# Generator Set
# Diesel
# QSK23 Series Engine
## *600kW - 800kW 60Hz*
## *545kW - 720kW 50Hz*

### Description

This Cummins Power Generation commercial generator set is a fully integrated power generation system, providing optimum performance, reliability and versatility for stationary standby and prime applications.

This generator set is designed and manufactured in facilities certified to ISO9001.

This generator set is available with CE Certification.

The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins Power Generation products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.

All low voltage models are CSA certified to product class 4215-01.

The generator set is available Listed to UL2200, Stationary Engine Generator Assemblies. The PowerCommand control is Listed to UL508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL489 Listed for 100% continuous operation and also UL869A Listed Service Equipment.

### Features

• CE Listed Generator Set - The complete generator set assembly is available Listed to CE.

• Exhaust Emissions - Optional Engine certification to U.S. EPA Nonroad Source Emission Standards, CFR 40 on all 60 Hz models.

• Cummins® Heavy-Duty Engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

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

• 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-circuit capability and class H insulation.

• Control System - The PowerCommand® 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 protection, output metering, auto-shutdown at fault detection and NFPA 110 compliance.

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

• Structural Steel Skid Base - Robust skid base supports the engine, alternator and radiator.

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

| | Standby | | Prime | | Continuous | | DataSheet | |
|---|---|---|---|---|---|---|---|---|
| Model | 50 Hz kW (kVA) | 60 Hz kW (kVA) | 50 Hz kW (kVA) | 60 Hz kW (kVA) | 50 Hz kW (kVA) | 60 Hz kW (kVA) | 50 Hz | 60 Hz |
| C825D5 | 660 (825) | NA | 600 (750) | NA | NA | NA | | |
| C900D5 | 720 (900) | NA | 656 (820) | NA | NA | NA | | |
| C750D6 | NA | 750 (938) | NA | 680 (850) | NA | NA | | |
| C800D6 | NA | 800 (1000) | NA | 725 (906) | NA | NA | | |

## Generator Set Specifications

| | |
|---|---|
| Governor Regulation Class | ISO8528 |
| 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

| | |
|---|---|
| Design | 4 cycle, in line, turbo Charged and after-cooled |
| Bore | 169.9 mm (6.69 in.) |
| Stroke | 169.9 mm (6.69 in.) |
| Displacement | 23.15 litres (1413 in.$^3$) |
| Cylinder Block | Cast iron, 6 cylinder |
| Battery Capacity | 1800 amps minimum at ambient temperature 0°F to 32°F (-18°C to 0°C) |
| Battery Charging Alternator | 35 amps |
| Starting Voltage | 24 volt, negative ground |
| Fuel System | Direct injection |
| Fuel Filter | Spin on fuel filters with water separator |
| Air Cleaner Type | Dry replaceable element with restriction indicator |
| Lube Oil Filter Type(s) | Fleetguard dual venturi spin on, combination full flow and bypass filters |
| Standard Cooling System | 122°F (50°C) ambient radiator |

## Alternator Specifications

| | |
|---|---|
| Design | Brushless, 4 pole, revolving field |
| Stator | 2/3 pitch |
| Rotor | Single bearing, flexible disc |
| Insulation System | Class H |
| Standard Temperature Rise | 125º C Standby |
| 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 | No load < 1.5%. Non distorting balanced linear load < 5% |
| Telephone Influence Factor (TIF) | <50 per NEMA MG1-22.43 |
| Telephone Harmonic Factor (THF) | <3% |

## Available Voltages

| 50 Hz<br>Line – Neutral / Line - Line | | 60 Hz<br>Line – Neutral / Line - Line | |
|---|---|---|---|
| 110/190 | 240/416 | 120/208 | 255/440 |
| 115/200 | 255/440 | 127/220 | 277/480 |
| 120/208 | 139/240 | 139/240 | |
| 127/220 | | 220/380 | |
| 220/380 | | 230/380 | |
| 230/400 | | 240/416 | |

Note: Consult factory for other voltages.

## Generator Set Options

**Engine**
- Compliance - CE Certification (Guarding)
- Coolant heater
- Fuel / Water Separator
- Heavy Duty Air Cleaner

**Control Panel**
- Anti-condensation space heater
- Paralleling configurations
- Remote fault signal package
- Run relay package

**Alternator**
- 80°C rise alternator
- 105°C rise alternator
- 125°C rise alternator
- Anti-condensation heater
- Temperature sensor – alternator bearing

**Exhaust System**
- Industrial-grade exhaust silencer
- Residential-grade exhaust silencer
- Critical-grade exhaust silencer

**Cooling System**
- Radiator, 50°C ambient

**Generator Set**
- AC entrance box
- Batteries
- Battery Rack w/ hold-down – floor standing
- Circuit breaker – set mounted
- Disconnect switch – set mounted
- PowerCommand Network
- Remote annunciator panel
- Spring isolators
- Silenced enclosure

**Miscellaneous Options**
- 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

PowerCommand™ 2100 with Bar Graph - Generator Set Control

## Description

The PowerCommand™ 2100 Control is a microprocessor-based generator set monitoring, and control system. The control provides an operator interface to the genset, digital voltage regulation, digital governing and generator set protective functions.

The PowerCommand™ 2100 generator set control is suitable for use on a wide range of generator sets in non-paralleling applications

The PowerCommand™ Control can be configured for any frequency, voltage and power connection configuration from 120 to 600VAC for for 50Hz or 60Hz operation.

