Q RANGE DIESEL GENERATOR SET C330D5EQ

DESCRIPTION

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

STANDARD FEATURES

Cummins engine – Rugged 4 cycle Stage IIIA compliant industrial diesel delivers reliable power, and fast response to load changes.

Alternator - Stamford HC series self-excited alternator. Optional Permanent Magnet Alternator is also available.

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

Control system - The PowerCommand® control, microprocessor-based generator set monitoring and control system.

Open and enclosed genset versions available.

Warranty - Backed by a comprehensive warranty and wide distributor and dealer network.

Coolant heater - The enclosed version Is fitted is fitted as standard with a 230V coolant heater to ensure that the engine starts during low ambient temperatures by circulating warmed coolant through the engine. Optional for open versions.

Enhanced battery system - Including a flooded/SLI technology battery, charger and disconnector.

GENERAL DATA

GENSET	C330D5EQ diesel generator set						
ENGINE	QSL9-G7						
CONTROLLER	PC1.2						
	Model	Phases	Voltage (V)	Frequency (Hz)	ESP Power (kVA/kW)	PRP Power (kVA/kW)	Current ESP (A)
ALTERNATOR	HC444D	3	400/230	50	330 / 264	300 / 240	476

FUEL CONSUMPTION

	STANDBY (kVA/kW)				PRIME (kVA/kW)			
RATINGS	**330 / 264**				**300 / 240**			
LOAD	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
l/h	23	41	59	75	19	39	56	70

SPECIFICATIONS

GENERATOR SET SPECIFICATIONS	
Governor type	Electronic
Performance class	Genset models have been tested in accordance with ISO 8528-5. Consult factory for transient performance information
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.5%
Electromagnetic Compatibility Performance	Emissions to EN61000-6-3: 2007 + A1: 2011 Immunity to EN61000-6-2: 2005
Coolant Heater**	230VAC, 2250W
Fuel tank capacity	995 l
Autonomy @ 75%PRP (usable)	17h
Guaranteed sound power level - Lw(A) (Enclosed)	97 dB(A)
Sound pressure level - Lp(A) (Enclosed): @1m @7m	 79 dB(A)* 69 dB(A)*

*Estimated ** Optional Open set version

ENGINE SPECIFICATIONS		
	Standby Rating	**Prime Rating**
Engine manufacturer	Cummins	
Engine model	QSL9-G7	
Design	4 cycle, in-line, turbocharged, charge air-cooled	
Displacement, l	8.8	
Rated speed, rpm	1500	
Lube oil capacity, l (Total system with combo filters)	26.5	
Gross engine power output, kWm	300	271
Bore, mm	114	
Stroke, mm	145	
Cylinder block	Cast iron, 6 cylinder	
Battery charging alternator, A	70	
Starting voltage, VDC	24, 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)	Spin-on full flow filter	
Standard cooling system	50 ºC ambient radiator	

ALTERNATOR SPECIFICATIONS	
Alternator manufacturer	Stamford
Alternator model	HC444D
Voltage, VAC	400/230
Design	Brushless, single bearing, revolving field
Stator	2/3 pitch
Insulation system	Class H
Standard temperature rise	Standby 50 Hz – 163 ºC/27 ºC ambient
Exciter type	Self-excited
Winding	311
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan

BATTERY SYSTEM	
Design	Lead acid, flooded/SLI technology battery
Number of batteries	2
Battery Voltage, VDC	2x12
Battery Capacity, Ah	2x140
Battery Charger	Standard. 12/24VDC, 4A
Battery Disconnector	Standard

INTAKE AIR SYSTEM*	
	Standby Rating
Combustion Air, m3/min	20.7
Maximum air cleaner restriction, kPa	6.2

*Engine based data

EXHAUST SYSTEM*	
	Standby Rating
Exhaust gas flow at rated load, m3/min	54.1
Exhaust gas temperature, ºC	522
Maximum exhaust back pressure, kPa	10

