



# Diesel generator set X3.3 series engine

25 kVA - 38 kVA 50 Hz  
 27 kW - 35 kW 60 Hz



## Description

This Cummins® commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for Stationary Standby, Prime Power, and Continuous Duty applications.

## Features

**Cummins engine** - Rugged 4-cycle delivers reliable power, 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-circuits capability.

**Control system** - PowerStart control, microprocessor-based generator set monitoring and control system provides a simple operator interface to the generator set, manual and remote start/stop control and shutdown fault indication.

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

**Enclosures** - Optional weather-protective and sound-attenuated enclosures are available.

**Fuel tank** - In-skid, fuel tank of 175 litre capacity and provided with 110% fluid retention capability.

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

Model	3-Phase ratings				1-Phase ratings*				Data sheet
	Standby rating		Prime rating		Standby rating		Standby rating		
	50 Hz kVA (kW)	60 Hz kW (kVA)							
<b>C33 D5</b>	33 (26.4)		30 (24)		28.3 (28.3)		25.7 (25.7)		DS93-CPGK
<b>C38 D5</b>	38 (30.4)		35 (28)		30 (30)		27 (27)		DS94-CPGK
<b>C30 D6</b>		30 (37.5)		27 (33.8)		30 (30)		27 (27)	DS95-CPGK
<b>C35 D6</b>		35 (43.8)		32 (40)		33 (33)		30 (30)	DS96-CPGK

\*1.0 PF

## Generator set specifications

Governor regulation class	ISO 8528 Class G2
Voltage regulation, no load to full load	± 2.5%
Random voltage variation	± 2.5%
Frequency regulation	Droop
Random frequency variation	± 0.75%
Radio frequency emissions compliance	BS EN 6100 6-1 / BS EN 6100-6-3

## Engine specifications

Design	4 cycle, in-line, naturally aspirated
Bore	91.4 mm (3.6 in.)
Stroke	127 mm (5.3 in.)
Displacement	3.3 liter (201 in.)
Cylinder block	Alloy cast iron, in-line, 4 cylinder
Battery capacity	88 ampere-hour
Battery charger alternator	36 amps
Starting voltage	12 volt, negative ground
Fuel system	Direct injection: Number 2 diesel fuel
Fuel filter	Single element, Spin-on fuel cum Water Separator, Filtration efficiency 25 micron 99% (min), Water separation efficiency 90% (min)
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Spin on full flow filter, filtration efficiency 25 micron 99% (min)
Standard cooling system	122 °F (50 °C) ambient radiator with coolant recovery system

## Alternator specifications

Design	Brushless, 4 pole, revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	163 °C Standby @ 27 °C ambient
Exciter type	Self-excited / Auxiliary Winding
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

50 Hz		60 Hz	
3-phase Line-Line/Line-Neutral	Single phase	3-phase Line-Line/Line-Neutral	Single phase
200/115 400/230 208/120	• 416 / 240 • 380 / 219 • 190 / 109 • 230	• 480/277 • 440/254 • 416/240 • 240/138	• 220/127 • 240

Note: Consult factory for other voltage.

## Generator set options and accessories

- Coolant heater
- Residential grade silencer
- Alternator heater
- Electronic governing
- Auxiliary Winding
- 4 pole main circuit breaker
- Literature language
- Sound attenuated enclosure
- Dual wall fuel tank
- Optional warranty
- Battery charger
- Maintenance kit

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

## Control system

Generator set control PowerStart 500 – The PowerStart control is a microprocessor-based generator set monitoring and control system. The control provides a simple operator interface to the generator set, manual and remote start/stop control and shutdown fault indication. The integration of all control functions into a single control provides enhanced reliability and performance compared to conventional generator set control systems. This control has been designed and tested to meet the harsh environment in which gensets are typically applied.

- The PowerStart generator set control is suitable for use on a wide range of generator sets in non-paralleling applications. It is suitable for use with reconnectable or non-reconnectable generators, can be configured for either 50 Hz or 60 Hz and voltage and power connection from 190-600 VAC line-to-line.
- This control includes an intuitive operator interface that allows for complete genset control as well as system metering, fault annunciation, configuration and diagnostics. The interface includes seven generator set status LED lamps with both internationally accepted symbols and English text to comply with customer needs. The interface also includes an LED backlit LCD display with tactile-feel soft-switches for easy operation and screen navigation. The manual/auto/stop switch function is integrated into the interface panel.
- All data on the control can be viewed by scrolling through screens with the navigation keys. The control displays the current active fault and a time-ordered history of the five previous faults.
- Power for this control is derived from the generator set starting batteries and functions over a voltage range from 8VDC to 16 VDC.

