#### **Specification Sheet**



# Diesel Generator Set QSL9-G7 Series Engine



250 kW - 300 kW Standby

## **Description**

Cummins<sup>®</sup> commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary Standby and Prime Power applications.

#### **Features**

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

**Alternator** - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability. **Control system** - The PowerCommand<sup>®</sup> electronic control is standard equipment and provides total genset system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry<sup>™</sup> protection, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

**Cooling system** - Standard cooling package provides reliable running at the rated power level.

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

**Fuel tanks** - Dual wall sub-base fuel tanks are also available.

**NFPA** - The genset accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

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

	Standby rating		Prime rating		Continuous rating		Data sheets	
Model	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz	50 Hz
DQDAA	250 (313)		225 (281)				D-3442	
DQDAB	275 (344)		250 (313)				D-3443	
DQDAC	300 (375)		270 (338)				D-3444	

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## **Generator Set Specifications**

Governor regulation class	ISO 8528 Part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.5%
Radio frequency emissions compliance	IEC 801.2 through IEC 801.5; MIL-STD-461C, Part 9

## **Engine Specifications**

3			
Bore	114.0 mm (4.49 in)		
Stroke	145 mm (5.69 in)		
Displacement 8.9 L (543 in <sup>3</sup> )			
Configuration	Cast iron, in-line 6 cylinder		
Battery capacity 750 amps minimum at ambient temperature of - above			
Battery charging alternator	70 amps		
Starting voltage	24 volt, negative ground		
Fuel system	Direct injection: number 2 diesel fuel, fuel filter, automatic electric fuel shutoff		
Fuel filter	Dual element with water separator		
Air cleaner type	Normal duty		
Lube oil filter type(s)	Single spin-on, combination full flow and bypass filters		
Standard cooling system	High ambient radiator		

## **Alternator Specifications**

Design	Brushless, 4 pole, drip proof revolving field		
Stator	2/3 pitch		
Rotor	Single bearing, flexible discs		
Insulation system	Class H		
Standard temperature rise	125 ℃ Standby, 105 ℃ Prime		
Exciter type	Permanent Magnet Generator (PMG)		
Phase rotation	A (U), B (V), C (W)		
Alternator cooling	Direct drive centrifugal blower		
AC waveform Total Harmonic Distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic		
Telephone Influence Factor (TIF)	< 50 per NEMA MG1-22.43		
Telephone Harmonic Factor (THF)	< 3		

## **Available Voltages**

60 Hz 3-phase			50 Hz 3-phase		
Reconnectable		Non-Reconnectable	Reconnectable	Non-Reconnectable	
<ul><li>110/90</li><li>139/240</li><li>240/416</li></ul>	<ul> <li>120/208</li> <li>120/240</li> <li>254/440</li> </ul>	• 277/480 • 347/600			

Note: Consult factory for other voltages.

## **Generator Set Options and Accessories**

#### Engine

- 120/240 V 1500 W coolant heater
- 120/240 V 150 W lube oil heater
- Heavy duty air cleaner
- Engine oil temperature
- Control panel
- 120/240 V 100 W control anticondensation heater
- Exhaust pyrometer
- Ground fault indication
- Remote fault signal package
- Run relay package
- Paralleling configuration

#### Alternator

- 105 °C rise
- 125 °C rise
- 120/240 V 100 W anticondensation heater
- PMG excitation
- Single phase

#### Exhaust system

- Genset mounted muffler
- Heavy duty exhaust elbow
- Slip on exhaust connection
- NPT exhaust connection
- Battery charger

Battery

Generator set

AC entrance box

Fuel system

• 1022 L (270 gal) sub-base tank

• 1136 L (300 gal) sub-base tank

• 1514 L (400 gal) sub-base tank

• 1893 L (500 gal) sub-base tank

• 2271 L (600 gal) sub-base tank

• 2498 L (660 gal) sub-base tank

• 2725 L (720 gal) sub-base tank

• 5565 L (1470 gal) sub-base tank

- Export box packaging
- UL 2200 Listed
- Main line circuit breaker
- PowerCommand network
- Communications Module (NCM)
- Remote annunciator panel
- Spring isolators
- Enclosure: aluminum, steel, weather protective or sound attenuated
- 2 year Standby power warranty
- 2 year Prime power warranty
- 5 year Basic power warranty
- 10 year major components warranty

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

## **Control System PCC 2100**



**PowerCommand** control is an integrated generator set control system providing governing, voltage regulation, engine protection and operator interface functions. Major features include:

- Integral AmpSentry<sup>™</sup> protective relay providing a full range of alternator protection functions that are matched to the alternator provided.
- Battery monitoring and testing features and smart starting control system.
- Three phase sensing, full wave rectified voltage regulation system, with a PWM output for stable operation with all load types.
- Standard PCCNet<sup>™</sup> and optional Echelon<sup>®</sup> LonWorks<sup>®</sup> network interface.
- Control suitable for operation in ambient temperatures from -40 ℃ to +70 ℃ (-40 ℃ to +158 ℃) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower<sup>™</sup> PC-based service tool available for detailed diagnostics.