*Engine based data

COOLING SYSTEM	
Ambient design, ºC (open genset)	50
Ambient design, ºC (enclosed genset)	38
Fan load, kWm	10
Coolant capacity (with radiator), l	40
Cooling system air flow, m^3/sec @ 12.7 mm H_20 (open genset)	7.93

FUEL FLOW	
Maximum fuel flow, L/h	159
Maximum fuel inlet restriction, mm Hg (clean filter)	152
Maximum fuel inlet temperature, ºC	71

TRANSPORTATION, STORAGE & HANDLING	
Lifting configuration*	Single lifting point - Enclosed
Forklift lifting	Enclosed and Open versions

*See outline drawing for details

GENERATOR SET OPTIONS

OPTIONAL COMPONENTS	OPEN VERSION	ENCLOSED VERSION
		
Coolant Heater	o	•
Residential Muffler	o	•
Industrial Muffler	o	-
Alternator - Permanent Magnet Generator (PMG)	o	o
Language Literature	o	o
Maintenance Kit	o	o
Optional Warranty	o	o

• Standard; o Optional; - Not Available

Note: other options upon request, please contact your Sales Representative for availability and/or for any additional customization request.

WARRANTY

All components and subsystems are covered by an express limited warranty, please consult details in Global Commercial Warranty Statement depending on your application. Other optional and extended factory warranties and local distributor maintenance agreements are available.

CONTROL SYSTEM

PowerCommand 1.2 – The PowerCommand control system is a microprocessor-based generator set monitoring, metering and control system designed to meet the demands of today's engine driven generator sets. The integration of all control functions into a single control system provides enhanced reliability and performance compared to conventional generator set control systems. These control systems have been designed and tested to meet the harsh environment in which gensets are typically applied.

DESCRIPTION

The PowerCommand generator set control is suitable for use on a wide range of generator sets in non-paralleling applications. The PowerCommand control is compatible with shunt or PMG excitation style. It is suitable for use with connectable or non-reconnectable generators, and it can be configured for any frequency, voltage and power connection from 120-600 VAC Line-to-Line.

Power for this control system is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 30 VDC.

MAJOR FEATURES

- 128 x 128 pixels graphic LED backlight LCD.
- Digital voltage regulation. Single phase full wave SCR type regulator compatible with either shunt or PMG systems.
- Digital engine speed governing (where applicable).
- Generator set monitoring and protection.
- Advanced over-current protection.
- English and symbology-based language support.

BASE CONTROL FUNCTIONS

HDMI capability.

Operator adjustments - The HMI includes provisions for many set up and adjustment functions.

Data logs - Includes engine run time, controller on time, number of start attempts.

Fault history - Provides a record of the most recent fault conditions with control hours time stamp. Up to 10 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 speed.
- Engine temperature.
- Engine oil pressure.

Service adjustments – The HMI includes provisions for adjustment of generator set control functions.

Adjustments are protected by a password. Functions include:

- Engine speed governor adjustments.
- Voltage regulation adjustments.
- Cycle cranking.
- Configurable fault set up.
- Configurable output set up.
- Meter calibration.
- Units of measurement.

PROTECTIVE FUNCTIONS

Protective functions include:

- Battle short mode.
- Configurable alarm and status inputs.
- Emergency stop.
- Hydro mechanical fuel system engine protection.
- Overspeed shutdown.
- Low lube oil pressure warning.
- High lube oil temperature warning/shutdown.
- High engine temperature warning/shutdown.
- Low coolant temperature warning.
- Sensor failure indication.
- Full authority electronic engine protection.
- General engine protection.
- Low and high battery voltage warning.
- Weak battery warning.
- Fail to start (overcrank) shutdown.
- Fail to crank.
- Cranking lockout.

