Diesel generator set
NTA855 series engine

> Specification sheet
275 kW - 400 kW standby

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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.

This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.

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

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

The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage

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 cooling package provides reliable running at the rated power level, at up to 50 °C (122 °F) ambient temperature.

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

Fuel tanks - Dual wall sub-base fuel tanks are also offered.

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
DFCB	300 (375)	275 (344)	270 (338)	250 (313)			D-3393	D-3396
DFCC	350 (438)	310 (388)	315 (394)	282 (353)			D-3394	D-3397
DFCE	400 (500)						D-3395	

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Generator set specifications

Governor regulation class	ISO 8528 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 BS EN 16000-6-4:2001 emissions-industrial

Engine specifications

Design	Turbocharged and aftercooled
Bore	139.7 mm (5.50 in)
Stroke	152.4 mm (6.00 in)
Displacement	14.0 L (855.0 in^3)
Cylinder block	Cast iron with replaceable wet cylinder liners, in-line, 6 cylinder
Battery capacity	565 amps minimum at ambient temperature of 0 °C (32 °F)
Battery charging alternator	55 amps
Starting voltage	24 volt, negative ground
Fuel system	Direct injection: number 2 diesel fuel, fuel filter; automatic electric fuel shutoff
Fuel filter	
Air cleaner type	
Lube oil filter type(s)	Single spin-on, combination full flow/bypass
Standard cooling system	50 °C (122 °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	125 ºC (257 °F) standby, 105 °C (221 °F) @ prime
Exciter type	Permanent magnet generator (PMG)
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 3-phase

Reconnectable			Non-reconnectable
• 110/190	• 115/200	• 120/208	• 277/480
• 120/240	• 127/220	• 139/240	• 347/600
• 220/380	• 240/415	• 254/440	
• 277/480			

50 Hz 3-phase

Reconnectable			
• 110/190	• 110/220	• 115/200	• 115/230
• 120/208	• 120/240	• 127/220	• 220/380
• 230/400	• 240/415	• 254/440	

Note: Consult factory for other voltages.

Generator set options and accessories

Engine
- ☐ 208/240/480 V, thermostatically controlled coolant heater for ambient above 4.5 °C (40 °F)
- ☐ 208/240/480 V, thermostatically controlled coolant heater for ambient below 4.5 °C (40 °F)
- ☐ Fuel/water separator
- ☐ Heavy duty air cleaner with safety element

Alternator
- ☐ 80 °C (176 °F) rise alternator
- ☐ 105 °C (221 °F)rise alternator
- ☐ 120/240 V, 300 W anti-condensation heater

Fuel system
- ☐ 103 L (27 gal) in-skit day tank
- ☐ 583 L (154 gal) sub-base tank
- ☐ 1968 L (520 gal) sub-base tank
- ☐ 1136 L (300 gal) sub-base tank
- ☐ 1514 L (400 gal) sub-base tank
- ☐ 1893 L (500 gal) sub-base tank
- ☐ 2271 L (600 gal) sub-base tank
- ☐ 2498 L (660 gal) sub-base tank
- ☐ 2725 L (720 gal) sub-base tank
- ☐ 5565 L (1470 gal) sub-base tank

Cooling system
- ☐ Heat exchanger cooling
- ☐ Remote radiator cooling

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

Generator set
- ☐ AC entrance
- ☐ Batteries
- ☐ Battery charger
- ☐ Export box packaging
- ☐ Isolation pads
- ☐ Enclosure: aluminum, steel, weather protective or sound attenuated
- ☐ Main line circuit breaker
- ☐ PowerCommand (3100) Digital Parallel Control
- ☐ PowerCommand network
- ☐ Remote annunciator panel
- ☐ Spring isolators
- ☐ UL Listed
- ☐ 2 year standby warranty
- ☐ 2 year prime power warranty
- ☐ 5 year basic power warranty
- ☐ 10 year major components warranty

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

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Control system

PowerCommand control with AmpSentry protection is an integrated generator set control system providing governing, voltage regulation, engine protection and operator interface functions.

- Includes integral AmpSentry protection providing a full range of alternator protection functions that are matched to the alternator provided.
- Includes battery monitoring and testing features, and Smart Starting control system.
- InPower™ PC-based service tool available for detailed diagnostics.
- Standard PCCNet interface available with Echelon® LONWORKS® network interface.
- NEMA 3R enclosure.
- 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.

AmpSentry AC protection

- Overcurrent and short-circuit shutdown
- Overcurrent warning
- Single & 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
- Excitation fault

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/display panel

- 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
- PMG (optional)
- 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
- PCCNet interface
- (4) Configurable customer inputs
- (4) Configurable customer outputs
- (8) Configurable network inputs and (16) outputs (with optional network)

Options

☐ Analog AC meter display
☐ Thermostatically controlled space heater
☐ Key-type mode switch
☐ Ground fault module
☐ Engine oil temperature
☐ Auxiliary relays (3)
☐ Echelon LONWORKS interface
☐ Digital input and output module(s) (loose)
☐ Remote annunciator (loose)

PowerCommand 2100 control operator/display panel

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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):

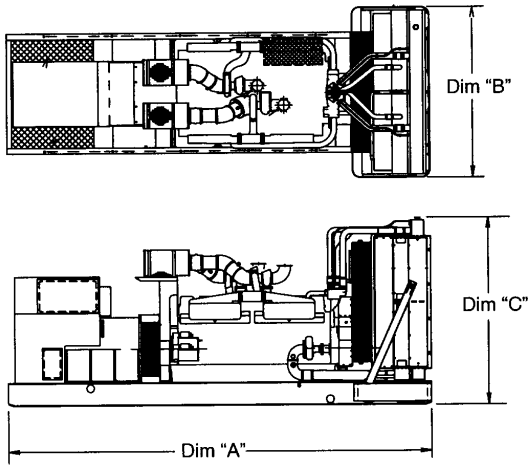
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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)
DFCB	3607 (142.0)	1270 (50.0)	1615 (63.6)	3289 (7250)	3393 (7480)
DFCC	3607 (142.0)	1270 (50.0)	1615 (63.6)	3289 (7250)	3393 (7480)
DFCE	3607 (142.0)	1270 (50.0)	1615 (63.6)	3289 (7250)	3393 (7480)

* 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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