#### Operator/display panel

- Off/manual/auto mode switch
- Manual run/stop switch
- Panel lamp test switch
- · Emergency stop switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments
- LED lamps indicating genset running, not in auto, common warning, common shutdown
- Configurable LED lamps (5)
- Configurable for local language

#### Engine protection

- Overspeed shut down
- Low oil pressure warning and shut down
- High coolant temperature warning and shut down
- High oil temperature warning (some models)
- Low coolant level warning or shut down
- Low coolant temperature warning
- High and low battery voltage warning
- Weak battery warning
- Dead battery shut down
- Fail to start (overcrank) shut down
- Fail to crank shut down
- Redundant -start disconnect
- Cranking lockout
- Sensor failure indication

#### Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Lube oil temperature (some models)
- Engine speed

#### AmpSentry AC protection

- Over current and short-circuit shut down
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shut down
- Over and under frequency shut down
- Overload warning with alarm contact
- Reverse power and reverse Var shut down
- Excitation fault

#### Alternator data

- Line-to-Line and Line-to-Neutral AC volts
- Three phase AC current
- Frequency
- Total and individual phase power factor, kW and kVA
   Other data

#### Other data

- Genset model data
- Start attempts, starts, running hours
- kW hours (total and since reset)
- Fault history
- Load profile (hours less than 30% and hours more than 90% load)
- System data display (optional with network and other PowerCommand gensets or transfer switches)

#### Governing

- Digital electronic isochronous governor
- Temperature dynamic governing
- Smart idle speed mode
- Glow plug control (some models)

#### Voltage regulation

- Digital PWM electronic voltage regulation
- Three phase Line-to-Neutral sensing
- Suitable for PMG or shunt excitation
- Single and three phase fault regulation
- · Configurable torque matching

#### **Control functions**

- Data logging on faults
- Fault simulation (requires InPower)
- Time delay start and cooldown
- Cycle cranking
- PCCNet interface
- Configurable customer inputs (4)
- Configurable customer outputs (4)
- Configurable network inputs (8) and outputs (16) (with optional network)
- Remote emergency stop

#### Options

- LED bargraph AC data display
- Thermostatically controlled space heater
- Key-type mode switch
- · Ground fault module
- Auxiliary relays (3)
- Echelon LONWORKS interface
- Modlon Gateway to convert to Modbus (loose)
- PowerCommand iWatch web server for remote monitoring and alarm notification (loose)
- Digital input and output module(s) (loose)
- Remote annunciator (loose)

For further detail see document S-1409.

## **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):

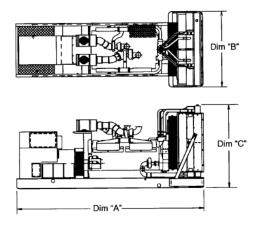
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

#### 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.



This outline drawing is for reference only. See respective model data sheet for specific model outline drawing number.

#### Do not use for installation design

## Dimensions and weights with standard cooling system

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Estimated set weight* dry kg (lbs)	Estimated set weight* wet kg (lbs)
DQDAA	3023 (119.0)	1270 (50.0)	1617 (64.0)	2184 (4814)	2234 (4926)
DQDAB	3023 (119.0)	1270 (50.0)	1617 (64.0)	2184 (4814)	2234 (4926)
DQDAC	3023 (119.0)	1270 (50.0)	1617 (64.0)	2319 (5113)	2370 (5225)

## Dimensions and weights with optional cooling system with seismic feature codes L228-2 and/or L225-2

Model	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Estimated set weight* dry kg (lbs)	Estimated set weight* wet kg (lbs)	
DQDAA	3023 (119.0)	1270 (50.0)	1676 (66.0)	2184 (4814)	2234 (4926)	
DQDAB	3023 (119.0)	1270 (50.0)	1676 (66.0)	2184 (4814)	2234 (4926)	
DQDAC	3023 (119.0)	1270 (50.0)	1676 (66.0)	2319 (5113)	2370 (5225)	

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

## **Codes and Standards**

Codes or standards compliance may not be available with all model configurations - consult factory for availability.

150 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.		The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage.
FS	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.	U.S. EPA	Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards,40 CFR 60 subpart IIII Tier 3 exhaust emission levels. U.S. applications must be applied per this EPA regulation.
<b>€</b> ₽°	All low voltage models are CSA certified to product class 4215-01.	International Building Code	The generator set package is available certified for seismic application in accordance with the following International Building Code: IBC2000, IBC2003, IBC2006, IBC2009 and IBC2012.

**Warning:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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



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