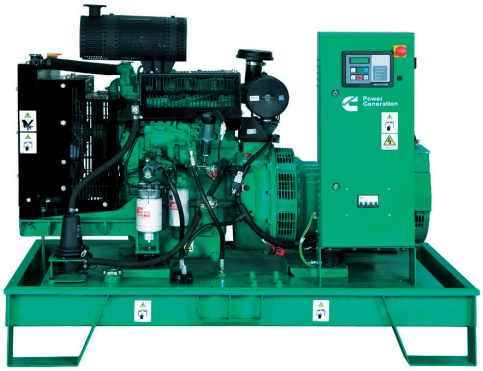
Specification sheet

Diesel generator set X2.5 series engine

15 kVA - 28 kVA 50 Hz
10.8 kW - 20 kW 60 Hz



Description

This Cummins® Power Generation 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® heavy-duty engine - Rugged 4 cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Optional excitation boost system (EBS) – 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 and fault clearing short-circuits capability.

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

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.

Enclosures - Optional weather-protective and sound-attenuated enclosure.

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

	3-Phase ratings				1-Phase ratings*				
	Standby rating		Prime rating		Standby rating		Prime rating		Data sheet
Model	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	
C17 D5	16.5 (13)		15 (12)		13 (13)		11.8 (11.8)		DS338-CPGK
C22 D5	22 (18)		20 (16)		17 (17)		15.5 (15.5)		DS340-CPGK
C28 D5	27.5 (22)		25 (20)		22 (22)		20 (20)		DS342-CPGK
C12 D6		12 (15)		10.9 (13.6)		12 (12)		10.9 (10.9)	DS339-CPGK
C16 D6		16 (20)		15 (18)		16 (16)		14.5 (14.5)	DS341-CPGK
C20 D6		20 (25)		18 (22)		20 (20)		18.1 (18.1)	DS343-CPGK

*1.0 PF

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Generator set specifications

Governor regulation class	ISO 8528 Part 1 G2
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Droop
Random frequency variation	± 0.25%
Radio frequency emissions compliance	Yes

Engine specifications

Design	4 cycle, in-line, naturally aspirated
Bore	91.4 mm
Stroke	127 mm
Displacement	2.5 liter (153 in^3)
Cylinder block	Alloy cast iron, in-line, 3 cylinder
Battery charging alternator	36 A
Starting voltage	12 volt, negative ground
Fuel system	Direct injection
Fuel filter	Spin on fuel filters with water separator
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 ºF (50 ºC) ambient radiator with coolant recovery system

Alternator specifications

Design	Brushless, single bearing
Stator	2/3 pitch
Insulation system	Class H
Standard temperature rise	125-163 ºC
Exciter type	Self excited
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion (THDV)	No load to full linear load < 5%. For any single harmonic < 3%
Telephone influence factor (TIF)	< 50% per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 3%

Available voltages

50 Hz line – line / line - neutral			**60 Hz line – line / line - neutral**		
3-phase		**1-phase**	**3-phase**		**1-phase**
• 480/255	• 220/127	• 240	• 480/277	• 240/120	• 240
• 440/255	• 220/110	• 230	• 440/255	• 220/110	• 230
• 416/240	• 200/115	• 220	• 416/240	• 220/127	• 220
• 400/230	• 190/110				
• 380/220					

Note: Consult factory for other voltages.

Generator set options and accessories

Engine
☐ Electronic engine governing
☐ Coolant heater 120/240 V

Cooling
☐ Antifreeze 50/50 (Ethylene glycol)

Enclosure
☐ Optional silent power canopy

Alternator
☐ Alternator heater
☐ Excite boost system (EBS)

Control panel
☐ PowerCommand 1.1
☐ 2/4 pole main circuit breaker
☐ Aux 101

Base Frame
☐ Dual skin fully contained fuel tank
☐ 500 litre fuel tank
☐ Set mounted battery

Warranty
☐ 2 years for prime application
☐ 5 years for standby application

☐ 1500/3000 hours service kit
☐ Optional language literature
☐ Engine oil heater 120/240 V
☐ External fuel fill (3 way valve)

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, DIN 6271 and BS 5514.

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.

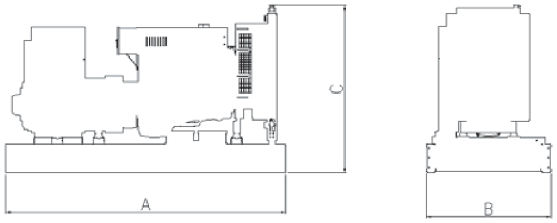
Prime power (PRP):

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

OPEN



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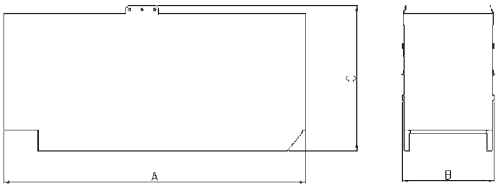

This outline drawing is to provide representative configuration details for Model series only.

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

Do not use for installation design

	Open					Enclosed				
Model	**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**
C17 D5	1667	930	1282	641	752	2082	987	1525	881	1032
C22 D5	1667	930	1282	625	776	2082	987	1525	905	1056
C28 D5	1667	930	1282	648	799	2082	987	1525	928	1079
C12 D6	1667	930	1282	594	745	2082	987	1525	874	1025
C16 D6	1667	930	1282	612	763	2082	987	1525	892	1043
C20 D6	1667	930	1282	625	776	2082	987	1525	905	1056

* **Note:** Weights represent a set with standard features. See outline drawings for weights of other configurations.

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.

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.

Cummins Power Generation

Europe, CIS, Middle East and Africa
Manston Park Columbus Ave.
Manston, Ramsgate
Kent CT12 5BF United Kingdom
Phone 44 1843 255000
Fax 44 1843 255902

Americas
1400 73rd Avenue N.E.
Minneapolis, MN 55432 USA
Phone 763 574 5000
Fax 763 574 5298

Asia Pacific
10 Toh Guan Road #07-01
TT International Tradepark
Singapore 608838
Phone 65 6417 2388
Fax 65 6417 2399

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SS26-CPGK-RevC (6/14)

cumminspower.com

Specification sheet

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 170 litre capacity and provided with 110% fluid retention capability.

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

	3-Phase ratings				1-Phase ratings*				
	Standby rating		Prime rating		Standby rating		Standby rating		Data sheet
Model	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	
C33 D5	33 (26.4)		30 (24)		28.3 (28.3)		25.7 (25.7)		DS93-CPGK
C38 D5	38 (30.4)		35 (28)		30 (30)		27 (27)		DS94-CPGK
C30 D6		30 (37.5)		27 (33.8)		30 (30)		27 (27)	DS95-CPGK
C35 D6		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 61000-6-1 / BS EN 61000-6-3

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	65 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 ºF (50 ºC) 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 ºC Standby @ 27 ºC ambient
Exciter type	Self-excited/ Auxillary 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, < 2.5% for any single harmonic
Telephone Influence Factor (TIF)	< 75 (for 60 Hz)
Telephone Harmonic Factor (THF)	<2% (for 50 Hz)

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
- ■ 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 600 – The PowerStart contol is a microprocessor-based generator set monitoring and control system. The control provides a simple operator interface to the generator set, auto/ 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, maintenance alarm, over imbalance current, 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

- Integrated 128x64 Pixel monochrome graphic LCD Display
- 12 and 24V battery operation
- Genset monitoring-monitor status of all critical engine and alternator functions
- Digital genset metering (AC and DC)
- Genset battery monitoring system to warn against a weak battery connection
- Configurable for single phase or three phase or split phase AC metering
- Engine starting includes solid state output to operate external relay to start the engine, fuel shut off (FSO) and glow Plug
- Genset Protection: protects engine and alternator
- Real time clock for fault and event stamping
- Fuel level measurement using 4-20mA input sensor
- Exerciser clock and time of delay start/stop initiate a test without load
- Maintenance due alarm based on engine running time and real time clock
- Auto Main Failure (AMF) Provides load transfer operation in open transition mode
- AMF Test with or without load options
- Utility Voltage monitoring and protection
- Remote start capability in Auto mode
- Advanced service ability using Inpower™ a PC based Software service tool
- Modbus interface for interconnecting to customer PLC/BMS
- Configurable Inputs and Outputs
- 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
- Certification-suitable for use on generator sets that are designed, manufactured, tested and certified relevant ISO, IEC and CE standards.

Base control functions

LCD capability

LED INDICATING LAMPS

- For Genset Running, Remote Start, AMF Test Active, Genset Shutdown, Warning, Load connected to Genset, Load connected to Utility, Manual Mode, Stop Mode and Auto Mode.

LCD display

- 128 x 64 Pixel Monochrome Graphics display

OPERATION INTERFACE

- Six tactile-feel soft switches for LCD navigation, genset operation and control setup. These switches are indicated by internationally accepted symbols and English text.

OPERATOR ADJUSTMENTS

- The LCD includes provisions for necessary set up and adjustment functions.
- Data Log includes engine run time and controller ontime Fault History.
- Provides a record of the most recent fault Condition with Engine run time stamp, RTC stamp and occurances
- Up to 5 events are stored in the control non-volatile memory.

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AMF FUNCTIONALITY

- When Auto Mains Failure is enabled and controller is in Auto Mode and if utility goes off then control starts the Genset automatically and transfers load onto Genset. If Utility returns and is healthy then load again gets retransferred onto Utility. AMF provides load transfer operation in Open Transition transfer mode.

FUEL LEVEL FEATURE

- The Control will show the warning fault when the fuel level in the tank goes below the predefined threshold. Control includes time delays to prevent nuisance warning signals.

EXERCISE SCHEDULER

- It is used only when genset is in Auto mode. It is used to start a Scheduler schedule at No Load condition. A trim Exercise Scheduler Enable is available to enable or disable the feature.

MAINTENANCE

- Maintenance due alarm based on Engine Running Time or Real time clock

CONTROL DATA

- Access to the control software part number and software version are provided from the LCD or InPower™.

ALTERNATOR DATA

- Voltage (single or three phase line-to-line and line-to- neutral)
- Current (single or three phase)
- kVA, kVAR, kW, Power Factor (Three phase and total)
- Frequency
- Totalized positive and negative kWH, kVARH, kVAH

Utility AC data

- Voltage (three/single phase LL and LN) - 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
  - Genset and Utility AC Meter Calibration

ENGINE CONTROL

- CT ratio, and Genset ratings setup
- Start/Stop time delay setup
- Real time clock setup with daylight saving
- AMF Setup with test mode and transfer/retransfer time delays
- Modbus baud rate, parity setup
- Exercise scheduler repeat interval, Day, time and duration setup
- Maintenance due setup
- LCD brightness and contrast control

Battery operation

- Control will operate on 12V/24V batteries

AUTO START MODE

- Accepts a ground signal from remote devices to automatically start the generator set. The remote start signal will also wake up the control from sleep mode. The control can incorporate a time delay start and stop.

EMERGENCY STOP

- The control annunciates when an emergency stop signal is received and the generator set immediately shuts down. The generator set is prevented from running or cranking with the switch engaged E-stop switch.

SLEEP MODE

- The control includes a configurable low current draw state to minimize starting battery current draw when the genset is not operating.

ENGINE STARTING

- The control supports automatic engine starting. Primary and backup start disconnects are achieved by battery charging alternator feedback or main alternator output frequency. The control also supports configurable glow plug control when applicable.

CYCLE CRANKING

- Configurable for the number of starting cycles (1 to 7) and duration of crank and rest periods. Control includes starter protection algorithms to prevent the operator from specifying a starting sequence that might be damaging.

TIME DELAY START AND STOP (COOLDOWN)

Configurable for time delay of 0-300 seconds prior to starting after receiving a remote start signal and for

time delay of 0-600 seconds prior to shutdown after signal to stop in normal operation modes. Default for both time delay periods is 0 seconds.

