



Diesel Generator Set QSK50 Series Engine

1100 kW – 1500 kW 60 Hz



Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby and prime power applications. Codes or standards compliance may not be available with all model configurations – consult factory for availability.

Features

Cummins Heavy-Duty Engine - Rugged 4-cycle, 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, fault clearing short-circuits capability.

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

Control System - Standard PowerCommand® electronic control provides total system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

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

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.

Model	Standby Rating		Prime Rating		Continuous Rating		Data Sheets	
	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
DQGAA	1250 (1563)		1100 (1375)				D-3333	
DQGAB	1500 (1875)		1350 (1688)				D-3334	

Generator Set Specifications

Governor regulation class	ISO8528 Part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
Radio frequency emissions compliance	IEC 801.2 through IEC 801.5; MIL STD 461C, Part 9

Engine Specifications

Bore	158.8 mm (6.25 in.)
Stroke	158.8 mm (6.25 in.)
Displacement	50.3 Liters (3067 in ³)
Configuration	Cast iron, V 16 cylinder
Battery capacity	1800 amps minimum at ambient temperature of 0 °C (32 °F)
Battery charging alternator	35 amps
Starting voltage	24 volt, negative ground
Fuel system	Cummins' Modular Common Rail System
Fuel filter	Dual Element 10 micron filtration spin-on fuel filter with 15 micron water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Four spin-on, combination full flow filter 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 disc
Insulation system	Class H
Standard temperature rise	150 °C standby at 40 °C ambient
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 (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 Line-Neutral/Line-Line			50 Hz Line-Neutral/Line-Line
220/380	277/480	2400/4160	
255/440	347/600		

*Note: Consult factory for other voltages.

Generator Set Options

Engine

208/240/480 V thermostatically controlled coolant heater for ambient above 4.5 °C (40 °F)
 208/240/480 V thermostatically controlled coolant heater for ambient below 4.5 °C (40 °F)
 Dual 120 V 300 W lube oil heaters
 Dual 208/240 V 300 W lube oil heaters
 Dual 480 V 300 W lube oil heaters

Control Panel

120/240 V 100 W control anti-condensation heater
 Paralleling configuration
 Remote fault signal package
 Run relay package
 Exhaust pyrometer
 Fuel pressure indication
 Ground fault indication

Alternator

80 °C rise
 105 °C rise
 125 °C rise
 120/240 V 300 W anti-condensation heater

Exhaust System

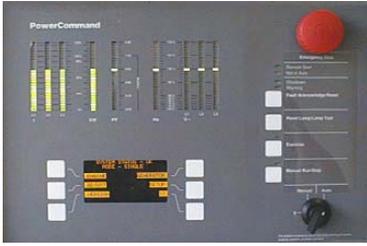
Industrial grade exhaust silencer
 Residential grade exhaust silencer
 Critical grade exhaust silencer
 Exhaust packages
Cooling System
 Remote indicator

Generator Set

AC entrance box
 Battery
 Battery charger
 Circuit breaker – set mounted
 Disconnect switch - set mounted
 PowerCommand Network
 Remote annunciator panel
 Spring isolations
 2 year warranty
 5 year warranty
 10 year major components warranty

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

Control System PCC 3201



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

- Integral AmpSentry 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.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.
- Optional Echelon® LONWORKS® network interface.

Operator/Display Panel

- Off/manual/auto mode switch
- Manual run/stop switch
- Panel lamp test switch
- Emergency stop switch
- Exercise switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments
- LED lamps indicating not in auto, common warning, common shutdown, remote start
- 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
- 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
- Engine speed
- Engine ECM data

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

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
- Bus voltage and frequency (with paralleling options)

Other Data

- Genset model data
- Start attempts, starts, running hours
- kW hours (total and since reset)
- Fault history
- Load profile (accessible with InPower)

Governing

- Digital electronic isochronous governor
- Temperature dynamic governing
- Smart idle speed mode

Voltage Regulation

- Digital PWM electronic voltage regulation
- Three phase Line-to-Neutral sensing
- 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
- Configurable customer outputs (4)
- Configurable network inputs (8) and outputs (16) (with optional network)
- Remote emergency stop

Paralleling (Option)

- Active digital phase lock loop synchronizer
- Isochronous kW and kVar load sharing controls
kW import/export and kVar/PF control for utility (mains) paralleling

Options

- Thermostatically controlled space heater
- Key-type mode switch
- Ground fault module
- Auxiliary relays (3)
- Echelon LONWORKS interface
- Modion 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)
- Paralleling
- Power transfer control

For further detail see document S-1444.

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):

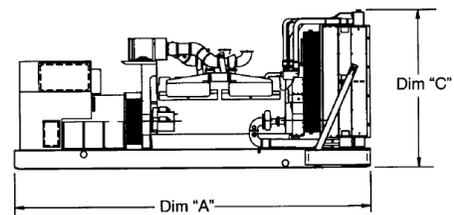
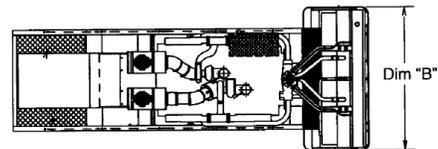
Applicable For Supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

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

Model	Dim 'A' (mm) (in.)	Dim 'B' (mm) (in.)	Dim 'C' (mm) (in.)	Set Weight dry* kg (lbs)	Set Weight* wet kg (lbs)
DQGAA	5969 (235)	2007 (79)	2840 (112)	10989 (24220)	11493 (25330)
DQGAB	5969 (235)	2007 79)	2840 (112)	10989 (24220)	11493 (25330)

* 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>The generator set is available listed to UL 2200, Stationary Engine Generator Assemblies for all 60 Hz low voltage models. The PowerCommand control is Listed to UL 508 – Category NITW7 for U.S and Canadian usage. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.</p>
	<p>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.</p>	<p>U.S EPA</p>	<p>Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels. U.S. applications must be applied per this EPA regulation.</p>
	<p>All low voltage models are CSA certified to product class 4215-01.</p>	<p>International Building Code</p>	<p>The generator set package set is available certified for seismic application in accordance with the following International Building Code: IBC2000, IBC2003, IBC2006 and IBC2009.</p>

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

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