

Diesel generator set QSK19 series engine

EPA emissions

600 kW and 650 kW 60 Hz



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

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.

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	Standby rating		Prime rating		Continuous rating		Data sheets	
	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
DQPAA	600 (750)		545 (681)				NAD-5688	
DQPAB	650 (812.5)		545(681)				NAD-5752	

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

Engine specifications

Design	4 cycle, in-line, turbocharged and charge air aftercooled
Bore	159 mm (6.25 in)
Stroke	159 mm (6.25 in)
Displacement	19 L (1159 in ³)
Cylinder block	Cast iron, 6 cylinder
Battery capacity	1400 amps minimum at ambient temperature of 0 °C to 10 °C (32 °F to 50 °F)
Battery charging alternator	70 amps
Starting voltage	24 volt, negative ground
Fuel system	Cummins modular common rail
Fuel filter	Dual element, 10 micron filtration, spin-on fuel filters with 15 micron water separator
Air cleaner type	Dry replaceable element with restriction indicator
Lube oil filter type(s)	Fleetguard spin-on
Standard cooling system	High ambient radiator

Alternator specifications

Design	Brushless, 4 pole, revolving field
Stator	2/3 pitch
Rotor	Single bearing flexible disc
Insulation system	Class H
Standard temperature rise	125 °C standby
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
<ul style="list-style-type: none"> • 110/190 • 120/208 • 127/220 • 139/240 • 220/380 • 240/416 • 255/440 • 277/480 • 347/600 	

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) and below
- ☐ Heavy duty air cleaner

Control Panel

- ☐ 120/240 V, 150 W control anti-condensation space heater
- ☐ Paralleling configurations
- ☐ Remote fault signal package
- ☐ Run relay package

Alternator

- ☐ 80 °C rise alternator
- ☐ 105 °C rise alternator
- ☐ 125 °C rise alternator
- ☐ 120/240 V, anti-condensation heater

Cooling system

- ☐ High ambient cooling system

Exhaust System

- ☐ Industrial grade exhaust silencer
- ☐ Residential grade exhaust silencer
- ☐ Critical grade exhaust silencer
- ☐ Super critical exhaust silencer

Generator set

- ☐ AC terminal box
- ☐ Batteries
- ☐ Battery rack w/hold-down - floor standing

- ☐ Circuit breaker - set mounted
- ☐ PowerCommand Network
- ☐ Remote annunciator panel
- ☐ Spring isolators
- ☐ Top entry entrance box (bottom entry entrance box std)
- ☐ 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.

Control system 2.3

PowerCommand 2.3 control - An integrated generator set control system providing voltage regulation, engine protection, generator protection, operator interface and isochronous governing (optional).

Control - Provides battery monitoring and testing features and smart-starting control system.

InPower™ - PC-based service tool available for detailed diagnostics.

PCCNet RS485 - Network interface (standard) to devices such as remote annunciator for NFPA 110 applications.

Control boards - Potted for environmental protection.

Ambient operation - Suitable for operation in ambient temperatures from -40 °C to +70 °C and altitudes to 13,000 feet (5000 meters).

Prototype tested - UL, CSA and CE compliant.

AC protection

- AmpSentry protective relay
- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload
- Overload warning
- Reverse kW shutdown
- Reverse Var shutdown
- Short circuit protection

Engine protection

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- High, low and weak battery voltage warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown

Operator/display panel

- Manual off switch
- 128 x 128 Alpha-numeric display with push button access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating genset running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -20 °C to +70 °C

Alternator data

- Line-to-neutral AC volts
- Line-to-line AC volts
- 3-phase AC current
- Frequency
- kVA, kW, power factor

Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature

Other data

- Genset model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)
- Total kilowatt hours
- Load profile

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase line-to-line sensing
- Configurable torque matching
- Fault current regulation under single or three phase fault conditions

Control functions

- Time delay start and cool down
- Glow plug control (some models)
- Cycle cranking
- PCCNet interface
- (4) Configurable inputs
- (4) Configurable outputs
- Remote emergency stop
- Battle short mode
- Load shed
- Real time clock with exerciser
- Derate

Options

- ☐ Auxiliary output relays (2)
- ☐ 120/240 V, 100 W anti-condensation heater
- ☐ Remote annunciator with (3) configurable inputs and (4) configurable outputs
- ☐ PMG alternator excitation
- ☐ PowerCommand for Windows® remote monitoring software (direct connect)
- ☐ AC output analogue meters
- ☐ PowerCommand 2.3 and 3.3 control with AmpSentry protection

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):

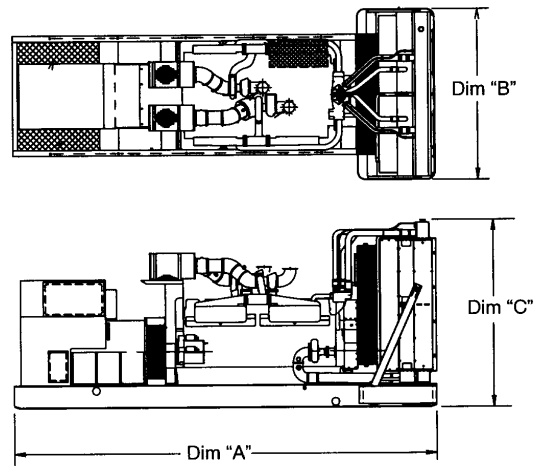
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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)
DQPAA	4629 (182)	1742 (69)	2189 (86)	5211 (11488)	5352 (11799)
DQPAB	4629 (182)	1742 (69)	2189 (86)	5449 (12013)	5590 (12324)

* 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>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>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. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.</p>
 <p>All low voltage models are CSA certified to product class 4215-01.</p>	 <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>U.S. EPA</p> <p>Engine certified to U.S. EPA Nonroad Source Emissions Standards, 40 CFR 89, Tier 2.</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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