Auto Mains Failure functions

- AMF primarily means that the genset controller is controlling both the genset breaker and a utility breaker in a transfer pair arrangement. AMF is only for use in a single genset / single utility arrangement. AMF's primary job is to keep loads powered. AMF completely manages the system by automatically starting the genset and transferring load when it detects utility failure. AMF has numerous built-in configurable sensors to determine the availability of the utility and genset sources. Sensors include under voltage, overvoltage, over/under frequency and breaker failure. PS0600 control supports only open transition (Break before Make) AMF functionality.

AMF Test mode

- AMF supports test mode with or without load options along with test mode duration.

Load Transfer Switch Type

- AMF breaker outputs can be continuous (contact pair) or pulsed (GTEC) type based on load transfer switch selection.

Undervoltage sensor

- Three phase LL and LN undervoltage sensing for pickup 85-100% and dropout adjustable from 75-98% of nominal and dropout adjustable delay from 0.1-30 sec

Overvoltage sensor

- Three phase LL and LN overvoltage sensing for dropout adjustable from 105-135% of nominal and dropout adjustable delay from 0.5-120 sec

Over/under frequency sensor

- Underfrequency sensing for pickup 85-100% and dropout adjustable from 70-85% of nominal and dropout adjustable delay from 0.1-15 sec
- Overfrequency sensing for dropout adjustable from 105-115% of nominal and dropout adjustable delay from 0.1-15 sec

Timers

- Control provides transfer time delays including Time delay engine start (0-3600 sec), time delay normal to emergency (0-300 sec) and programmed transition delay (0-600 sec).

impending failure.

- **Cranking lockout** - The control will not allow the starter to attempt to engage or to crank the engine when the engine is running.
- Control provides retransfer time delays including time delay emergency to normal (0-1800 sec) and programmed transition delay (0-600 sec), time delay engine cooldown (0-3600 sec)

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. In Power is used to configure settings.

Configurable alarm input

- The control accepts maximum three alarm inputs (contact closed to ground) to cause a shutdown or warning response from the control.

Emergency stop

- Annunciate whenever an emergency stop signal is received from external switch.

Engine protection

- **Low lube oil pressure warning/shutdown** - Level is pre-set to match the capabilities of the engine used. Control includes time delays to prevent nuisance shutdown signals.
- **High coolant temperature warning/shutdown** - Level is pre-set to match the capabilities of the engine used. Control includes time delays to prevent nuisance shutdown signals.
- **Low coolant temperature warning** - Indicates that engine temperature may not be high enough for 1 min. and start or proper load acceptance.
- **Sensor failure indication** - Logic is provided on the base control to detect analog sensor or interconnecting wiring failures.

General engine protection:

Low Fuel Level Warning - Indicates that engine fuel level reached the Low Fuel Level Warning Threshold (30% by default).

Charging Alternator Failure Warning - Indicates that engine charging alternator voltage reached the low/high charging alternator threshold when charging alternator enable trim is enabled.

- **Low and high battery voltage warning** - Indicates status of battery charging system (failure) by continuously monitoring battery voltage.
- **Weak battery warning** - The control will test the battery each time the generator set is signaled to start and indicate a warning if the battery indicates

- **Fail to start shutdown** - The control will indicate a fault if the generator set fails to start by the completion of the engine crack sequence.

Alternator protection
Battleshort Mode

- When enabled and Battle short switch is active, the control will allow non-critical shutdown faults to be bypassed. If a bypass shutdown fault occurs, the fault code and description will still be annunciated, but the genset will not shutdown. This will be followed by a fail to shutdown fault. Emergency stop critical shutdown faults are not bypassed.
  Please refer to control service and operator manual for list of critical faults

High AC voltage shutdown (59)

- Output voltage on any phase exceeds pre-set values. Values adjustable from 105-125% of nominal voltage, with time delay adjustable from 1-10 seconds. Default value is 110% for 5 seconds.

Low AC voltage shutdown (27)

- Voltage on any phase has dropped below a preset value. Adjustable over a range of 50-95% of voltage, time delay 2-20 seconds. Default value is 90% for 5 seconds.

Under frequency shutdown (81 u)

- Generator set output frequency cannot be maintained. Settings are adjustable from 2-10 Hz below nominal governor set point, for a 500-2000 half cycles delay. Default: 5 Hz, 1000 half cycles.

Over frequency shutdown/warning (81 o)

- Generator set is operating at a potentially damaging frequency level. Settings are adjustable from 2-10 Hz above nominal governor set point for 100-2000 half cycles delay. Default: 5 Hz, 1000 half cycles.

Loss of sensing voltage shutdown

- Shutdown of generator set will occur on loss of voltage sensing inputs to the control.

Current Imbalance Warning Fault

- Issues warning when current imbalance is observed per phase when genset is in running state.
  - configured to AMF specific outputs (Utility/ Genset CB Open/ Close driver) when Auto mains failure is enabled.

High Current warning/shutdown (51)

- Implementation of the thermal damage curve with instantaneous trip level calculated based on current transformer ratio and application power rating.

Auto Mains Failure Protections:

- Breaker/ATS Switch fail to close warning - when the control signals a ATS switch to close, it will monitor the ATS switch feedback contacts and verifies that switch is closed. If the control does not sense ATS switch closure within an adjustable time period of ter the close signal, the fail to close warning will be initiated.
- Breaker/ATS Switch fail to open warning - when the control signals a ATS switch to open, it will monitor the ATS switch feedback contacts and verifies that switch is opened. If the control does not sense ATS switch opened within an adjustable time period after the open signal, the fail to open warning will be initiated.

Environment

The control is designed for proper operation without recalibration in ambient temperatures from -15 °C (5 °F) to +70° C (158 °F), and for storage from -20 °C (-4 °F) to +80 °C (176 °F). Control will operate with humidity up to 95%, non-condensing.
The control board is conformal coated to provide resistance to dust and moisture. The single membrane surface, which is impervious to effects of dust, moisture, oil and exhaust fumes. This panel uses a sealed membrane to provide long reliable service life in harsh environments. The control is specifically designed and tested for resistance to RFI/EMI and to resist effects of vibration to provide a long reliable life when mounted on a generator set. The control includes transient voltage surge suppression to provide compliance to referenced standards.

Field control interface
Input signals to the control include:

- Remote start
- Emergency stop
- Configurable customer inputs:

Control includes (1 Control includes 3 input signals which can be configured for diagnostic inputs. Out of which 1st input can also be configured as

Communications connections include:

Control provides one RS-485 port which can be used either for PCTool interface or Modbus master interface based on protocol selection from LCD or Inpower™.

- Modbus RS485 port: Allows the control to communicate with external devices such as PLCs using Modbus protocol.
- PC tool interface: This RS-485 communication port allows the control to communicate with a personal computer running InPower™ software.
- Note — An RS-485 or USB to RS-232 converter is required for communication between control and PC.

Software

InPower (beyond 11.5.2.0 version) is a PC-based software service tool that is designed to directly communicate to Power Start generator sets and transfer switches, to facilitate service and monitoring of these products.

Certifications

PowerStart meets or exceeds the requirements of the following codes and standards:

Battle short input. 2nd and 3rd inputs gets configured to Utility CB status and Genset CB status when Auto mains failure is enabled.)

Output signals from the control include:

Control includes 6 configurable outputs which can be configured to Diagnostic Output, Glow Plug, Ready to load, L series governor.
Configurable output 3, Configurable output 4, Configurable output 5 and Configurable output 6 get

- CE marking: The control is suitable for use on generator sets to be CE-marked. ■ EN 50081-1,2 residential/light industrial emissions or industrial emissions.
- EN 50082-1,2 residential/light industrial or industrial susceptibility.
- ISO 7637-2, level 2; DC supply surge voltage test.
- PowerStart control and generator sets are designed and manufactured in ISO 9001 certified facilities.

Warranty

All components and subsystems are covered by an express limited one year warranty. Other optional and extended factory warranties and local distributor maintenance agreements are available.

PowerStart 600 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 a accordance with ISO 8528.

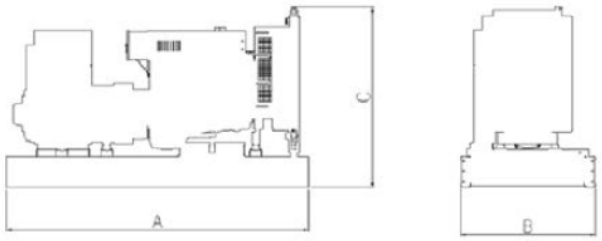
Prime Power (PRP):

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



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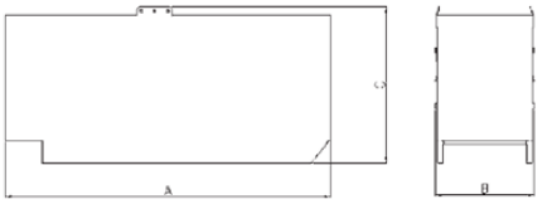

This outline drawing is to provide representative configuration details for model series only.

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

Do not use for installation design

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

* Note: Weights represent a set with standard features.

Codes and standards

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

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SS23-CPGK (07/19)

» Ficha técnica del generador

Modelo: C40 D6 (4BT3.3G3)
Frecuencia: 60
Tipo de combustible: Diesel

Ficha de especificaciones:	**SS2-CPGK**
Ficha técnica de ruido (abierto/cerrado):	**ND50-OS550 / ND50-CS550**
Ficha técnica de flujo de aire:	**AF50-550**
Ficha técnica de desgaste (abierto/cerrado):	**DD50-OS550 / DD50-CS550**
Ficha técnica provisional:	**TD50-550**

Consumo de combustible	**Standby**				**Prime**			
	Kw (kVA)				**Kw (kVA)**			
Niveles	40 (50)				36 (45)			
Carga	**1/4**	**1/2**	**3/4**	**Full**	**1/4**	**1/2**	**3/4**	**Full**
galones /hora	1.1	1.8	2.6	3.4	0.9	1.5	2.2	2.9
litros/hora	4.9	8.2	11.7	15.6	4.2	7.0	10.0	13.4

Motor	**Nivel en standby**	**Nivel en prime**
Fabricante del motor	Cummins	
Modelo de motor	4BT3.3G3	
Configuración	4 Cycle; In-line; 4 Cylinder Diesel	
Aspiración	Turbocharged	
Potencia aprox. generada (kWm)	61	54
PME al freno a la potencia nominal (kPa)	1250	1097
Calibre (mm)	95	
Barra (mm)	115	
Velocidad nominal (rpm)	1800	
Velocidad de pistón (m/s)	6.9	
Relación de compresión	17:0	
Capacidad para aceite lubricante (l)	6	
Límite de velocidad (rpm)	2099 ±50	
Potencia de regeneración (kW)	3.5	
Tipo de regulador	Mechanical	
Tensión inicial	11 Volts DC	

Flujo de combustible	
Flujo máximo de combustible (l/h)	17.2
Entrada máxima de combustible (mmHg)	73
Temperatura máxima de entrada de combustible (ºC)	60

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Aire	Nivel en standby	Nivel en prime
Aire de combustión (m^3/min)	3.90	3.70
Límite máximo del filtro de aire (kPa)	6.2	

Escape		
Flujo de gases de escape a la potencia nominal (m^3/min)	10.1	9.2
Temperatura de los gases de escape (˚C)	510	502
Retropresión máxima de escape (kPa)	10.2	

Refrigeración incorporada estándar de		
Diseño ambiental (˚C)	55	
Carga del ventilador (KW_m)	1.2	
Capacidad refrigerante (con radiador) (l)	9.1	
Flujo de aire del sistema de refrigeración (m^3/sec a 12,7 mm de agua)	1.34	
Expulsión total de calor (BTU/min)	2025	1785
Límite estático máximo de flujo de aire refrigerante (mm de agua)	12.7	

