Specification sheet

Centum™ SERIES GENERATORS

Diesel Generator set QSK38 engine series

1250 kW-1500 kW 60 Hz
EPA emissions

Description

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

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 and fault clearing short-circuit capability and class H insulation.

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

HVO Fuel Compatible – Approved for use with paraffinic fuels (EN15940), including Hydrotreated vegetable oil which has a very low life cycle carbon emission

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 and NFPA 110 Level 1 compliance.

Cooling system - Standard and enhanced integral set-mounted radiator systems, 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 standard three-year warranty and worldwide distributor network.

	Standby rating	Prime rating	Data Center Continuous rating	Emissions compliance
Model	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz kW (kVA)	EPA
C1250D6E	1250 (1563)	1136 (1420)	1136 (1420)	EPA Tier 2
C1500D6E	1500 (1875)	1364 (1705)	1364 (1705)	EPA Tier 2

Generator set specifications

Performance Class	ISO 8528-5 G3 Capable - refer to the factory for site and configuration specific transient performance classification
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.25
Electromagnetic Compatibility Performance	Emissions to EN 61000-6-2:2005 Immunity to EN 61000-6-4:2007+A1:2011 FCC PART 15 subpart B; ICES-002

Engine specifications

Bore	159 mm (6.26 in.)
Stroke	159 mm (6.26 in.)
Displacement	37.8 litres (2307 in^3)
Configuration	Cast iron, V 12 cylinder
Battery capacity	1800 amps minimum at ambient temperature of -18 °C (0 °F)
Battery charging alternator	100A
Starting voltage	24 volts, negative ground
Fuel system	Cummins YZ modular common rail system
Fuel filter	Two stage spin-on fuel filter and water separator system. Stage 1 has a two element 5 micron filter and stage 2 has a two element 4 micron filter.
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
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	125 ºC standby
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)	< 5% no load to full linear load

Available voltages

60 Hz Line-Neutral/Line-Line

- 220/380
- 225/440
- 2400/4160
- 3810/6600
- 6350/11000
- 277/480
- 347/600
- 3637/6300
- 3983/6900

Note: Consult factory for other voltages.

Generator set options and accessories

Engine

- 240V thermo-statically controlled coolant heater
- 120/240V 500W lube oil heaters
- Heavy duty air cleaner
- Remote Duplex Fuel Filter
- Engine Oil Filters - Full Flow with Bypass
- Automatic Oil Make Up System and Monitoring
- Engine toolkit

Alternator

- 80°C/105°C /125°C/150°C rise
- Stator winding temp sensor 2 RTDs/phase
- Bearing temp sensor RTDs
- 1-hole or 2-hole lug output terminal
- Cable entrance box set mounted top or bottom entry
- 120/240V 225W anti-condensation heater
- Generator Louvres

Control panel

- Masterless Load Demand
- Multiple language support
- 120/240V 100W control anti-condensation heater
- Exhaust pyrometer
- Ground fault indication
- Paralleling relay package
- Shutdown alarm relay package
- Mechanical hour meter
- 6x user-configurable relays
- 8 additional I/O relays

Generator set options and accessories (continued)

Exhaust system

- Industrial grade silencer
- Residential grade silencer
- Critical grade silencer

Cooling system

- Enhanced high ambient temperature (50 °C)
- Low coolant level warning
- Coolant heater

Generator set

- Oil Sampling Valve
- 10A battery charger
- Set mounted circuit breakers up to 3200 Amps
- Circuit breaker Aux and Trip contacts
- Anti-vibration mounts
- Battery temperature sensor
- IBC Certification
- HCAI Certification

Miscellaneous

- Multilingual manuals
- 3-year extended warranty
- 5-year extended warranty
- 10-year extended warranty
- Witness testing
- Virtual witness test
- Tier 4 compliant aftertreatment kits shipped loose

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

Standard control functions (continued)-

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)

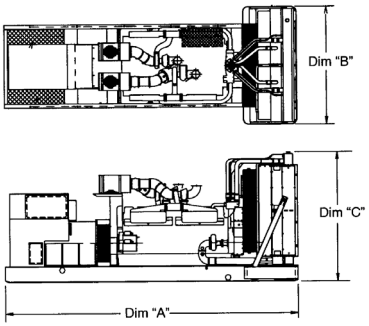
Ratings definitions

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 (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)	Set weight* dry kg (lbs)	Set weight* wet kg (lbs)
C1250D6E	5085 (200)	2184(86)	2406(94.7)	9197 (20276)	9687 (21357)
C1500D6E	5085 (200)	2184(86)	2406(94.7)	9231 (20351)	9721 (21431)

*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.

ISO 9001	This product was manufactured in a plant whose quality management system is registered as being in conformity with ISO 9001	UL LISTED	UL Listing to UL 2200, "Stationary Engine Generator Assemblies" is available for this genset model
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.	**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. U.S. applications must be applied per this EPA regulation.
CSA	All genset models are available as CSA certified to CSA C22.2 No. 100	**International Building Code**	The generator set package is available certified for seismic application in accordance with International Building Code

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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Specification Sheet – (07/22)