



Specification sheet

Diesel fuel generator set

QSZ13 engine series
U.S. EPA Tier 3

400 kW 60 Hz



Description

The Cummins QSZ13-series commercial Generator Set (GenSet) boasts an EPA-certified, fully-integrated power generation system providing optimum performance, reliability, and versatility for standby power applications.

Features

- Cummins engine - cutting-edge diesel technology since 1919
- Stamford rugged and reliable alternator with state-of-the-art technology
- One-year warranty backed by a worldwide Cummins twenty-four hour, seven days-a-week, distributor network
- Accepts 100% rated load in a single step
- Surge rating - 105% of nameplate
- The GenSet accepts full rated load in a single step in accordance with NFPA 110 Type 10 (ten seconds) for Level 1 and Level 2 Emergency or Standby Power Supply Systems (EPSSs)
- Standard Power Command Control (PCC) 3300 technology provides digital (precise) frequency and voltage regulation
- Efficient and convenient operation monitoring and control options:
 - Modbus over the Internet (monitor and control)
 - Remote HMI (monitor and control)
 - Protonode reliable interface to a building management system Supervisory Control and Data Acquisition (SCADA) (monitor, only)

Model	Standby power rating*	Emissions compliance	Engine data sheet
	60 Hz kW (kVa)		
C400D6B	400 (500)	EPA-certified Tier 3	FR20454

* Tested at 0.8 power factor (PF) per NFPA 110.

GenSet specifications

Voltage regulation, no load to full load	±1%
Random voltage variation	±1% (three-phase only)
Frequency regulation	Isochronous
Random frequency variation	±0.5%
Radio frequency interference	PMG excitation operates in compliance with BS800 and VDE level G and N. Addition of RFI protection kit allows operation per MIL-STD-461 and VDE level K.

Engine specifications

Base engine	Cummins QSZ13
Displacement	13 L (793 in ³)
Overspeed limit	2150 rpm
Regenerative power	22.72 kW
Cylinder block configuration	Cast iron
Minimum battery capacity	1,250 CCA at ambient temperature of 0 °C (32 °F)
Battery charging alternator	80 amps
Battery type (optional)	Group 8D (x2)
Starting voltage	24-volt, negative ground
Standard cooling system	50 °C (122 °F)
Lube oil filter types	One spin-on canister-combination full flow with bypass

Alternator specifications

Design	Brushless, 4-pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Direct-coupled by flexible disc
Insulation system	Class H per NEMA MG1-1.65 or better
Standard temperature rise *	125 °C
Exciter type	Shunt or permanent magnet generator (PMG)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct-drive centrifugal blower

* For UL 1004 ratings, refer to temperature rise at 120 °C or below.

Full-load amperage (FLA) at rated voltage

Model	Power rating	Voltage*								
		120/240 (1 Ph)	120/208	127/220	139/240	220/380	240/416	254/440	277/480	347/600
C400D6B	Standby	N/A	1388	1312	1203	760	694	656	601	481

*Three-phase FLA based on 0.8 power factor (PF).

Rated load fuel consumption in gallons per hour (L/h)

Model	Fuel type	100% load	75% load	50% load	25% load
C400D6B	Diesel	29.4 (111)	24.3 (92)	18.2 (69)	11.1 (42)

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.

Regulation compliant - Prototype tested: UL, CSA and CE compliant.

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 - English, Spanish, French (standard); other languages (optional).

Operator panel features

Operator/display panel

- Displays paralleling breaker status.
- 320 x 240 pixels graphic LED backlight LCD.
- Provides direct control of the paralleling breaker.
- Alphanumeric display with pushbuttons.
- Auto, manual, start, stop, fault reset, and lamp test/panel lamp switches.
- 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 (baseload/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.

Other control features

- 150 watt anti-condensation heater.
- DC distribution panel.
- AC auxiliary distribution panel.

Alternator data

- Line-to-neutral and line-to-line AC volts.
- Three-phase AC current.
- Frequency.
- kW, kVar, and power factor kVa (three-phase and total).
- Winding temperature (optional).
- Bearing temperature (optional).