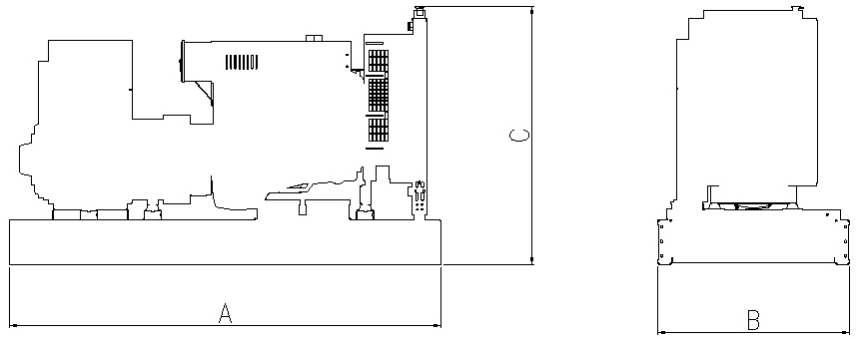
Pesos*	Abierto	Cerrado
Peso en vacío de la unidad (kg)	711	1035
Peso de la unidad llena (kg)	776	1100

* El peso representa un equipo de características estándar. Consulte el resumen de pesos para otras configuraciones

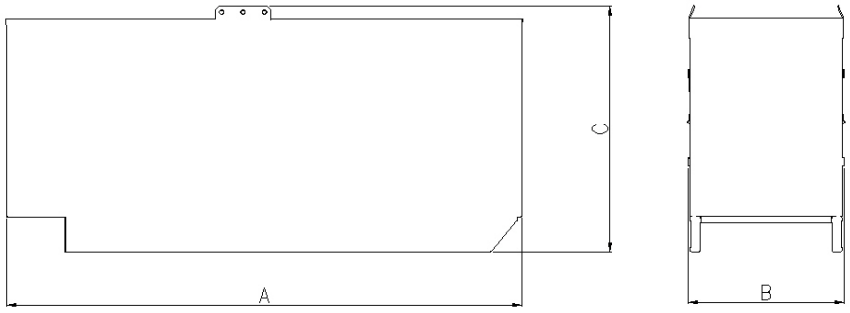
Dimensiones	Length	Width	Height
Dimensiones estándar del equipo abierto	1753	930	1256
Dimensiones estándar del equipo cerrado	2244	969	1575

Esquema del modelo

Equipo abierto



Equipo cerrado



Los esquemas sólo tienen una función ilustradora. Consulte la esquema descriptivo del modelo si necesita una representación exacta de este modelo.

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Datos del alternador

Conexión1	Aumento de temperatura (ºC)	Servicio[2]	Alternador	Tensión
Wye, 3 Phase	125/150C	S/P	UC224D	400-480V

Definiciones de los niveles

Potencia standby de emergencia (ESP):	Potencia de funcionamiento temporal (LTP):	Potencia prime (PRP):	Potencia (continua) fija (COP):
Aplicable a la potencia suministrada de generación eléctrica variable durante una interrupción del suministro del proveedor de confianza. La potencia standby de emergencia (ESP) cumple la norma ISO 8528. La potencia de interrupción de combustible cumple l	Aplicable a la potencia suministrada de generación eléctrica constante durante un número limitado de horas. Potencia de funcionamiento temporal (LTP) cumple la norma ISO 8528.	Aplicable a la potencia suministrada de generación eléctrica variable durante un número no limitado de horas. La potencia prime (PRP) cumple la norma ISO 8528. Un diez por ciento de la capacidad de sobrecarga está disponible en cumplimiento de las normas	Aplicable a la potencia suministrada de forma continua a la generación eléctrica constante durante un número no limitado de horas. La potencia continua (COP) cumple las normas ISO 8528, ISO 3046, AS 2789, DIN 6271 y BS 5514.

Fórmulas para calcular las corrientes de carga completa:

Generación trifásica

$$\frac{kW \times 1000}{Voltage \times 1.\ \ 73 \times 0.8}$$

Generación monofásica

$$\frac{kW \times SinglePhaseFactor \times 1000}{Voltage}$$

Para obtener más información consulte con su proveedor.

Cummins Power Generation

Manston Park, Columbus Avenue

Manston, Ramsgate

Kent CT12 5BF, UK

Telephone: +44 (0) 1843 255000

Fax: +44 (0) 1843 255902

E-Mail: cpg.uk@cummins.com

Web: www.cumminspower.com

Document no. DS306-CPGK-RevCS - 24/2/2012

Specification sheet

Diesel generator set 6BTA series engine

90 kVA - 170 kVA 50 Hz

80 kW - 135 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 and Prime Power Duty applications.

Features

Cummins heavy-duty engine - Rugged 4-cycle industrial diesel delivers reliable power and fast response to load changes.

Alternator - Low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability and class H insulation.

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

Control system – The PowerCommand® electronic control is standard equipment and provides total genset system integration, including auto remote start/stop, alarm and status message display.

Enclosures - Optional sound-attenuated enclosures are available.

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

	3-Phase ratings				
	Standby rating		Prime rating		
Model	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	Data sheets
C90 D5	90 (72)		82 (65)		DS380-CPGK
C110 D5	110 (88)		100 (80)		DS381-CPGK
C150 D5	150 (120)		136 (109)		EMERD-5835
C170 D5	170 (136)		155 (124)		EMERD-5836
C80 D6		80 (100)		73 (91)	DS382-CPGK
C100 D6		100 (125)		91 (114)	DS383-CPGK
C135 D6		135 (169)		123 (153)	EMERD-5834

Generator set specifications

Governor regulation class	ISO 8528 G2
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.75%
Radio frequency emissions compliance	BS EN61000-6-4 / BS EN61000-6-2

Engine specifications

Design	4 cycle, in-line, 6-cylinder, turbocharged and charge air-cooled, diesel	
Bore	102 mm (4.02 in.)	
Stroke	120 mm (4.72 in.)	
Displacement	5.9 liter (360 in^3)	
Cylinder block	Cast iron, 6 cylinder	
Battery charging alternator	55 amps	
Starting voltage	12 volt, 55 amp negative ground	
Standard cooling system	122 °F (50 °C) ambient radiator	
Model name	**C150 D5, C170 D5, C135 D6**	**C90 D5, C110-D5 C80D6, C100 D6**
Fuel system	Rotary type Bosch pump	Direct injection
Fuel filter	Ventury combo Stratapore filter	Spin on
Air cleaner type	Heavy duty	Normal duty
Lube oil filter type(s)	Ventury combo Stratapore filter	Spin-on full flow filter

Alternator specifications

Design	Brushless, single bearing, revolving field
Stator	2/3 pitch winding
Rotor	Single bearing, flexible disc coupling
Insulation system	Class H
Standard temperature rise	Standby 50 Hz – 163 °C/27 °C ambient Standby 60 Hz – 150 °C/40 °C ambient
Exciter type	Self excited
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal fan
AC waveform Total Harmonic Distortion (THDV)	No load < 1.8%. Non distorting balanced linear load < 5%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 2%

Available voltages

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

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

Generator set options and accessories

- Sound attenuated canopy
- Mains operated battery charger
- Double wall fuel tank
- Residential silencer, industrial silencer
- PC3.3
- Coolant heater, 240 V
- Alternator heater
- Main generator heater
- Exciter voltage regulator (PMG)
- Low temp rise alternator
- Earth fault relay
- Shunt trip
- Literature language

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

Control system

Generator set control PowerCommand 1.2 –

The PowerCommand 1.2 control is a microprocessor based generator set monitoring control system. The control provides a simple operator interface to the generator set, digital voltage regulation, digital engine speed governing, start/stop control and protective functions.

- The PowerCommand 1.2 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 configuration from 120 to 600 VAC for 50 Hz or 60 Hz operation.
- Power for the control is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 35 VDC.
- A larger HMI reduces setup time, provides more information per screen, enhanced navigation and serviceability.
- 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, as well as reset faults.
  - 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.

Status indications - The control has a lamp driver for external fault/status indication. Functions include:

- The lamp flashes during preheat (when used) and while the generator set is starting.
- READY TO LOAD – flashing until the set is at rated voltage and frequency, then on continuously.
- Fault conditions are displayed by flashing a two-digit fault code number.

LED indicating lamps - includes LED indicating lamp for the following functions:

- Remote start
- Warning
- Shutdown
- Auto
- Run
- Remote emergency stop switch input. Immediate shut down of the generator set on operation.

Major features

- 12 or 24 VDC battery operation.
- Digital engine speed governing to provide isochronous frequency regulation.
- Digital voltage regulation full wave rectified single phase (Line to Line) sensing.
- Generator set monitoring monitors status of all critical engine and alternator conditions functions.
- Engine starting includes relay drivers for start and Fuel Shut Off (FSO).
- Configurable inputs and outputs – two discrete inputs and two dry contact relay outputs.
- 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.

Base engine protection

- Low oil pressure shutdown.
- High engine temperature shutdown.
- Under speed/sensor fail shutdown.
- Fail to start.
- Battery charging alternator fail warning.

HMI220 operator interface

- Back-lit graphics 128 x 128 LCD display.
- English text and symbolic overlay.
- Multiple language LCD screens.
- Dedicated manual/off/auto function switches with mode LEDs and configurable access code (key switch).
- Control set-up without PC-based tool (InPower).
- UL508 recognized/CSA certified/CE compliant.
- Multiple HMIs per generator set (one local and one remote).
- Plug and play operation.

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, DIN 6271 and BS 5514.

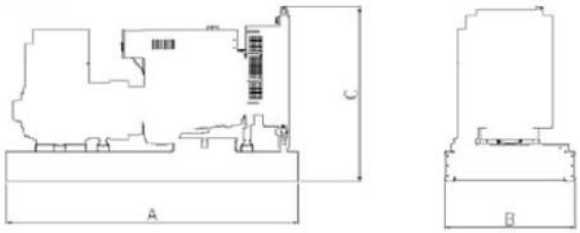
Prime Power (unlimited running time):

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 100% overload capability is available for limited time. (Equivalent to Prime Power in accordance with AS 2789, DIN 6271 and BS 5514). This rating is not applicable to all generator set models.

Base Load (Continuous) Power:

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 ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514). This rating is not appliable to all generator set models.

OPEN



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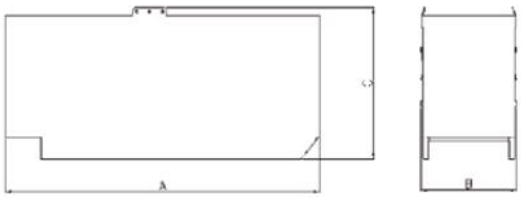

This outline drawing is to provide representative configuration details for model series only.

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

Do not use for installation design

Weights and dimensions

	Open				Enclosed			
Model	**Dim "A" mm (in.)**	**Dim "B" mm (in.)**	**Dim "C" mm (in.)**	**Dry wt.* kg (lbs)**	**Dim "A" mm (in.)**	**Dim "B" mm (in.)**	**Dim "C" mm (in.)**	**Dry wt.* kg (lbs)**
C90 D5	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	3151 (125)	1142 (45)	1714 (68)	1944 (4277)
C110 D5	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	3151 (125)	1142 (45)	1714 (68)	1944 (4277)
C150 D5	2537 (99.9)	1090 (42.9)	1846 (72.7)	1635 (3604.6)	3460 (136.2)	1090 (42.9)	2387 (94)	2390 (5269)
C170 D5	2537 (99.9)	1090 (42.9)	1846 (72.7)	1635 (3604.6)	3460 (136.2)	1090 (42.9)	2387 (94)	2390 (5269)
C80 D6	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	3151 (125)	1142 (45)	1714 68)	1944 (4277)
C100 D6	2268 (90)	1094 (44)	1576 (63)	1244 (2737)	3151 (125)	1142 (45)	1714 (68)	1944 (4277)
C135 D6	2537 (99.9)	1090 (42.9)	1846 (72.7)	1635 (3604.6)	3460 (136.2)	1090 (42.9)	2387 (94)	2390 (5269)

* **Note:** Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

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

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SS28-CPGK (10/17)

Specification sheet

Diesel generator set QSB7 series engine

160 kVA - 220 kVA 50 Hz

135 kW - 200 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 heavy-duty engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

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

Alternator - Low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class H insulation.

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

Control system - The PowerCommand® electronic control is standard equipment and provides total genset system integration, including auto remote start/stop, alarm and status message display.

