

Diesel Generator set QSK50 engine Series

1875kVA - 2250kVA 50Hz
U.S.EPA T2/China NRMM III



Description

Cummins® 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 4-cycle industrial diesel delivers reliable power, low emission, and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

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

Control system - The PowerCommand® digital 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™ protective relay, output metering and auto-shutdown at fault detection.

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

ISO8528 G3 Capable – Consult factory for related performance rating as per ISO8528-5

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

Model	Standby rating	Prime rating	Emission	Controller	Data sheet
	50 Hz kVA (kW)	50 Hz kVA (kW)	U.S.EPA/ China NRMM		
C1875D5E	1875 (1500)	1700 (1360)	T2/CSIII	PC3.3	EA_S_CC_58
C2000D5EB	2000 (1600)	1875 (1500)	T2/CSIII	PC3.3	EA_S_CC_57
C2250D5E	2250 (1800)	2000 (1600)	T2/CSIII	PC3.3	EA_S_CC_56

Generator set specifications

Performance Class	Genset models have been tested in accordance with ISO8528-5. Consult facctory for transient performance information.
Voltage regulation, no load to full load	± 1%
Random voltage modulation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMC compatibility	Emissions to EN 61000-6-2:2005 Immunity to EN 61000-6-4:2007+A1:2011

Engine Specifications

Bore	159 mm
Stroke	159 mm
Displacement	49.8 litres
Configuration	Cast iron, V16 cylinder
Battery capacity	1800 CCA minimum at ambient temperature of 0°F (-18°C)
Battery charging alternator	55A
Starting voltage	24 volts, negative ground
Fuel system	Cummins XPI YZ
Fuel filter	Two stage spin-on fuel filter and water separator system.
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 cooling system

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	150°C
Exciter type	Permanent Magnet Generator (PMG)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion (THDV)	No load to full linear load < 5% .For any single harmonic<3%
Telephone harmonic factor(THF)	< 2% (for 50Hz)

Available voltages

50 Hz Line – Neutral/Line – Line			
• 220/380	• 230/400	• 240/415	• 254/440
• 6060/10500	• 6350/11000		

Note: Consult factory for other voltages.

Generator set options and accessories

Engine

- Normal duty air cleaner
- Coolant heater w/temp adjust, forced pump, 380 V,9kW
- Engine toolkit

Warranty

- Comprehensive warranty system (Consult factory for availability)
- Option
- Standard

Alternator

- Anti-condensation heater
- Stator winding temp sensor
- Generator Bearing temp sensor

Generator Set

- Battery charger
- Spring isolators
- Manual available in multiple languages

Cooling System

- Genset Mounted Radiator

Control Panel

- Manual language support
- User-configurable relays
- Low coolant level warning/Shutdown
- Digital input/output
- Control cabinet heater
- High bearing temperature warning
- High alternator temperature shutdown
- Exhaust temp monitoring
- Low battery voltage warning

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

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.

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 (base load/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
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- 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

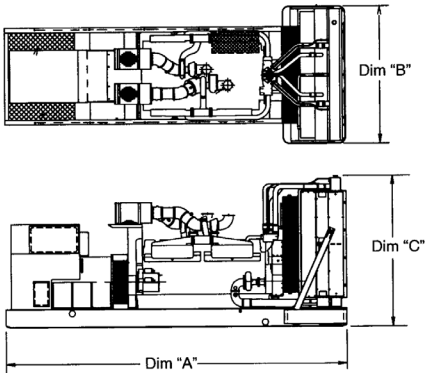
Options

- Auxiliary output relays (2)

Ratings definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical loads 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, Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.

Prime Power (PRP):
Applicable for supplying power to varying electrical loads for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, Data shown above represents gross engine performance and capabilities as per ISO 3046-1, obtained and corrected in accordance with ISO 15550.



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	Dim "B" mm	Dim "C" mm	Set weight* dry kg	Set weight* wet kg
C1875D5E	5864	2248	2521	11217	11617
C2000D5EB	5864	2248	2521	11504	11903
C2250D5E	5864	2248	2521	11950	12350

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

Codes and standards

ISO 9001	This product was manufactured in a plant whose quality management system is registered as being in conformity with ISO 9001	U.S. EPA	Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels.
ISO 8528	Generator set design in accordance with ISO8528	China NRMM III	Engine certified to China non-road mobile machinery GB 20891-2014 phase III limits.
CE	This generator set is available as CE marked.	UK CA	This generator set is available as UKCA marked.
AS 3000	This generator set has been designed to be compatible with AS/NZS 3000 Standard.		

For more information contact your local Cummins distributor