Engine data

- DC voltage and engine speed.
- Lube oil pressure and temperature.
- Coolant temperature.
- Comprehensive FAE data.

Other display data

- GenSet model data.
- Start attempts, starts, running hours, kW hours.
- Load profile (operating hours at % load in 5% increments).
- Fault history – up to 32 events.
- Data logging and fault simulation (requires InPower™).
- Air cleaner restriction indication.
- Exhaust temperature in each cylinder.

Standard control functions

Digital governing

- Temperature dynamic governing.
- Integrated digital electronic isochronous governing.

Digital voltage regulation

- Configurable torque matching.
- 3-phase, 4 wire line-to-line sensing.
- Integrated digital electronic voltage regulator.

AmpSentry AC protection

- AmpSentry protective relay.
- Over current and short circuit shutdown.
- Over current warning.
- Single and three-phase fault regulation.
- Low oil pressure warning and shutdown.
- High coolant temperature warning and shutdown.
- Low coolant level warning and shutdown.
- Low coolant temperature warning.
- Over and under voltage shutdown.
- Over and under frequency shutdown.
- Overload warning with alarm contact.
- Reverse power and reverse var shutdown.
- Field overload shutdown.
- Fuel-in-rupture-basin warning or shutdown.
- Full authority electronic engine protection.
- AMM arc flash provision

Engine protection

- Cranking lockout; overspeed shutdown; and battleshort.
- Sensor failure indication.
- Low fuel level warning or shutdown.
- Fail to start (overcrank) and fail to crank shutdown.
- Full authority electronic engine protection.
- Battery voltage monitoring, protection, and testing.

Control functions

- Data logging and cycle cranking.
- Load shed.
- Remote emergency stop.
- Time delay start and cooldown.
- Configurable inputs and outputs (20).
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.

GenSet options and accessories

Engine - 120/240 V, 2500 W coolant heater

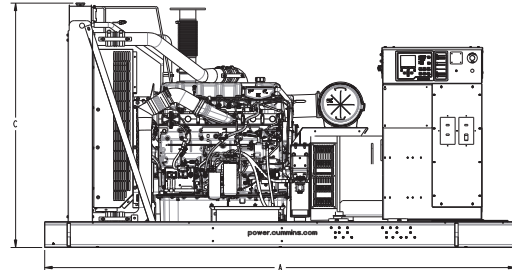
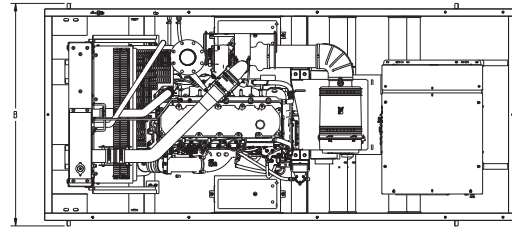
Alternator

- 80 °C rise
- 105 °C rise

Exhaust system - GenSet mounted muffler (enclosure models, only)

Generator set

- Batteries
- Battery charger
- Protonode
- Remote control HMI with extension harness
- Audible alarm
- Remote drains
- Weather protective enclosure (F001) with silencer
- Level I and Level II enclosure with silencer
- Two-year standby warranty
- Five-year basic power warranty



This outline drawing is for reference only.

Do not use for installation design.

All models	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)
Open set	3734 (147)	1765 (70)	1938 (76)
Closed set	See Cummins doc. 25315		

NOTE: Consult drawings for applicable weights. Contact the factory for additional information.

Codes and standards



This product has been manufactured under the controls established by a Bureau Veritas Certification approved management system that conforms with ISO 9001:2015.



Coming Soon



Engine is certified to Stationary Emergency U.S. EPA New Source Performance Standards (NSPS).



Coming Soon

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 is in accordance with ISO 3046, AS 2789, DIN 6271, and BS 5514.

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) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271, and BS 5514.

Warning: Backfeed to a utility system can cause electrocution and/or property damage. Do not connect GenSets to any building electrical system except through an approved device or after the building main disconnect is open. Neutral connection must be bonded in accordance with National Electrical Code.

Specifications are subject to change without notice.

Power You Can Rely On

To order, contact centralregionorders@cummins.com.