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

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

		Standby rating		Prime rating				
Genset Model	**Engine Model**	**50 Hz kVA (kWe)**	**60 Hz kWe (kVA)**	**50 Hz kVA (kWe)**	**60 Hz kWe (kVA)**	**Standard Controller**	**Emissions**	**Data sheet**
C175 D5e	QSB7G5	175 (140)		160 (128)		PC1.2	EU SIIIA	DS329-CPGK
C200 D5e	QSB7G5	200 (160)		182 (146)		PC1.2	EU SIIIA	DS330-CPGK
C220 D5e	QSB7G5	220 (176)		200 (160)		PC1.2	EU SIIIA	DS331-CPGK
C150 D6e	QSB7G5		150 (188)		135 (169)	PC1.2	EPA T3	DS332-CPGK
C175 D6e	QSB7G5		175 (219)		160 (200)	PC1.2	EPA T3	DS333-CPGK
C200 D6e	QSB7G5		200 (250)		180 (225)	PC1.2	EPA T3	DS334-CPGK

Generator set specifications

Governor regulation class	ISO 8528 G3
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMS compatibility	In compliance with BS 800 and VDE levels G and N

Engine specifications

Design	4 cycle, in-line, turbocharged
Bore	107 mm
Stroke	124 mm
Displacement	6.69 liter (408.0 in^3)
Cylinder block	Cast iron, 6 cylinder
Battery capacity	100 AH
Battery charging alternator	70 amps
Starting voltage	12 volt, negative ground
Fuel system	Direct injection
Fuel filter	Strata pore fuel filter
Air cleaner type	Heavy duty air cleaner
Lube oil filter type(s)	Strata pore lube oil filter
Standard cooling system	122 ºF (50 ºC) ambient radiator

Alternator specifications

Design	Brushless, single bearing, revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	Standby 125-163 ˚C
Exciter type	Separately excited by PMG
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform Total Harmonic Distortion (THDV)	No load < 1.5%. Non distorting balanced linear load < 3%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	< 2%

Available voltages

50 Hz Line-Neutral/Line-Line

- 110/190
- 115/200
- 120/208
- 127/220
- 230/400
- 240/415

60 Hz line-Neutral/Line-Line

- 120/208
- 127/220
- 132/230
- 139/240
- 220/380*
- 240/416
- 254/440
- 266/460
- 277/480

*Derate may be applicable at this voltage. Please consult factory for details.

Generator set options

Engine

- Water jacket heater 220/240V

Cooling

- Antifreeze 50/50 (Ethylene glycol)

Enclosure

- Silent power canopy

Alternator

- Alternator heater
- High humidity isolation
- Exciter voltage regulator (PMG)

Control panel

- PowerCommand 1.2
- 4 pole main circuit breaker
- Motorised 3 or 4 pole circuit breaker

Base frame

- Double wall fuel tank

Warranty

- 2 years for Prime application
- 5 years for Standby application

Silencer

- 9 dB attenuation critical silencer
- 25 dB residential – delivered loose

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

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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.
- Modbus® interface for interconnecting to customer equipment.
- 12 and 24 VDC battery operation.
- Warranty and service. Backed by a comprehensive warranty and worldwide distributor service network.
- Certification. Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC Mil Std., CE and CSA standards.

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 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 speed.
- Engine temperature.
- Engine oil pressure.
- Partial Full Authority Engine (FAE) data (where applicable).

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 control include

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

PowerCommand 1.2 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, DIN 6271 and BS 5514.

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.

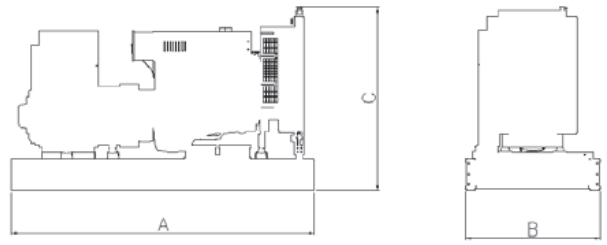
Prime Power (PRP):

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

OPEN



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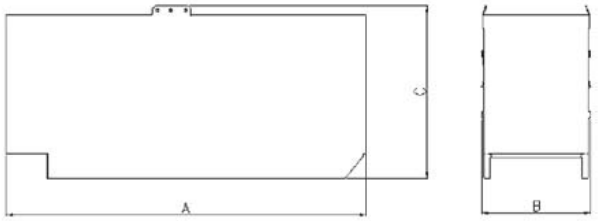

This outline drawing is to provide representative configuration details for Model series only.

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

Do not use for installation design

	Open					Enclosed				
Model	**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**
C175 D5e	2656	1100	1822	1546	1572	3904	1142	2276	2922	2948
C200 D5e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044
C220 D5e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044
C150 D6e	2656	1100	1822	1546	1572	3904	1142	2276	2922	2948
C175 D6e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044
C200 D6e	2656	1100	1822	1644	1670	3904	1142	2276	3018	3044

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

ISO 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	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.
CE	This generator set is available with CE certification.	CSA	All low voltage models are CSA certified to product class 4215-01.

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

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SS22-CPGK (10/17)

Specification sheet

Diesel generator set QSL9 series engine

230 kVA - 330 kVA 50 Hz

207 kWe - 300 kWe 60 Hz

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.

Features

Cummins heavy-duty engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

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

Alternator - Low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class H insulation.

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

Control system - The PowerCommand® electronic control is standard equipment and provides total system integration, including auto remote start/stop, alarm and status message display.

Enclosures - Optional sound attenuated enclosures.

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

		Standby rating		Prime rating		Emissions compliance	Data sheets	
Genset model	**Engine model**	**50 Hz kVA (kWe)**	**60 Hz kWe (kVA)**	**50 Hz kVA (kWe)**	**60 Hz kWe (kVA)**	**TA Luft/ EU Stage/EPA**	**50 Hz**	**60 Hz**
C275 D5	QSL9-G5	275 (220)		250 (200)		4g TA Luft	DS22-CPGK	
C300 D5	QSL9-G5	300 (240)		275 (220)		4g TA Luft	DS23-CPGK	
C330 D5	QSL9-G5	330 (264)		300 (240)		4g TA Luft	DS24-CPGK	
C250 D6	QSL9-G5		250 (313)		225 (282)			DS69-CPGK
C275 D6	QSL9-G5		275 (344)		250 (313)			DS70-CPGK
C300 D6	QSL9-G5		300 (375)		275 (344)			DS71-CPGK
C250 D5e	QSL9-G7	250 (200)		230 (184)		EU SIII A	EMERD-6136	
C275 D5e	QSL9-G7	275 (220)		250 (200)		EU SIII A	EMERD-6137	
C300 D5e	QSL9-G7	300 (240)		275 (220)		EU SIII A	EMERD-6138	
C330 D5e	QSL9-G7	330 (264)		300 (240)		EU SIII A	EMERD-6139	
C230 D6e	QSL9-G7		230 (288)		207 (259)	EPA T3		EMERD-6140
C250 D6e	QSL9-G7		250 (313)		225 (282)	EPA T3		EMERD-6141
C275 D6e	QSL9-G7		275 (344)		250 (313)	EPA T3		EMERD-6142
C300 D6e	QSL9-G7		300 (375)		275 (344)	EPA T3		EMERD-6143

Generator set specifications

Governor regulation class	ISO8528 G3 for C300/330 D5/e, C275/300 D6/e ISO8528 G2 for C250/275 D5/e, C230/250 D6/e
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.5%
EMC compatibility	BS EN61000-6-4 / BS EN61000-6-2

Engine specifications

Design	4 cycle, in-line, turbocharged, charge air-cooled
Bore	114 mm (4.5 in.)
Stroke	145 mm (5.7 in.)
Displacement	8.8 liter (543 in^3)
Cylinder block	Cast iron, 6 cylinder
Battery capacity	100 AH
Battery charging alternator	70 amps
Starting voltage	24 volt, negative ground
Fuel system	Direct injection
Fuel filter	Spin on fuel filters with water separator, StrataPore™ technology, extended life
Air cleaner type	Heavy duty, dry replaceable element, OptiAir™ technology, 2-stage air filters
Lube oil filter type(s)	Spin on full flow filter, StrataPore technology, extended life
Standard cooling system	122 °F (50 °C) ambient radiator for QSL9-G5 powered sets 105 °F (40 °C) ambient radiator for QSL9-G7 powered sets

Alternator specifications

Design	Brushless, single bearing, revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	Prime 125 ºC temp rise @ 40 ºC ambient Standby 163 ºC temp rise @ 27 ºC ambient
Exciter type	Self excited or separately excited by PMG
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform Total Harmonic Distortion (THDV)	No load <1.5%. Non distorting balanced linear load <5%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-122.43
Telephone Harmonic Factor (THF)	<2%

Available voltages

50 Hz Line-Neutral/Line-Line		60 Hz Line-Neutral/Line-Line	
• 255/440	• 115/200	• 277/480	• 139/240
• 240/416	• 110/190	• 255/440	• 127/220
• 230/400	• 127/220	• 220/380*	• 120/208
• 220/380		• 240/416	• 115/200

* Derate may be applicable at this voltage. Please consult the factory for details.

Generator set options

Engine

- Water jacket heater 120 or 240 V

Enclosure

- Sound attenuated canopy

Alternator

- Alternator heater
- Exciter voltage regulator (PMG)
- High alternator temp shutdown
- Low temp rise alternator

Circuit breaker

- 3 pole main circuit breaker std. scope, 4 pole as an option
- Motorised 3 or 4 pole circuit breaker
- Aux contacts and trip alarm
- Shunt trip – 24 V dc

Fuel tank

- Low fuel level warning or shutdown
- High fuel level warning
- Extended fuel tank capacity: 691 / 1200 liters

Generator set options (continued)

Control panel

- PowerCommand 3.3 – MLD
- AC output bargraph
- Shutdown audible alarm
- Earth fault shutdown

Warranty

- 10 years for major components
- 5 years for Standby application
- 2 years for Prime application

Silencer

- 25 dB(A) residential silencer for open sets
- 30/35 dB(A) critical silencer for open sets

Battery charger

- Set mounted
- Standalone

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

PowerCommand 1.2 control system

The PowerCommand control system is an integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1567 for more detailed information on the control.

Major features include

- Power management – Control function provides battery monitoring and testing features and smart starting control system.
- Digital voltage regulation – Single phase full wave SCR type regulator.
- Communications interface – Control comes standard with PCCNet and Modbus interface.
- Regulation compliant – Prototype tested: CE, UL, and CSA 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.

Operator panel features

- 128 x 128 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 mode.
- Multiple language support.

Alternator data

- Line-to-Neutral and Line-to-Line AC volts
- 3-phase AC current
- Frequency
- kVA (three phase and total)

Engine data

- DC voltage
- Engine speed
- Lube oil pressure
- Coolant temperature

Other data

- Genset model data
- Start attempts, starts, running hours, kVA hours
- Fault history and control hours time stamp for up to 10 events
- Data logging and fault simulation (requires InPower).

Standard control functions

Digital governing

- Integrated digital electronic isochronous governor
- Temperature dynamic governing
- Configurable inputs: Control includes (4) input signals from customer

Digital voltage regulation

- Integrated digital electronic voltage regulator
- Line to Line voltage sensing
- Configurable torque matching

Engine protection

- Battery voltage monitoring and protection
- Overspeed shutdown
- Low oil pressure warning and shutdown
- High/low coolant temperature warning or shutdown
- Low coolant level warning or shutdown
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown (optional)
- Fuel-in-rupture-basin warning or shutdown (optional)
- Full authority electronic engine protection
- Battle short to allow some shutdown faults to be bypassed

Control functions

- Time delay start and cool down
- Cycle cranking
- Configurable inputs (4) and outputs (2)
- Remote emergency stop

Optional PowerCommand 3.3 control system

The PowerCommand 3.3 has the following additional features and benefits over the PowerCommand 1.2. 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.
- Advanced voltage regulation – Three phase full wave FET type regulator for stable operation with all load types.
- Paralleling control function with isolated bus or utility.
- Digital power transfer control – Provides load transfer operation in open transition, closed transition, or soft ramping transfer modes.

