 2947 |
| C175 D5e | 3900 | 1100 | 2246 | 2557 | 3160 |
| C200 D5e | 3900 | 1100 | 2246 | 2698 | 3301 |
| C220 D5e | 3900 | 1100 | 2246 | 2698 | 3301 |
| C125 D6e | 3980 | 1100 | 2062 | 2343 | 2947 |
| C150 D6e | 3900 | 1100 | 2246 | 2387 | 2991 |
| C175 D6e | 3900 | 1100 | 2246 | 2557 | 3160 |
| C200 D6e | 3900 | 1100 | 2246 | 2698 | 3301 |

*Note: Weights represent a set with standard features. Does not include fuel. See outline drawings for weights of other configurations.

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