Specification sheet

PROUDLY 100% AUSTRALIAN OWNED
MACFARLANE GENERATORS
ESTABLISHED 1949

Diesel generator set QSB7 series engine

160 kVA - 220 kVA 50 Hz

135 kW - 200 kW 60 Hz

Description

This Cummins® 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.

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.

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

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.

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

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

		Standby rating		Prime rating				
Genset Model	**Engine Model**	**50 Hz kVA (kWe)**	**60 Hz kWe (kVA)**	**50 Hz kVA (kWe)**	**60 Hz kWe (kVA)**	**Standard Controller**	**Emissions**	**Data sheet**
C175 D5e	QSB7G5	175 (140)		160 (128)		PC1.2	EU SIIIA	DS329-CPGK
C200 D5e	QSB7G5	200 (160)		182 (146)		PC1.2	EU SIIIA	DS330-CPGK
C220 D5e	QSB7G5	220 (176)		200 (160)		PC1.2	EU SIIIA	DS331-CPGK
C150 D6e	QSB7G5		150 (188)		135 (169)	PC1.2	EPA T3	DS332-CPGK
C175 D6e	QSB7G5		175 (219)		160 (200)	PC1.2	EPA T3	DS333-CPGK
C200 D6e	QSB7G5		200 (250)		180 (225)	PC1.2	EPA T3	DS334-CPGK

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Generator set specifications

Governor regulation class	ISO 8528 G3
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMS compatibility	In compliance with BS 800 and VDE levels G and N

Engine specifications

Design	4 cycle, in-line, turbocharged
Bore	107 mm
Stroke	124 mm
Displacement	6.69 liter (408.0 in^3)
Cylinder block	Cast iron, 6 cylinder
Battery capacity	100 AH
Battery charging alternator	70 amps
Starting voltage	12 volt, negative ground
Fuel system	Direct injection
Fuel filter	Strata pore fuel filter
Air cleaner type	Heavy duty air cleaner
Lube oil filter type(s)	Strata pore lube oil filter
Standard cooling system	122 ºF (50 ºC) 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	Standby 125-163 ˚C
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 (THDV)	No load < 1.5%. Non distorting balanced linear load < 3%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 2%

Available voltages

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

*Derate may be applicable at this voltage. Please consult factory for details.

Generator set options

Engine

- Water jacket heater 220/240V

Cooling

- Antifreeze 50/50 (Ethylene glycol)

Enclosure

- Silent power canopy

Alternator

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

Control panel

- PowerCommand 1.2
- 4 pole main circuit breaker
- Motorised 3 or 4 pole circuit breaker

Base frame

- Double wall fuel tank

Warranty

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

PowerCommand 1.2 - 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-paralleling applications. The PowerCommand control is compatible with shunt or PMG excitation style. It is suitable for use with connectable 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

HDMI 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 5 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 (81 o).
- 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 control include

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

PowerCommand 1.2 control operator / display panel

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.

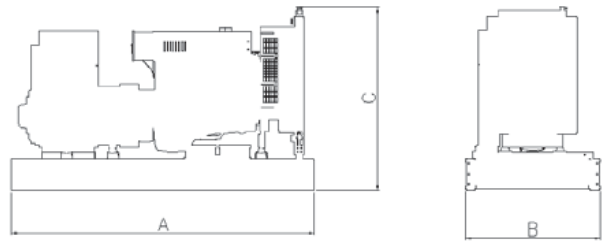
Prime Power (PRP):

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



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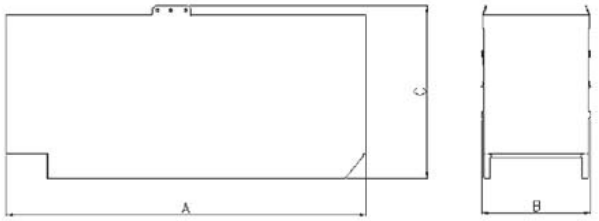

This outline drawing is to provide representative configuration details for Model series only.

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

Do not use for installation design

	Open					Enclosed				
Model	**Length "A" mm**	**Width "B" mm**	**Height "C" mm**	**Dry Wt.* kg**	**Wet Wt.* kg**	**Length "A" mm**	**Width "B" mm**	**Height "C" mm**	**Dry Wt.* kg**	**Wet Wt.* kg**
C175 D5e	2656	1100	1822	1546	1572	3904	1142	2276	2922	2948
C200 D5e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044
C220 D5e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044
C150 D6e	2656	1100	1822	1546	1572	3904	1142	2276	2922	2948
C175 D6e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044
C200 D6e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044

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

Codes and standards

ISO 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	PTS	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.
CE	This generator set is available with CE certification.	CSA	All low voltage models are CSA certified to product class 4215-01.

For more information contact your local Cummins distributor or visit power.cummins.com

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SS22-CPGK (10/17)

PROUDLY 100% AUSTRALIAN OWNED

MACFARLANE GENERATORS

ESTABLISHED 1949

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