Operator panel features

- 320 x 240 pixels graphic LED backlight LCD
- In addition to the 1.2 functions, the operator panel displays paralleling breaker status and provides for direct control of the paralleling breaker.
- Data logs – Includes engine run time, controller on time, number of start attempts, total kilowatt hours, and load profile
- Fault history – Provides a record of the most recent fault conditions with control date and time stamp for up to 32 events
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop initiate a test with or without load, or a Base Load or Peak Shave session
- Alternator data includes kW, kVar, power factor kVA (three phase and total)

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.

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, DIN 6271 and BS 5514.

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.

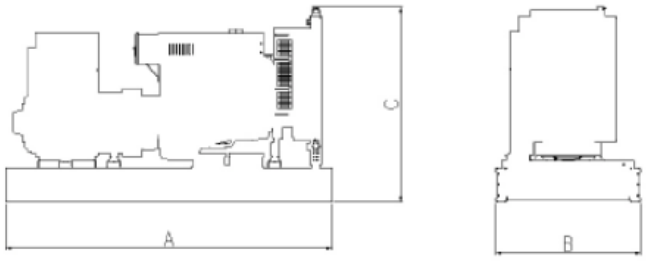
Prime Power (PRP):

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, DIN 6271 and BS 5514.

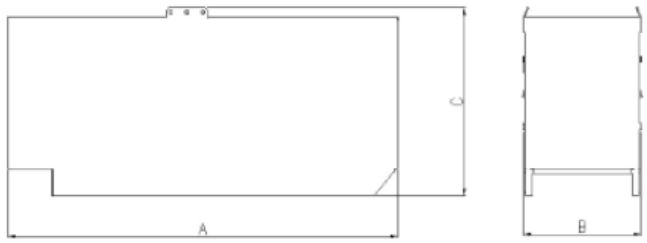
Base Load (Continuous) Power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

Open Set



Enclosed Set



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

Open narrow skid

Models	Alternator frame	Length (mm) Dim "A"	Width (mm) Dim "B"	Height (mm) Dim "C"	Weight* (kg) dry	Weight* (kg) wet
C250 D5e, C230 D6e, C275 D5/e, C250 D6/e	UCD274K	3135	1100	2018	2129	2181
C300 D5/e, C330 D5/e, C275 D6/e, C300 D6/e	HC4D	3135	1100	2018	2352	2404

Enclosed wide skid

Models	Alternator frame	Length (mm) Dim "A"	Width (mm) Dim "B"	Height (mm) Dim "C"	Weight* (kg) dry	Weight* (kg) wet
C250 D5e, C230 D6e, C275 D5/e, C250 D6/e	UCD274K	4259	1424	2349	4125	4177
C300 D5/e, C330 D5/e, C275 D6/e, C300 D6/e	HC4D	4259	1424	2349	4348	4400

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

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

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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SS9-CPGK (10/17)

» Ficha técnica del generador

Modelo: C350 D6
Frecuencia: 60
Tipo de combustible: Diesel

Ficha de especificaciones:	**SS9-CPGK**
Ficha técnica de ruido (abierto/cerrado):	**ND50-OS550 / ND50-CS550**
Ficha técnica de flujo de aire:	**AF50-550**
Ficha técnica de desgaste (abierto/cerrado):	**DD50-OS550 / DD50-CS550**
Ficha técnica provisional:	**TD50-550**

Consumo de combustible

	Standby				**Prime**			
	Kw (kVA)				**Kw (kVA)**			
Niveles	350 (438)				320 (400)			
Carga	**1/4**	**1/2**	**3/4**	**Full**	**1/4**	**1/2**	**3/4**	**Full**
galones /hora	6.6	11.1	15.8	21.1	5.9	10.3	14.5	19.1
litros/hora	30.2	50.4	72.0	96.0	27.0	47.0	66.0	87.0

Motor

	Nivel en standby	**Nivel en prime**
Fabricante del motor	Cummins	
Modelo de motor	NTA855 G3	
Configuración	4 Cycle; In-line; 6 Cylinder Diesel	
Aspiración	Turbo Charged	
Potencia aprox. generada (kWm)	399	358
PME al freno a la potencia nominal (kPa)	1896	1703
Calibre (mm)	140	
Barra (mm)	152	
Velocidad nominal (rpm)	1800	
Velocidad de pistón (m/s)	9.1	
Relación de compresión	14:1	
Capacidad para aceite lubricante (l)	36	
Límite de velocidad (rpm)	2100 ±50	
Potencia de regeneración (kW)	22	
Tipo de regulador	Electronic	
Tensión inicial	24 Volts DC	

Flujo de combustible

Flujo máximo de combustible (l/h)	405
Entrada máxima de combustible (mmHg)	203
Temperatura máxima de entrada de combustible (ºC)	70

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Aire	Nivel en standby	Nivel en prime
Aire de combustión (m^3/min)	32.60	28.60
Límite máximo del filtro de aire (kPa)	6.2	

Escape		
Flujo de gases de escape a la potencia nominal (m^3/min)	90.4	78.9
Temperatura de los gases de escape (˚C)	527	521
Retropresión máxima de escape (kPa)	10.2	

Refrigeración incorporada estándar de		
Diseño ambiental (˚C)	50	
Carga del ventilador (KW_m)	19	
Capacidad refrigerante (con radiador) (l)	45	
Flujo de aire del sistema de refrigeración (m^3/sec a 12,7 mm de agua)	7.2	
Expulsión total de calor (BTU/min)	13375	12000
Límite estático máximo de flujo de aire refrigerante (mm de agua)	19.1	

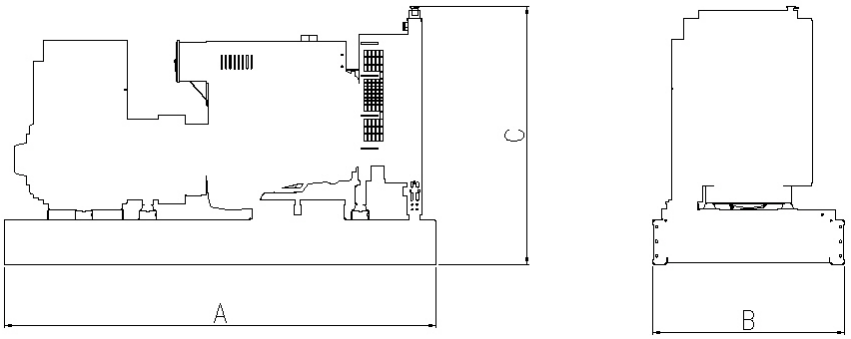
Pesos*	Abierto	Cerrado
Peso en vacío de la unidad (kg)	3373	4921
Peso de la unidad llena (kg)	3563	5698

* El peso representa un equipo de características estándar. Consulte el resumen de pesos para otras configuraciones

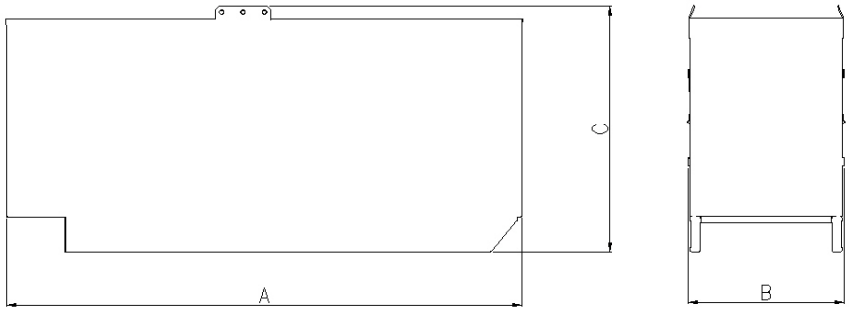
Dimensiones	Length	Width	Height
Dimensiones estándar del equipo abierto	3549	1100	2078
Dimensiones estándar del equipo cerrado	5110	1563	2447

Esquema del modelo

Equipo abierto



Equipo cerrado



Los esquemas sólo tienen una función ilustradora. Consulte la esquema descriptivo del modelo si necesita una representación exacta de este modelo.

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Datos del alternador

Conexión1	Aumento de temperatura (ºC)	Servicio[2]	Alternador	Tensión
Wye, 3 Phase	125/105	S/P	HC4F	416-480V

Definiciones de los niveles

Potencia standby de emergencia (ESP):	Potencia de funcionamiento temporal (LTP):	Potencia prime (PRP):	Potencia (continua) fija (COP):
Aplicable a la potencia suministrada de generación eléctrica variable durante una interrupción del suministro del proveedor de confianza. La potencia standby de emergencia (ESP) cumple la norma ISO 8528. La potencia de interrupción de combustible cumple l	Aplicable a la potencia suministrada de generación eléctrica constante durante un número limitado de horas. Potencia de funcionamiento temporal (LTP) cumple la norma ISO 8528.	Aplicable a la potencia suministrada de generación eléctrica variable durante un número no limitado de horas. La potencia prime (PRP) cumple la norma ISO 8528. Un diez por ciento de la capacidad de sobrecarga está disponible en cumplimiento de las normas	Aplicable a la potencia suministrada de forma continua a la generación eléctrica constante durante un número no limitado de horas. La potencia continua (COP) cumple las normas ISO 8528, ISO 3046, AS 2789, DIN 6271 y BS 5514.

Fórmulas para calcular las corrientes de carga completa:

Generación trifásica

$$\frac{kW \times 1000}{Voltage \times 1.\ \ 73 \times 0.8}$$

Generación monofásica

$$\frac{kW \times SinglePhaseFactor \times 1000}{Voltage}$$

Para obtener más información consulte con su proveedor.

Cummins Power Generation

Manston Park, Columbus Avenue

Manston, Ramsgate

Kent CT12 5BF, UK

Telephone: +44 (0) 1843 255000

Fax: +44 (0) 1843 255902

E-Mail: cpg.uk@cummins.com

Web: www.cumminspower.com

Document no. DS72-CPGK-RevDS - 24/2/2012

Generator set data sheet

Model	**C500N6B**
Frequency	**60 Hz**
Fuel type	**Natural gas**
kW (kVa) rating	**500 (625) standby**
Emissions	**EPA-certified for stationary emergency and non-emergency applications**

Exhaust emission data sheet	EDS-3069
Sound performance data sheet	MSP-4061
Cooling performance data sheet	MCP-2109
Prototype test summary data sheet	PTS-692
Standard set-mounted radiator cooling outline	C500N6B-01

Fuel consumption

Fuel consumption for cfh and m^3/hr is based on 905 Btu/ft^3.

	1/4 load	**1/2 load**	**3/4 load**	**full load**
cfh	2452	3839	5413	6994
m^3/hr	70	109	153	198
MMBtu/hr	6.33	4.90	3.47	2.22

Fuel supply

Fuel supply pressure is measured at the factory-supplied fuel shut-off (FSO) valve.
Fuel inlet pressure must not exceed 25 in. WC under any operating condition.

Minimum operating pressure, in. H_20 (kPa)	10 (2)
Maximum operating pressure, in. H_20 (kPa)	20 (5)

Engine	**Standby**	**Prime**	**Continuous**
Engine manufacturer	Cummins		
Engine model	GTA 28E		
Configuration	V12		
Aspiration	Turbocharged and coolant-air aftercooled		
Gross engine power output, bhp (kWm)	770 (574)		
BMEP at set rated load, psi (kPa)	198 (1365)		
Bore, in. (mm)	5.6 (141)		
Stroke, in. (mm)	6 (152)		
Rated speed, rpm	1800		

Engine (cont'd.)	Standby	Prime	Continuous
Piston speed, ft./min (m/s)	1800 (9.1)		
Compression ratio	8.5:1		
Lube oil capacity, qt. (L)	72 (68)		
Overspeed limit, rpm	2200		
Regenerative power, kW	75		

Air			
Combustion air, cfm (m^3/min)	1119 (31.7)		
Max air cleaner restriction (dirty filter), in. H_2O (kPa)	15 (3.7)		

Exhaust			
Exhaust flow at set rated load, cfm (m^3/min)	3506 (105.2)		
Exhaust temp, °F (°C)	1156 (624)		
Max back pressure, in. H_2O (kPa)	47.7 (11.9)		

Cooling			
Ambient design, °F (°C)	104 (40)		
Fan load, HP (kWm)	55 (41.0)		
Coolant capacity (with radiator), gal (L)	65 (246)		
Cooling system air flow, acfm (m^3/min)	56,400 (1597)		
Heat rejected, jacket water circuit, Btu/min (MJ/min)	33,577 (35.42)		
Heat rejected, after-cooler circuit, Btu/min (MJ/min)	3506 (3.7)		
Total heat radiated to room, Btu/min (MJ/min)	37,083 (39.12)		
Max cooling air flow static restriction, in. H_2O (kPa)	0.5 (0.12)		

Weight

Weight represents a set with standard features. See outline drawing for weights of other configurations.

