

Specification sheet

Spark-ignited generator set

85–100 kW standby
EPA emissions



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.

Features

Ford heavy-duty gas engine - Rugged 4-cycle industrial spark-ignited delivers reliable power. The electronic air/fuel ratio control provides optimum engine performance and fast response to load changes.

Three-Way Catalyst - Simultaneously converts NO_x, CO and HC to nitrogen, oxygen, carbon dioxide and water, minimizing the harmful emissions of the generator set.

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.

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 cooling package provides reliable running at up to 40 °C (104 °F) ambient temperature.

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

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.

Model	Natural Gas				Propane				Data sheets	
	Standby rating		Prime rating		Standby rating		Prime rating			
	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 kW (kVA)	50 Hz kW (kVA)	60 Hz	50 Hz
GGHG	85 (106)				85 (106)				D-3384	
GGHH	100 (125)				100 (125)				D-3385	

Generator set specifications

Governor regulation class	ISO 8528 Part 1 Class G3
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	GGHH ± 0.5%, GGHG ± 0.33%
Radio frequency emissions compliance	Meets requirements of most industrial and commercial applications

Engine specifications

Design	Turbocharged
Bore	90.2 mm (3.55 in)
Stroke	105.9 mm (4.17 in)
Displacement	6.8 L (412.5 in ³)
Cylinder block	Cast iron, V 10 cylinder
Battery capacity	600 amps minimum at ambient temperature of 0 °C (32 °F)
Battery charging alternator	65 amps
Starting voltage	12 volt, negative ground
Lube oil filter type(s)	Single spin-on canister-combination full flow with bypass
Standard cooling system	40 °C (104 °F) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	150 °C (302 °F) standby
Exciter type	Torque match (shunt)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower
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			50 Hz		
3-phase			1-phase	3-phase	1-phase
• 120/208	• 120/240	• 127/220	• 120/240		
• 139/240	• 240/416	• 254/440			
• 277/480	• 347/600				

Note: Consult factory for other voltages.

Generator set options and accessories

Engine

- 120/240 V 1500 W coolant heaters

Fuel system

- Natural gas
- Natural gas/propane liquid with automatic changeover
- Natural gas/propane vapor with automatic changeover
- Propane liquid withdrawal
- Vapor withdrawal

Alternator

- 105 °C (221 °F) rise alternator
- 125 °C (257 °F) rise alternator
- 150 °C (302 °F) rise alternator
- 120/240 V, 100 W anti-condensation heater
- 12 lead, broad range, extended stack (full single phase output)
- Lower broad range
- PMG excitation
- Upper broad range
- Single phase (4 lead)

Exhaust system

- Mounted residential muffler

Generator set

- AC entrance box
- Battery
- Battery charger
- Duct adapter
- Enclosure: Aluminum, steel, weather protection or sound attenuated
- Export box packaging
- Main line circuit breaker

- Remote annunciator panel
- UL 2200 Listed
- 2 year prime power, 6000 hours, warranty
- 2 year standby warranty
- 5 year basic power warranty
- 5 year comprehensive warranty

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

Control system PCC 2100

PowerCommand PCC2100 - An integrated generator set control system providing governing, voltage regulation, engine protection and operator interface functions.

- Includes integral AmpSentry protection, which provides a full range of alternator protection functions that are matched to the alternator provided.
- Control function provides 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.
- Standard PCCNet interface.
- Suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 m (13,000 ft).
- Prototype tested; UL, CSA and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

AmpSentry AC protection

- AmpSentry Protective Relay – UL-listed
- 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

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

Operator interface

- Off/manual/auto mode switch
- Manual run/stop switch
- Panel lamp/test switch
- Emergency stop switch
- Alpha-numeric display with pushbutton access, for viewing engine and alternator data and providing setup, controls and adjustments
- LED lamps indicating genset running, not in auto, common warning, common shutdown
- (5) configurable LED lamps
- LED bargraph AC data display (optional)

Alternator data

- Line-to-line and line-to-neutral AC volts
- Three phase AC current
- Frequency
- Total and individual phase kW and kVA

Engine Data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Lube oil temperature (optional)

Other data

- Genset model data
- Start attempts, starts, running hours
- KW hours (total and since reset)
- Fault history
- Load profile (hours less than 30% and hours more than 90% load)
- System data display (optional with network and other PowerCommand gensets or transfer switches)

Governing

- Integrated digital electronic isochronous governor
- Temperature dynamic governing
- Smart idle speed mode
- Glow plug control (some models)

Voltage regulation

- Integrated digital electronic voltage regulator
- Three phase line-to-neutral sensing
- Configurable torque matching
- PMG (optional)

Control functions

- Data logging on faults
- Fault simulation (requires InPower)
- Time delay start and cooldown
- Cycle cranking
- (3) configurable customer inputs
- (3) configurable customer outputs

Options

- Analog AC Meter Display
- Thermostatically Controlled Space Heater
- Key-type mode switch
- Ground fault module
- Auxiliary relays (3)
- Echelon LONWORKS interface
- Modlon Gateway to convert to Modbus (loose)
- PowerCommand iWatch web server for remote monitoring and alarm notification (loose)
- PCCNet and Lonworks Digital input and output module(s) and Remote annunciators (loose)