Power for the control is derived from the generator set starting batteries. The control functions over a voltage range from 8VDC to 35VDC.

## Major Features

12 or 24 VDC Battery Operation.
Digital Engine Speed Governing (optional) to provide isochronous frequency regulation.
Digital Voltage Regulation with 3-phase sensing
AmpSentry™ Protection for true alternator overcurrent protection.
Digital AC Output Metering with Optional Analog Metering.
Battery Monitoring System to sense and warn against a weak battery condition.
Digital Alarm and Status Message Display
Generator set Monitoring: Displays status of all critical engine and alternator generator set functions.
Smart Starting Control System: Integrated fuel ramping to limit black smoke and frequency overshoot,
Advanced Serviceability using InPower™, a PC-based software service tool.
PowerCommand Network (optional) Provides LonMark interface to external devices

## Control System

Includes all functions to locally or remotely start and stop, and protect the generator set.
Control Switch - RUN/OFF/AUTO
- OFF Mode - the generator set is shut down and cannot be started
- RUN mode the generator set will execute its start sequence
- AUTO mode, the generator set can be started with a start signal from a remote device

LED Indicating Lamps - includes LED indicating lamps for the following functions:
- Generator set running
- Not-in-Auto mode
- Common warning

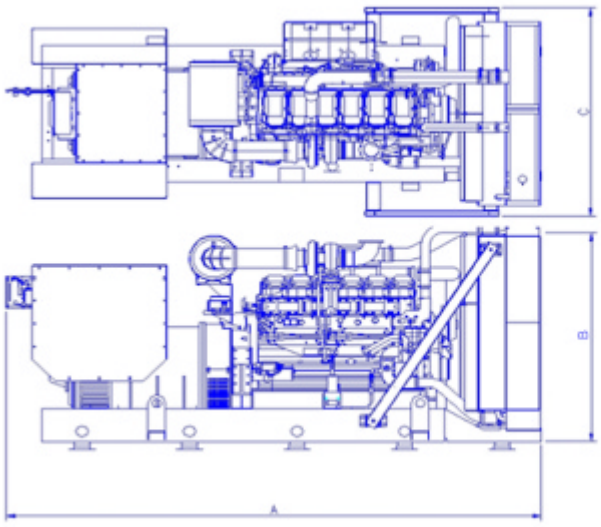
Plus five (5) LED Indicating Lamps that are configurable for color and function
- Low Oil Pressure Warning
- High Engine Temperature Warning
- Low Oil Pressure Shutdown
- Overspeed Shutdown
- Fail To Start

Emergency Stop Switch. Immediate shut down of the generator set on operation.
Base Engine Protection
- Overspeed Shutdown
- Low Oil Pressure Warning / Shutdown
- High Engine Temperature Warning / Shutdown
- Underspeed / Sensor Fail Shutdown
- Fail to Start / Fail to Crank
- Low / High Battery Voltage

**Options**
Analog AC Metering Panel
Key Type Mode Selector Switch
Exhaust Temperature Monitoring
PowerCommand Network
CAN Engine Interface (Optional on Some Models)
Refer to the PowerCommand Controls Technical Bulletin for detailed information (S1409d)

## Ratings Definitions

| Standby | Prime (Unlimited Running Time): | Base Load (Continuous): |
|---|---|---|
| Applicable for supplying emergency power for the duration of normal power interruption. No sustained overload capability is available for this rating. This rating is applicable to installations served by a reliable normal utility source. This rating is only applicable to variable loads with an average load factor of 80 percent of the standby rating for a maximum of 200 hours of operation per year and a maximum of 25 hours per year at 100% of its standby rating. The standby rating is only applicable to emergency and standby applications where the generator set serves as the back up to the normal utility source. No sustained utility parallel operation is permitted with this rating. (Equivalent to Fuel Stop Power in accordance with ISO3046, AS2789, DIN6271 and BS5514). Nominally Rated. | Applicable for supplying power in lieu of commercially purchased power. Prime power is the maximum power available at a variable load for an unlimited number of hours. A 10% overload capability is available for limited time. (Equivalent to Prime Power in accordance with ISO8528 and Overload Power in accordance with ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models. | Applicable for supplying power continuously to a constant load up to the full output rating for unlimited hours. No sustained overload capability is available for this rating. Consult authorized distributor for rating. (Equivalent to Continuous Power in accordance with ISO8528, ISO3046, AS2789, DIN6271, and BS5514). This rating is not applicable to all generator set models. |



This outline drawing is to provide representative configuration details for Model series only.

See respective model data sheet for specific model outline drawing number.

Do not use for installation design

This outline dra tive model data sheet for s

| Model | Dim "A" mm (in.) | Dim "B" mm (in.) | Dim "C" mm (in.) | Set Weight* Dry kg (lbs) | Set Weight* Wet kg (lbs) |
|---|---|---|---|---|---|
| C825D5 | 4414 (1738) | 2214 (872) | 1738 (684) | 6682 | 6623 |
| C900D5 | 4414 (1738) | 2214 (872) | 1738 (684) | 6682 | 6623 |
| C750D6 | 4414 (1738) | 2214 (872) | 1738 (684) | 6682 | 6623 |
| C800D6 | 4414 (1738) | 2214 (872) | 1738 (684) | 6682 | 6623 |

*Note: Weights represent a set with standard features. See outline drawings for weights of other configurations. Weights are calculated using the largest alternator frame size.

**See your distributor for more information.**

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