Unit wet weight lbs. (kgs)	7620 (3456)

Full-load amperage (FLA) at rated voltage

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

120/240 (1 Ph)	120/208	127/220	139/240	220/380	240/416	254/440	277/480	347/600
N/A	1735	1640	1504	950	867	820	752	601

Derates

Engine power available up to 3000 ft. (914 m) and ambient temperatures up to 104 ˚F (40 ˚C). Above these conditions, derate at 4% per 1000 ft. (305 m) and 1% per 18 ˚F (10 ˚C) to a maximum of 10,000 ft.

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.

Demand Response Power Rating - Spark Ignited Gas (DRP):
Applicable for supplying electrical power in parallel with commercially available power in variable and non-variable load applications. This fuel rating is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engine operation is limited to a total of 500 hours per year. Engines may be operated in parallel to the public utility for up to 500 hours per year, with an average load factor no greater than 80% of rated Demand Response Power. Engines with Standby Power ratings available can be run in Emergency Standby applications up to the Standby Power rating for up to 50 hours per year. The customer should be aware, however, that the life of any engine will be reduced by constant high load operation.

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

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 centralregionordergs@cummins.com.
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Columbus, IN 47202-3005
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NAD-C500N6B June 2021

Printed in U.S.A.

Specification sheet

Diesel generator set VTA28 series engine

640 kVA – 825 kVA 50 Hz
545 kW – 603 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 HHP 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-circuits capability, and class H insulation.

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

Control system - Standard PowerCommand® electronic control provides total system integration including remote start/stop, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown.

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

Motorized circuit breaker – Optional 3 or 4 pole motorized circuit breaker available.

ISO 8528-5 G3 Capable – Refer to factory for site and configuration specific transient performance classification

	Standby rating		Prime rating		Data sheets	
Model	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz	60Hz
C700 D5	706 (565)		640 (512)		DS366-CPGK	
C825 D5A	825 (660)		750 (600)		DS354-CPGK	
C600 D6		603 (754)		545 (681)		DS76-CPGK

*Note: Rating is with a remote cooled configuration

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Generator set specifications

Governor regulation class	ISO 8528-5 complaint
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMS compatibility	EN61000-6-4/EN61000-6-2

Engine specifications

Design	4 cycle, in-line, turbocharged and after-cooled
Bore	139.7 mm (5.5 in.)
Stroke	152.4 mm (6 in.)
Displacement	28 L (1710 in^3)
Cylinder block	Cast iron with replaceable wet cylinder liners, 40° V12 cylinder
Battery capacity	660 amps at ambient temperature 32 °F (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)	Three spin on full flow
Standard cooling system	122 ºF (40 ºC) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Direct coupled by flexible disc
Insulation system	Class H
Standard temperature rise	150 °C
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)	No load <1.5%. Non distorting balanced linear load <5%
Telephone Influence Factor (TIF)	< 50%
Telephone Harmonic Factor (THF)	< 2%

Available voltages

50 Hz Line – Neutral/Line - Line		60 Hz Line – Neutral/Line - Line		
• 127/220	• 240/416	• 120/208	• 230/400	• 225/440
• 220/380	• 255/440	• 127/220	• 240/416	• 227/480
• 230/400		• 220/380*		

*Derate may be applicable at this voltage. Please consult factory for details.

Generator set options

Engine
- Heavy duty air filter
- Water jacket heater 220/240 V

Alternator
- Alternator heater
- Exciter voltage regulator (PMG)

Cooling
- Antifreeze 50/50 (Ethylene glycol)

Circuit breaker
- 3 or 4 pole manual circuit breaker
- 3 or 4 pole motorized circuit breaker
- Aux contacts and trip alarm

Control panel
- PowerCommand 3.3
- PowerCommand 3.3 MLD
- Shutdown audible alarm
- Shunt trip – 24 VDC

Warranty
- 2 years for Prime application
- 5 years for Standby application
- 10 years for major components

Silencer
- 9 dB attenuation critical silencer
- 25 dB residential delivered loose

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

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PowerCommand 3.3 (MLD)

The PowerCommand 3.3 control system is an integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing.

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 and UKCA compliant.

Service - InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Reliable design – The control system is designed for reliable operation in harsh environment.

Multi-language support

Operator panel features

Operator panel features – The operator panel, in addition to the alternator, displays the Utility/AC Bus data.

Operator/display functions

- 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

- Digital frequency synchronization and voltage matching
- Isochronous kW and kVar load sharing controls
- Droop kW and kVar control
- Sync check
- Extended paralleling (peak shave/base load)
- Digital power transfer control (AMF) provides load transfer operation in open or closed transition or soft (ramping) transfer mode

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 (optional)

- 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

Engine protection

- Battery voltage monitoring, protection and testing
- Over speed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- 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)

Masterless Load Demand (MLD)

- Load dependent start/stop of multi-generator system
- Predictive load input
- Run hour equalization

PowerCommand 3.3 control operator/ display panel

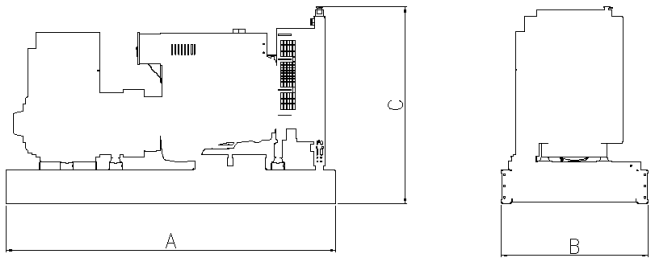
Ratings definitions

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, DIN 6271 and BS 5514.

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



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	Dim 'A' (mm)	Dim 'B' (mm)	Dim 'C' (mm)	Set weight dry* (kg)	Set weight wet* (kg)
C700 D5	3934	1468	2179	5982	6211
C825 D5A	4047	1468	2191	5965	6194
C600 D6	3934	1468	2179	5982	6211

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

Registered To ISO 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	CE	The CE marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
2000/14/EC	All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.	UKCA	The UKCA marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.
ISO 8528	This generator set has been designed to comply with ISO 8528 standards.		

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

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SS13-CPGK (05/22)

Generator set data sheet

Model: C800 D6
Frequency: 60 Hz
Fuel type: Diesel

Fuel consumption

	Standby				Prime			
	kW (kVA)				kW (kVA)			
Ratings	800 (1000)				725 (906)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	17	28	40	54	16	26	36	49
L/hr	63	106	152	206	59	98	138	185

Engine

	Standby rating	Prime rating
Engine manufacturer	Cummins	
Engine model	QSK23-G3	
Configuration	Cast iron, in-line 6 cylinder	
Aspiration	Turbocharged and after-cooled	
Gross engine power output, kWm	895	809
BMEP at set rated load, kPa	2510	2282
Bore, mm	170	
Stroke, mm	170	
Rated speed, rpm	1800	
Piston speed, m/s	10.3	
Compression ratio	16:1	
Lube oil capacity, L	103	
Overspeed limit, rpm	2100 ±50	
Regenerative power, kW	93	
Governor type	Electronic	
Starting voltage	24 Volts DC	

Fuel flow

Maximum fuel flow, L/hr	684
Maximum fuel inlet restriction, mm Hg	203
Maximum fuel inlet temperature, °C	70

Air	Standby rating	Prime rating
Combustion air, m^3/min	67.92	65.64
Maximum air cleaner restriction, kPa	6.2	

Exhaust		
Exhaust gas flow at set rated load, m^3/min	183.36	166.38
Exhaust gas temperature, °C	514	467
Maximum exhaust back pressure, kPa	10.2	

Standard set-mounted radiator cooling		
Ambient design, °C	40	
Fan load, kW_m	24.51	
Coolant capacity (with radiator), L	103	
Cooling system air flow, m^3/sec @ 12.7 mm H_2O	23.6	
Total heat rejection, Btu/min	33360	29461
Maximum cooling air flow static restriction mm H_2O	25.4	

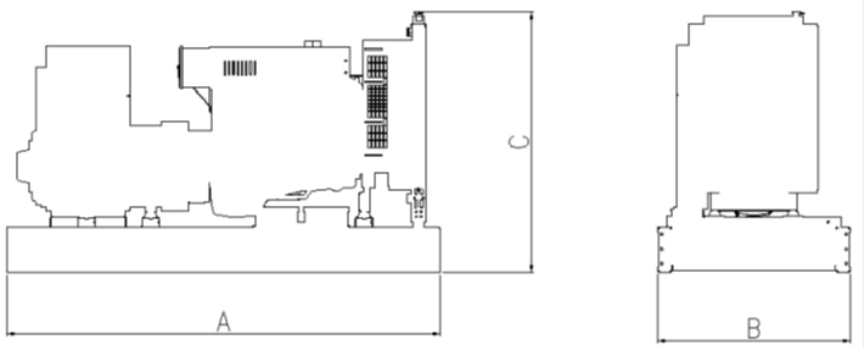
Weights*	Open	Enclosed
Unit dry weight kgs	6371	N/A
Unit wet weight kgs	6487	N/A

* Weights represent a set with standard features. See outline drawing for weights of other configurations.

Dimensions	Length	Width	Height
Standard open set dimensions mm	4318	1856	2148
Enclosed set standard dimensions mm	N/A	N/A	N/A

Genset outline

Open set



Outlines are for illustrative purposes only. Please refer to the genset outline drawing for an exact representation of this model.

Alternator data

Connection	Temp rise ºC	Duty	Alternator	Voltage
Wye, 3-phase	125/150	S/P	HC6H	416-480 V

Ratings definitions

Emergency Standby Power (ESP):	Limited-Time Running Power (LTP):	Prime Power (PRP):	Base Load (Continuous) Power (COP):
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, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.	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.	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.

Formulas for calculating full load currents:

Three phase output

$$\frac{\text{kW} \times 1000}{\text{Voltage} \times 1.73 \times 0.8}$$

Single phase output

$$\frac{\text{kW} \times \text{Single Phase Factor} \times 1000}{\text{Voltage}}$$

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

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DS78-CPGK (08/17)

Diesel generator set
QST30 series engine

> Specification sheet
680 kW - 1000 kW 60 Hz

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Power Generation

Description

Cummins Power Generation commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby and prime power applications. Codes or standards compliance may not be available with all model configurations – consult factory for availability.

ISO 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.
PTS	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.
CSA	All low voltage models are CSA certified to product class 4215-01.
UL	The generator set is available listed to UL 2200, Stationary Engine Generator Assemblies for all 60 Hz low voltage models. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.
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.

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.

Permanent magnet generator (PMG) - Offers enhanced motor starting and fault clearing short-circuit capability.

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 Level 1 compliance.

Cooling system - Standard integral set-mounted radiator system, 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 comprehensive warranty and worldwide distributor network.

	Standby rating		Prime rating		Continuous rating		Data sheets	
Model	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz kW (kVA)	50 Hz kW (kVA)	60 Hz	50 Hz
DQFAA	750 (938)		680 (850)				D-3329	
DQFAB	800 (1000)		725 (907)				D-3330	
DQFAC	900 (1125)		818 (1023)				D-3331	
DQFAD	1000 (1250)		900 (1125)				D-3332	

S-1508h (6/11)

Generator set specifications

Governor regulation class	ISO8328 Part 1 Class G3
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

Bore	140 mm (5.51 in)
Stroke	165.0 mm (6.5 in)
Displacement	30.5 litres (1860 in^3)
Configuration	Cast iron, V 12 cylinder
Battery capacity	1800 amps minimum at ambient temperature of -18 °C to 0 °C (0 °F to 32 °F)
Battery charging alternator	35 amps
Starting voltage	24 volt, negative ground
Fuel system	Direct injection: number 2 diesel fuel, fuel filter, automatic electric fuel shutoff
Fuel filter	Triple element, 10 micron filtration, spin-on fuel filter with water separator
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 radiator

Alternator specifications

Design	Brushless, 4 pole, drip proof revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible discs
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	150 ºC standby at 40 °C
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	< 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

60 Hz line-neutral/line-line				**50 Hz line-neutral/line-line**			
• 120/208	• 220/380	• 240/416	• 347/600				
• 139/240	• 230/400	• 277/480					

* Note: Consult factory for other voltages.