PowerCommand 2100 control operator/display panel

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):

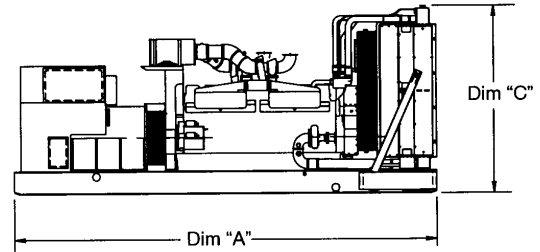
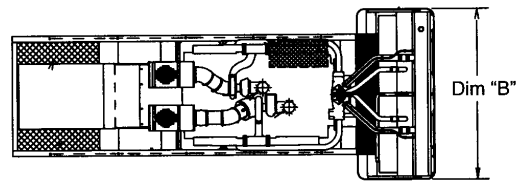
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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)
GGHG	2662 (104.8)	1016 (40.0)	1397 (55.0)	1071 (2362)	1111 (2450)
GGHH	2662 (104.8)	1016 (40.0)	1397 (55.0)	1093 (2410)	1133 (2498)

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

Codes and standards

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

	<p>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</p>		<p>The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage.</p>
	<p>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.</p>	<p>U.S. EPA</p>	<p>Engine certified to U.S. EPA SI Stationary Emission Regulation 40 CFR, Part 60.</p>
	<p>All low voltage models are CSA certified to product class 4215-01.</p>	<p>International Building Code</p>	<p>The generator set package is available certified for seismic application in accordance with the following International Building Code: IBC2000, IBC2003, IBC2006, IBC2009 and IBC2012.</p>

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-1607c (8/13)



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Generator set data sheet

EPA Emissions

Model: GGHH
KW rating: 100 natural gas standby
 100 propane standby
Frequency: 60
Fuel type: Natural gas/propane

Exhaust emission data sheet:	EDS-327
Exhaust emission compliance sheet:	
Sound performance data sheet:	MSP-185
Cooling performance data sheet:	
Prototype test summary data sheet:	PTS-147
Standard set-mounted radiator cooling outline:	0500-3485

Fuel consumption Ratings	Natural gas								Propane							
	Standby kW (kVA)				Prime kW (kVA)				Standby kW (kVA)				Prime kW (kVA)			
	100 (125)								100 (125)							
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
scfh	406	618	848	1090					178	272	367	467				
m ³ /hr	11.5	17.5	24	30.9					5.1	7.7	10.4	13.2				

Engine	Natural gas				Propane			
	Standby rating		Prime rating		Standby rating		Prime rating	
Engine model	WSG-1068							
Configuration	Cast iron, V 10 cylinder							
Aspiration	Turbocharged							
Gross engine power output, kWm (bhp)	114.2 (153.2)				114.2 (153.2)			
BMEP at rated load, kPa (psi)	1158.3 (168.0)				1158.3 (168.0)			
Bore, mm (in)	90.2 (3.55)				90.2 (3.55)			
Stroke, mm (in)	105.9 (4.17)				105.9 (4.17)			
Rated speed, rpm	1800				1800			
Piston speed, m/s (ft/min)	6.4 (1250.0)				6.4 (1250.0)			
Compression ratio	9.0:1				9.0:1			
Lube oil capacity, L (qt)	6.1 (6.5)				6.1 (6.5)			
Overspeed limit, rpm	2400 ± 50				2400 ± 50			
Regenerative power, kW	16.00				16.00			

Fuel flow	Natural gas	Propane
Minimum operating pressure, kPa (in H2O)	1.7 (7.0)	1.7 (7.0)
Maximum operating pressure, kPa (in H2O)	3.4 (13.6)	3.4 (13.6)

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Air	Natural gas		Propane	
	Standby rating	Prime rating	Standby rating	Prime rating
Combustion air, m ³ /min (scfm)	6.3 (222.0)		5.8 (204.0)	
Maximum air cleaner restriction, kPa (in H ₂ O)	1.2 (5.0)		1.2 (5.0)	
Alternator cooling air, m ³ /min (scfm)	37.0 (1308.0)		37.0 (1308.0)	

Exhaust

Exhaust flow at rated load, m ³ /min (cfm)	19.4 (687.0)		17.9 (633.0)	
Exhaust temperature, °C (°F)	573 (1063)		555 (1031)	
Maximum back pressure, kPa (in H ₂ O)	6.2 (25.0)		6.2 (25.0)	
Available back pressure for additional sound attenuation and piping, kPa (in H ₂ O)	2.5 (10.0)		2.5 (10.0)	

Standard set-mounted radiator cooling¹

Ambient design, °C (°F)	40 (104)		40 (104)	
Fan load, kW (HP)	7.3 (9.8)		7.3 (9.8)	
Coolant capacity (with radiator), L (US gal)	33.1 (8.8)		33.0 (8.8)	
Coolant system air flow, m ³ /min (scfm)	193.1 (6825.0)		193.1 (6825.0)	
Total heat rejection, MJ/min (Btu/min)	9.3 (8740.0)		9.3 (8740.0)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.124 (0.5)		0.124 (0.5)	

Weights²

Unit dry weight kgs (lbs)	1093 (2410)
Unit wet weight kgs (lbs)	1133 (2498)

Notes:

- 1 - For non-standard remote installations contact your local Cummins Power Generation representative.
- 2 - Weights represent a set with standard features. See outline drawing for weights of other configurations.