Alternator protection

- High AC voltage shutdown (59).
- Low AC voltage shutdown (27).
- Overcurrent warning/shutdown.
- Under frequency shutdown (81 u).
- Over frequency shutdown/warning (81 o).
- Loss of sensing voltage shutdown.
- Field overload shutdown.

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 PowerCommand control include:

- Configurable relay outputs: Control includes (2) relay output contacts rated at 2 A.

Configuration & Network

- Advanced service ability using Inpower™ a PC based Software service tool.
- Modbus interface for interconnecting to customer PLC/BMS
- Configurable Inputs and Outputs
- Configurable alarm inputs to cause a shutdown or warning response.

Warranty & Compliance

- Environmental protection: The Control is designed for reliable operation in harsh environment.
- Warranty and service backed by a comprehensive warranty and worldwide distributor service network.

Note: Please, refer to PC1.2 product literature for additional Information on Control System.

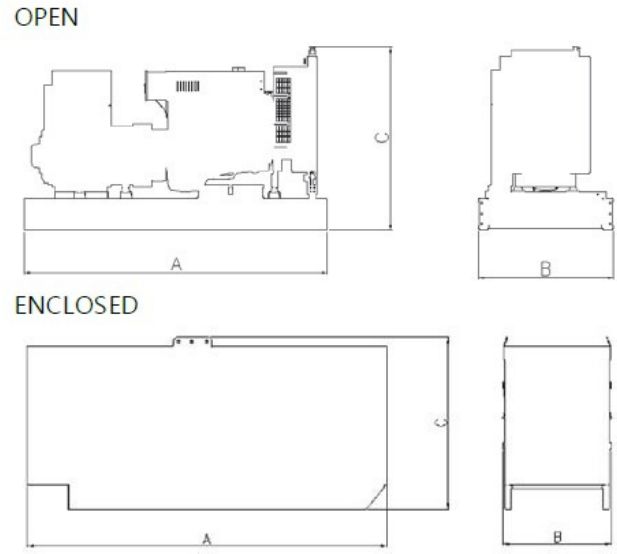
PowerCommand 1.2 control operator/Display panel

RATINGS DEFINITIONS

Emergency Standby Power (ESP):
Applicable for supplying power continuously to varying electrical loads for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528-1 and ISO 3046-1, obtained and corrected in accordance with ISO 15550

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 8528-1.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528-1. Ten percent overload capability is available in accordance ISO 3046-1, obtained and corrected in accordance with ISO 15550.



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

Do not use for installation design

DIMENSIONS

MODEL	OPEN					ENCLOSED				
	Length "A" mm	Width "B" mm	Height "C" mm	Dry wt.* kg	Wet wt.* kg	Length "A" mm	Width "B" mm	Height "C" mm	Dry wt.* kg	Wet wt.* kg
C330D5EQ	4015	1400	2115	2811	2836	4015	1400	2495	3378	3400

* Note: Weights represent a set with standard features. Wet weights do not include fuel.

REFERENCE DOCUMENTS

Additional documents are available for consult In Power Suite™ (powersuite.cummins.com) for detailed technical Information.

CODES AND STANDARDS

ISO 9001 **ISO 14001**	This product was manufactured in a facility whose quality management system is certified to ISO 9001 and its Health Safety Environmental Management Systems certified to ISO 14001.	CE	This generator set is available as CE marked.
		UKCA	This generator set is available as UKCA marked.
2000/14/EC	All enclosed products are designed to meet EU Noise Directive 2000/14/EC.	ISO 8528	This generator set has been designed to comply with ISO 8528 standards.
2014/30/EU **2006/42/EC** **2011/65/EU** 2014/35/EU	All products are designed to meet or exceed EU legislation on Electromagnetic Compatibility (EMC), Machinery Safety, Restriction of the use of certain hazardous substances (RoHS) and Electrical Equipment for use within certain voltage limits.		

For more information, please contact your local Cummins distributor or visit cummins.com

Our energy working for you™.