Generator set options and accessories

Engine
- ☐ 208/240/480 V coolant heater for ambient above 4.5 °C (40 °F)
- ☐ 208/240/480 V coolant heater for ambient below 4.5 °C (40 °F)

Control panel
- ☐ 120/240 V 100 W control anti-condensation heater
- ☐ Paralleling configuration
- ☐ Remote fault signal package
- ☐ Run relay package

Alternator
- ☐ 80 °C rise
- ☐ 105 °C rise
- ☐ 125 °C rise
- ☐ 120/240 V 300 W, anti-condensation heater
- ☐ Temperature sensor - RTDs, 2/phase
- ☐ Temperature sensor – alternator bearing RTD
- ☐ Differential current transformers

Exhaust system
- ☐ Industrial grade exhaust silencer
- ☐ Residential grade exhaust silencer
- ☐ Critical grade exhaust silencer

Cooling system
- ☐ Remote radiator

Generator set
- ☐ AC entrance box
- ☐ Battery
- ☐ Battery rack with hold-down - floor standing
- ☐ Circuit breaker - set mounted
- ☐ Disconnect switch - set mounted
- ☐ PowerCommand Network
- ☐ Remote annunciator panel
- ☐ Spring isolators
- ☐ 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.

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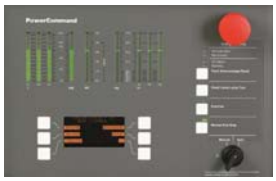
S-1508h (6/11)

Power Generation

Control system PCC 3201



PowerCommand control is an integrated generator set control system providing governing, voltage regulation, engine protection and operator interface functions. Major features include:

- Integral AmpSentry™ Protective Relay providing a full range of alternator protection functions that are matched to the alternator provided.
- Battery monitoring and testing features and smart starting control system.
- Three phase sensing, full wave rectified voltage regulation system, with a PWM output for stable operation with all load types.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.
- Optional Echelon® LONWORKS® network interface.

Operator/display panel

- Off/manual/auto mode switch
- Manual run/stop switch
- Panel lamp test switch
- Emergency stop switch
- Exercise switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments
- LED lamps indicating not in auto, common warning, common shutdown, remote start
- Configurable for local language

Engine protection

- Overspeed shut down
- Low oil pressure warning and shut down
- High coolant temperature warning and shut down
- High oil temperature warning
- Low coolant level warning or shut down
- Low coolant temperature warning
- High and low battery voltage warning
- Weak battery warning
- Dead battery shut down
- Fail to start (overcrank) shut down
- Fail to crank shut down
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication

Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Lube oil temperature
- Engine speed
- Engine ECM data

AmpSentry AC protection

- Over current and short-circuit shut down
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shut down
- Over and under frequency shut down
- Overload warning with alarm contact
- Reverse power and reverse Var shut down

Alternator data

- Line-to-line and line-to-neutral AC volts
- Three phase AC current
- Frequency
- Total and individual phase power factor, kW and kVA
- Bus voltage and frequency (with paralleling options)

Other data

- Genset model data
- Start attempts, starts, running hours
- kW hours (total and since reset)
- Fault history
- Load profile (accessible with InPower)

Governing

- Digital electronic isochronous governor
- Temperature dynamic governing
- Smart idle speed mode

Voltage regulation

- Digital PWM electronic voltage regulation
- Three phase line-to-neutral sensing
- Single and three phase fault regulation
- Configurable torque matching

Control functions

- Data logging on faults
- Fault simulation (requires InPower)
- Time delay start and cooldown
- Cycle cranking
- Configurable customer outputs (4)
- Configurable network inputs (8) and outputs (16) (with optional network)
- Remote emergency stop

Paralleling (Option)

- Active digital phase lock loop synchronizer
- Isochronous kW and kVar load sharing controls
- kW import/export and kVar/PF control for utility (mains) paralleling

Options

☐ Thermostatically controlled space heater

☐ Key-type mode switch

☐ Ground fault module

☐ Auxiliary relays (3)

☐ Echelon LONWORKS interface

☐ Modion Gateway to convert to Modbus (loose)

☐ PowerCommand iWatch web server for remote monitoring and alarm notification (loose)

☐ Digital input and output module(s) (loose)

☐ Remote annunciator (loose)

☐ Paralleling

☐ Power transfer control

For further detail see document S-1444.

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S-1508h (6/11)

Power Generation

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, DIN 6271 and BS 5514.

Limited-time running power (LTP):

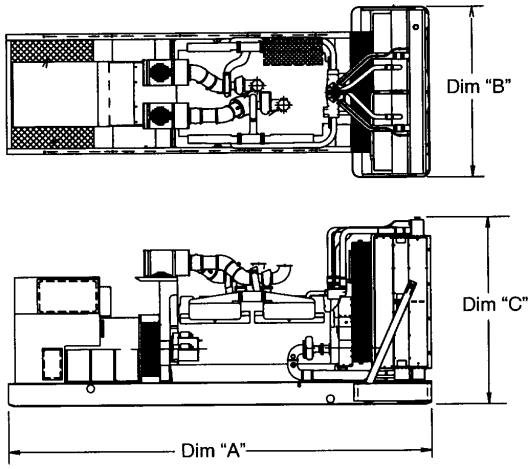
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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



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)
DQFAA	4338 (170.7)	2000 (79)	2353 (93)	6673 (14707)	6971 (15363)
DQFAB	4338 (170.7)	2000 (79)	2353 (93)	6696 (15199)	7194 (15855)
DQFAC	4338 (170.7)	2000 (79)	2353 (93)	7375 (16254)	7672 (16910)
DQFAD	4338 (170.7)	2000 (79)	2353 (93)	7633 (16824)	7931 (17480)

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Cummins Power Generation
1400 73rd Avenue N.E.
Minneapolis, MN 55432 USA
Telephone: 763 574 5000
Fax: 763 574 5298

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.

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S-1508h (6/11)

Cummins Power Generation

Specification sheet

Diesel generator set KTA50 series engine

1250 kVA - 1675 kVA 50 Hz

1120 kW - 1545 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 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-circuits capability, and class F or H insulation.

Control system - Standard PowerCommand® electronic control provides total system integration including remote start/stop, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown.

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.

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

ISO8528-5 G3 Capable – Refer to factory for site and configuration specific transient performance specification.

	Standby rating		Prime rating		Emissions compliance	Data sheets	
Model	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	TA Luft – EU Stage	50 Hz	60 Hz
C1400 D5	1400 (1120)		1250 (1000)			DS44-CPGK	
C1675 D5	1675 (1340)		1400 (1120)			DS46-CPGK	
C1675 D5A	1675 (1340)		1500 (1200)			DS47-CPGK	
C1250 D6		1270 (1588)		1120 (1400)			DS84-CPGK
C1500 D6		1545 (1931)		1286 (1608)			DS85-CPGK

Generator set specifications

Governor regulation	ISO 8528 part 1
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMC compatibility	BS EN61000-6-4 / BS EN61000-6-2

Engine specifications

Design	4 cycle, V-block, turbocharged and after-cooled
Bore	158.8 mm (6.25 in.)
Stroke	158.8 mm (6.25 in.)
Displacement	50 L (3067 in^3)
Cylinder block engine	Sixteen-cylinder vee formation, direct injection, four-cycle diesel
Battery capacity	1800 amps at ambient temperature 32 ºF (0 °C)
Battery charging alternator	55 amps
Starting voltage	24 Volts, negative ground
Fuel system	Direct injection
Fuel filter	Dual spin on paper element fuel filters with standard water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Spin-on paper element full flow and bypass lube oil filters
Standard cooling system	104 ºF (40 ºC) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip proof revolving field
Stator	2/3 pitch
Rotor	Direct coupled by flexible disc
Insulation system	Class H
Standard temperature rise	
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)	No load < 1.5%. Non distorting balanced linear load < 5%
Telephone Influence Factor (TIF)	< 50% per NEMA MG1-22.43
Telephone Harmonic Factor (THF)	No load < 1.5%. Non distorting balanced linear load < 5%

Available voltages

50 Hz Line – Neutral/Line – Line		60 Hz Line – Neutral/Line – Line	
• 220/380*	• 1905/3300	• 219/380	• 2400/4160
• 230/400	• 3640/6300	• 254/440	• 7200/12470
• 240/415	• 3810/6600	• 277/480	• 7620/13200
• 254/440	• 6350/11000	• 347/600	• 7970/13800

*Derate may be applicable at this voltage. Please consult the factory for details.

Generator set options

Engine
- Heavy duty air filter
- Water jacket heater 220/240 V
- Oil sampling valve
- UK built engine and alternator

Enclosure
- High-cube 40ft container

Alternator
- Alternator heater
- High humidity isolation
- Exciter voltage regulator (PMG)
- Hardened Beaning Cartridge

Control panel
- 3 pole main circuit breaker
- 4 pole main circuit breaker

Warranty
- 5 years for Standby application
- 2 years for Prime application

Silencer
- 9 dB attenuation critical silencer
- 25 dB residential – delivered loose

Cooling
- Antifreeze 50/50 (Ethylene glycol)

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

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PowerCommand 3.3 control system

The PowerCommand 3.3 control system is an integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing.

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, UKCA and CE compliant.

Service – InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Reliable design – The control system is designed for reliable operation in harsh environment.

Multi-language support

Operator panel features

Operator panel features – The operator panel, in addition to the alternator, displays the Utility/AC Bus data.

Operator/display functions

- 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

- Digital frequency synchronization and voltage matching
- Isochronous kW and kVar load sharing controls
- Droop kW and kVar control
- Sync check
- Extended paralleling (peak shave/base load)
- Digital power transfer control (AMF) provides load transfer operation in open or closed transition or soft (ramping) transfer mode

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 (optional)

- 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

Engine protection

- Battery voltage monitoring, protection and testing
- Over speed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- 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)

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, DIN 6271 and BS 5514.

Limited-Time Running Power (LTP):

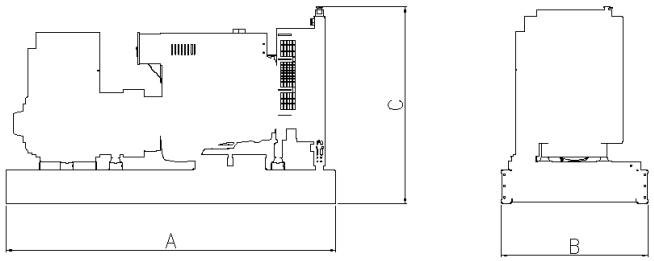
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

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



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	Dim 'A' (mm)	Dim 'B' (mm)	Dim 'C' (mm)	Set weight* dry (kg)	Set weight* wet (kg)
C1400 D5	5105	2000	2238	9190	9613
C1675 D5	5811	2033	2330	10348	10967
C1675 D5A	5811	2033	2330	10348	10967
C1250 D6	5105	2000	2238	9190	9613
C1500 D6	5811	2033	2330	10348	10967

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

<table>
<tr><td rowspan="2">ISO 9001</td><td rowspan="2">This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</td><td>CE</td><td>The CE marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.</td></tr>
<tr><td>UKCA</td><td>The UKCA marking is only valid when equipment is used in a fixed installation application. Material compliance declaration is available upon request.</td></tr>
<tr><td>2000/14/EC</td><td>All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.</td><td>ISO 8528</td><td>This generator set has been designed to comply with ISO 8528 standards.</td></tr>
</table>

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

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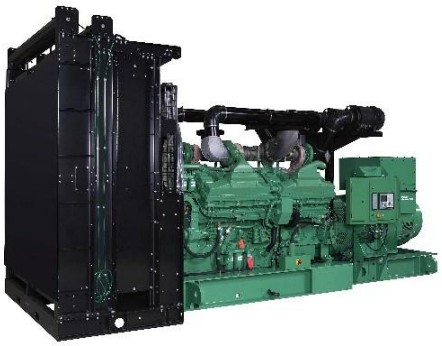
SS16-CPGK (KTA50) - MARKUP-UKCA-UPDATE (02/22)

Specification sheet

Diesel generator set QSK60 series engine

1825 kW – 2000 kW 60 Hz

Data Center Continuous



Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for data center applications.