Alternator data

Natural gas three phase table ¹		105 °C	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C	150 °C	150 °C	150 °C
Feature code		B418	B415	B268	B304	B417	B414	B267	B303	B416	B413	B419
Alternator data sheet number		208	208	210	207	207	207	209	207	206	207	206
Voltage ranges		110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	347/600	110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	347/600	110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	347/600
Surge kW		111	111	112	110	109	109	111	110	108	109	109
Motor starting kVA (at 90% sustained voltage)		Shunt	422	422	563	360	360	360	516	360	313	360
		PMG	497	497	663	423	423	423	607	423	368	423
Full load current amps at standby rating		$\frac{120/208}{347}$	$\frac{127/220}{328}$	$\frac{139/240}{301}$	$\frac{220/380}{190}$	$\frac{240/416}{173}$	$\frac{277/480}{150}$	$\frac{347/600}{120}$				

Propane three phase table ¹		105 °C	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C	150 °C	150 °C	150 °C
Feature code		B418	B415	B268	B304	B417	B414	B267	B303	B416	B413	B419
Alternator data sheet number		208	208	210	207	207	207	209	207	206	207	206
Voltage ranges		110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	347/600	110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	347/600	110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	347/600
Surge kW		104	104	104	103	102	102	104	103	101	102	102
Motor starting kVA (at 90% sustained voltage)		Shunt	422	422	563	360	360	360	516	360	313	360
		PMG	497	497	663	423	423	423	607	423	368	423
Full load current amps at standby rating		$\frac{120/208}{347}$	$\frac{127/220}{328}$	$\frac{139/240}{301}$	$\frac{220/380}{190}$	$\frac{240/416}{173}$	$\frac{277/480}{150}$	$\frac{347/600}{120}$				

Natural gas single phase table		105 °C	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C			
Feature code		B418	B415	B274	B268	B417	B414	B273	B267			
Alternator data sheet number		208	208	209	210	207	207	208	209			
Voltage ranges		120/240 ²	120/240 ²	120/240 ³	120/240 ³	120/240 ²	120/240 ²	120/240 ³	120/240 ³			
Surge kW		108	108	110	109	106	106	109	108			
Motor starting kVA (at 90% sustained voltage)		Shunt	250	250	305	330	215	215	250	305		
		PMG	290	290	360	385	250	250	290	360		
Full load current amps at standby rating		$\frac{120/240^2}{278}$	$\frac{120/240^3}{328}$									

Propane single phase table		105 °C	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C			
Feature code		B418	B415	B274	B268	B417	B414	B273	B267			
Alternator data sheet number		208	208	209	210	207	207	208	209			
Voltage ranges		120/240 ²	120/240 ²	120/240 ³	120/240 ³	120/240 ²	120/240 ²	120/240 ³	120/240 ³			
Surge kW		101	101	103	102	100	100	102	101			
Motor starting kVA (at 90% sustained voltage)		Shunt	250	250	305	330	215	215	250	305		
		PMG	290	290	360	385	250	250	290	360		
Full load current amps at standby rating		$\frac{120/240^2}{278}$	$\frac{120/240^3}{328}$									

Notes:

- 1 - Single phase power can be taken from a three phase generator set at up to 2/3 set rated 3-phase kW at 1.0 power factor. Also see Note 3 below.
- 2 - The broad range alternators can supply single phase output up to 2/3 set rated 3-phase kW at 1.0 power factor.
- 3 - The extended stack (full single phase output) and 4 lead alternators can supply single phase output up to full set rated 3-phase kW at 1.0 power factor.

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Derating factors

Natural gas

Standby/prime Three phase	Engine power available up to 594 m (1950 ft) at ambient temperatures up to 40 °C (104 °F). Altitude derate - 4% per 305 m (1000 ft) above 594 m (1950 ft). Temperature derate - 2% per 11 °C (1% per 10 °F) above 40 °C (104 °F).
Standby/prime Full single phase output	Engine power available up to 594 m (1950 ft) at ambient temperatures up to 30 °C (86 °F). Altitude derate - 4% per 305 m (1000 ft) above 594 m (1950 ft). Temperature derate - 4% per 10 °C (2% per 10 °F) above 30 °C (86 °F).

Propane

Standby/prime Three phase	Engine power available up to 305 m (1000 ft) at ambient temperatures up to 25 °C (77 °F). Altitude derate - 4% per 305 m (1000 ft) above 305 m (1000 ft). Temperature derate - 2% per 11 °C (1% per 10 °F) above 25 °C (77 °F).
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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

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

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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