### Major Features

- LCD display – 16 characters x 2 line alphanumeric LED backlight LCD.
- Generator set monitoring and protection.
- 12 VDC battery operation.
- Engine starting – Includes solid state output to operate external relays start the engine, fuel shut (FSO), and glow plugs. Start disconnect is achieved by monitoring main alternator frequency.
- Remote start capability – Interface to transfer switch.
- Environmental protection – The control is designed for reliable operations in harsh environments.
- Warranty and service – Backed by a comprehensive warranty and worldwide distributor service network.
- Certification – Suitable for use on generator sets are designed, manufactured, tested and certified to relevant ISO, IEC Mil Std. and CE standards.

### Base control functions

LCD display – 16 character x 2 line alphanumeric LED backlight LCD.

Operation interface – Six tactile-feel membrane switches for LCD navigation, genset operation and control setup.

These switches are indicated by internationally accepted symbols and English text.

Data logs – Includes engine run time and controller on time.

Fault history – Provides a record of the most recent fault conditions with control hour's time stamp. Up to 5 events are stored in the control non-volatile memory.

Alternator data

- Voltage (single or three phase line-to-line and line-to-neutral).
- Current (single or three phase).
- KVA (three phase and total).
- Frequency.

Engine data

- Starting battery voltage.
- Engine running hours.
- Engine temperature.
- Engine oil pressure.

Service adjustments – The control includes provisions for adjustment and calibration of generator set control functions. Functions include:

- Voltage selection.
- Frequency selection.
- Configurable input set up.
- Configurable output set up.
- Meter calibration.
- Units of measurement.

### Protective functions

On operation of a protective function the control will indicate a fault by illuminating the appropriate status LED, as well as display the fault code and fault description on the LCD. The nature of the fault and time of occurrence are logged in the control. The service manual and InPower Service Tool provide service keys and procedures based on the service codes provided.

### Field control interface

Input signals to the base control include

- Remote start.
- Local and emergency stop.
- Configurable inputs: Control includes (4) input signals from customer.

Output signals from the control include

- Configurable output: Control includes (1) solid state driver rated at 1 A. This output can be configured to activate on ready to load, or common warning and common shutdown condition.

Communications connections include

- PC tool interface: This RS-485 communication port allows the control to communicate with a personal computer running InPower software.

Note – An RS-232 or USB to RS-485 converter is required for communication between PC and control.



PowerStart 500 control operator / display panel

## 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 and DIN 6271.

### 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.

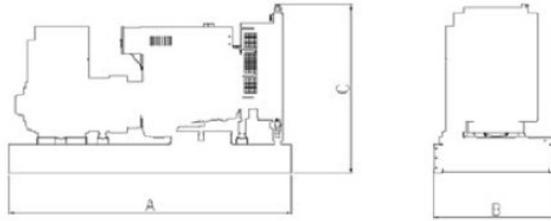
### Prime Power (PRP):

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 and DIN 6271.

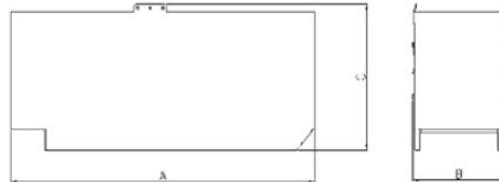
### Base Load (Continuous) Power (COP):

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 and DIN 6271.

### OPEN



### ENCLOSED



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**

Model	Open set					Enclosed set				
	Dimensions (mm)			Weight (Kg)		Dimensions (mm)			Weight (Kg)	
	Length (A)	Width (B)	Height (C)	Dry	Wet	Length (A)	Width (B)	Height (C)	Dry	Wet
<b>C33 D5</b>	1753	930	1238	708	743	2253	969	1619	1092	1127
<b>C38 D5</b>	1753	930	1238	743	778	2253	969	1619	1127	1162
<b>C30 D6</b>	1753	930	1238	743	778	2253	969	1619	1127	1162
<b>C35 D6</b>	1753	930	1238	752	787	2253	969	1619	1136	1171

\* Note: Weights represent a set with standard features.

## Codes and standards

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.		This generator set is available with CE certification.
<b>2000/14/EC</b>	All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.	<b>ISO 8528</b>	This generator set has been designed to comply with ISO 8528 regulation.

For more information contact your local Cummins distributor or visit [power.cummins.com](http://power.cummins.com)

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