Features

Data Center Continuous (DCC) - Applicable for supplying power continuously to a constant or varying electrical load for unlimited hours in a data center application.

Uptime Compliant - Meets the requirement of a Tier III and IV data center site by being rated to run for unlimited hours of operation when loaded to 'N' demand for the engine generator set.

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-circuits capability, and class F or 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 Level 1 compliance.

Cooling system - Standard integral set-mounted radiator system, 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 comprehensive warranty and worldwide distributor network.

ISO8528-5 G3 Compliant – Refer to factory for site and configuration specific transient performance classification.

Model	60 Hz kW (kVA)	Data sheets 60 Hz
C2000 D6	1825 (2281)	DS86-CPGK-DC
C2250 D6A	2000 (2500)	DS87-CPGK-DC

Generator set specifications

Governor Regulation	ISO 8528-5 part 1
Voltage regulation, No load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMS compatibility	BS EN61000-6-4/BS EN61000-6-2

Engine specifications

Design	4 cycle, V-black, turbocharged and low temperature after-cooled
Bore	158.8 mm (6.25 in)
Stroke	190.0 mm (7.48 in)
Displacement	60.2 L (3673 in^3)
Cylinder block	Cast iron, 60° V 16 cylinder
Battery capacity	2200 amps at ambient temperature 0 °F to 32 °F (0 °C)
Battery charging alternator	40 amps
Starting voltage	24 volts, negative ground
Fuel system	Direct injection
Fuel filter	Triple element, spin on fuel filters with water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Four spin-on, combination full flow and bypass filters
Standard cooling system	104 ºF (40 ºC) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Direct coupled by flexible disc
Insulation system	Class H
Standard temperature rise	150 °C 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)	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

60 Hz Line – Neutral/Line – Line

- 219/380
- 254/440
- 277/480
- 347/600
- 2400/4160
- 7200/12470
- 7620/13200
- 7970/13800

Note: Consult factory for other voltages.

Generator set options

Engine

- 208/240/480 V thermo-statically controlled coolant heater for ambient above and below 4.5 ºC (40 ºF)
- Oil drain pump – manual
- Engine toolkit
- Heavy duty air filter
- Oil level regulator (REN Valve)
- Remote duplex filter

Exhaust system

- None supplied

Exhaust system (continued)

- Residential grade exhaust silencer – shipped loose
- Side entry silencer

Control panel

- Multiple language support
- Right or left facing mounting
- Floor mounted
- 3 phase differential CTs (3x or 6x CTs)

Control panel (continued)

- Masterless load demand
- Warning high bearing temperature
- Alternator temperature monitoring
- Exhaust gas temperature monitoring
- 6x user-configurable relays
- 120/240 V Heater control cabinet
- Mechanical hour meter
- 2x digital input/output

Generator set options (continued)

Alternator

- 120, 240 or 110/240 V control anti-condensation heater
- Stator winding temp sensor 2 RTDs/phase
- Bearing temp sensor RTDs
- 1 or 2 hole lug output terminal
- Cable entrance box set mounted top or bottom entry
- Cable entrance box left or right mounting

Data center options

- Automatic oil make up system
- Closed crank ventilation system
- Triplex fuel filters
- Customized testing

Generator set

- 5 A or 10 A batteries
- Standalone or wall mountable battery charger
- Manual available in multiple languages
- Standard spring mounts
- Oil sampling valve
- Fuel transfer pump hand or electric
- Free standing, single wall fuel tank 1350 L/356 US Gal
- Oil make up system

Cooling system

- Remote radiator
- 50 ºC (122 ºF) radiator
- Slip fit connection
- Flanged (ASA) connection
- Enhanced Environmental protection

Note: Some options may not be available on all models - consult factory for availability. Data center options are available through FQ with the Engineering to Order group and could result in additional leadtimes.

PowerCommand 3.3 – control system

Control system

The PowerCommand control system is an integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing.

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.

Reliable design – The control system is designed for reliable operation in harsh environment.

Multi-language support

Operator panel features

Operator panel features – The operator panel, in addition to the alternator, displays the Utility/AC Bus data.

Operator/display functions

- 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

- Digital frequency synchronization and voltage matching
- Isochronous kW and kVar load sharing controls
- Droop kW and kVar control
- Sync check
- Extended paralleling (Peak Shave/Base Load)
- Digital power transfer control (AMF) provides load transfer operation in open or closed transition or soft (ramping) transfer mode

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 (optional)

- 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

Standard control functions (continued)

Engine protection

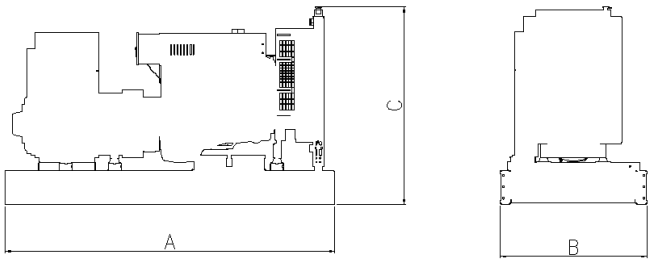
- Battery voltage monitoring, protection and testing
- Over speed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- 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)



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	Dim 'A' (mm)	Dim 'B' (mm)	Dim 'C' (mm)	Set weight dry* (kg)	Set weight wet* (kg)
C1760 D5e	6175	2494	3422	14825	16040
C2000 D5	6175	2286	2537	14880	15945
C2000 D5e	6175	2494	3422	15345	16560
C2250 D5	6175	2286	2537	15095	16160
C2500 D5A	6175	2494	3201	16840	17990

* Note: Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

ISO 9001	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	2000/14/EC	All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.
CE	This generator set is available with CE certification subject to EU RoHS exclusion per EU 2011/65.	ISO 8528	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

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SS17-CPGK-DC60 - MARKUP (06/20)

Specification Sheet

Diesel Generator Set QSK95 Series Engine

2500 kW-3500 kW 60 Hz Unregulated

Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, fuel economy, reliability and versatility for stationary standby, prime and continuous power 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 windings, low waveform distortion with non-linear loads 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.

Cooling System - Standard and enhanced integral set-mounted radiator systems, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat. Also optional remote cooled configuration for non-factory supplied cooling systems.

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

NFPA - The generator set ccepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

ISO8528-5 G3 Capable - refer to factory for site and configuration specific transient performance classification

	Standby Rating	Prime Rating	Continuous Rating	Emissions Compliance	Data Sheets
Model	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz kW (kVA)		60 Hz
C3000 D6	3000 (3750)	2750 (3438)	2500 (3125)	Unregulated	NAD-5985-EN
C3250 D6	3250 (4063)	3000 (3750)	2500 (3125)	Unregulated	NAD-5925-EN
C3500 D6	3500 (4375)	3000 (3750)	2750 (3438)	Unregulated	NAD-5984-EN

Note: All ratings include radiator fan losses.

Generator Set Specifications

Governor regulation	ISO 8528 Part 1
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	47 CFR FCC PART 15 Subpart B (Class A for industrial)

Engine Specifications

Bore	190 mm (7.48 in)
Stroke	210 mm (8.27 in)
Displacement	95.3 litres (5816 in^3)
Configuration	Cast iron, V 16 cylinder
Battery capacity	6 x 1400 amps minimum at ambient temperature of -18 °C (0 °F)
Battery charging alternator	145 amps
Starting voltage	24 volt, negative ground
Fuel system	Cummins modular common rail system
Fuel filter	On engine triple element, 5 micron primary filtration with water separators, 3 micron/2 micron (filter in filter design) secondary filtration.
Fuel transfer pump	Electronic variable speed priming and lift pump
Breather	Cummins impactor breather system
Air cleaner type	Unhoused dry replaceable element
Lube oil filter type(s)	Spin-on combination full flow filter and bypass filters
Standard cooling system	High ambient compact cooling system (ship loose) High ambient cooling system (ship loose)

Alternator Specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	Optimal
Rotor	Two bearing, flexible coupling
Insulation system	Class H on low and medium voltage, Class F on high voltage
Standard temperature rise	125 ºC Standby/105 ºC Prime
Exciter type	Optimal
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
Anti-condensation heater	1400 watt

Available Voltages

60 Hz Line – Neutral/Line – Line

- 220/380
- 240/416
- 255/440
- 7200/12470
- 277/480
- 347/600
- 2400/4160
- 7620/13200
- 7970/13800

Note: Consult factory for other voltages.

Generator Set Options and Accessories

Engine

- 480 V thermostatically controlled coolant heater for ambient above 4.5 °C (40 °F)
- Heavy duty air cleaner
- Redundant fuel filter
- Air starter
- Redundant electric starting
- Lube oil make up
- Coalescing breather filter

Alternator

- 80 °C rise
- 105 °C rise
- 125 °C rise
- 150 °C rise
- Differential current transformers

Cooling System

- Enhanced high ambient cooling system (ship loose)
- High ambient compact cooling system (ship loose)
- High ambient cooling system (ship loose)
- Remote cooled configuration

Generator Set Options and Accessories (continued)

Control Panel

- Multiple language support
- Ground fault indication
- Remote annunciator panel
- Paralleling and shutdown alarm relay package
- Floor mounted pedestal installed control panel

Generator Set

- Battery
- Battery charger
- LV and MV entrance box
- Spring isolators
- Factory witness tests
- IBC, OSHPD, IEEE seismic certification

Warranty

- 3, 5 or 10 years for Standby including parts (labor and travel optional)
- 2 or 3 years for Prime including parts, labor and travel

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.

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

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.

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
- 3-phase AC current
- Frequency
- kW, kVar, power factor kVA (three phase and total)
- Winding temperature
- Bearing temperature

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)
- Air cleaner restriction indication
- Exhaust temperature in each cylinder

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

Standard Control Functions (continued)

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

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
- Low coolant temperature warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown
- 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 (20)
- Remote emergency stop

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, AS 2789, DIN 6271 and BS 5514.

Limited-Time Running power (LTP):

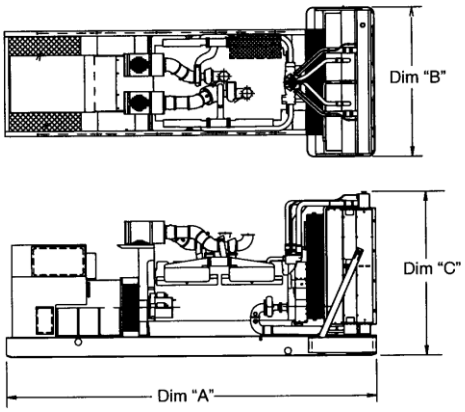
Applicable for supplying power to a constant electrical load for limited hours. Limited-Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):

Applicable for supplying power to varying electrical loads 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) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing is for reference only. See PowerSuite library 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)
C3000 D6	7902 (311)	3028 (119)	3663 (144)	29526 (65092)	31194 (68771)
C3250 D6	7902 (311)	3028 (119)	3663 (144)	29526 (65092)	31194 (68771)
C3500 D6	7902 (311)	3028 (119)	3663 (144)	29526 (65092)	31194 (68771)

* Weights and dimensions represent a set with standard features and alternator frame P80X.
See outline drawing for weights and dimensions of other configurations.

Codes and Standards

Codes may not be available with all model configurations – consult factory for availability.

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.		All models are CSA certified to product class 4215-01.
	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.		The generator set is available listed to UL 2200, Stationary Engine Generator Assemblies for all 60 Hz low voltage models. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage.

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

Our energy working for you.™

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