

Diesel generator set QST30 series engine

835 kVA - 920 kVA 60 Hz
Data Center Continuous



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

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 Complaint - 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 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.

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

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

| Model | 60 Hz kW (kVA) | Data sheets |
|----------|----------------|--------------|
| C900 D6 | 835 (1044) | DS80-CPGK-DC |
| C1000 D6 | 920 (1150) | DS82-CPGK-DC |

Generator set specifications

| | |
|--|--------------------------|
| Governor regulation class | ISO 8528 G1 |
| 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/EN 61000-6-2 |

Engine specifications

| | |
|-----------------------------|--|
| Design | 4 cycle, in-line, turbo charged and after cooled |
| Bore | 140 mm (5.51 in.) |
| Stroke | 165.1 mm (6.5 in.) |
| Displacement | 30.5 L (1860 in ³) |
| Cylinder block | Cast iron, 50° V 12 cylinder |
| Battery capacity | 1280 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) | Four spin-on full flow, two bypass oil filters |
| Standard cooling system | 104 °F (40 °C) 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 | PMG (permanent magnet generator) |
| 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

60 Hz line - neutral / line - line

- | | | |
|-----------|------------|-----------|
| • 110/190 | • 139/240 | • 225/440 |
| • 115/200 | • 220/380* | • 277/480 |
| • 120/208 | • 230/380 | • 347/600 |
| • 127/200 | • 240/416 | |

*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

Cooling

- Antifreeze 50/50 (Ethylene glycol)

Enclosure

- 20 ft container

Alternator

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

Control panel

- 3 pole main circuit breaker
- 4 pole main circuit breaker

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.

Control system

PowerCommand® 3.3 – 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

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

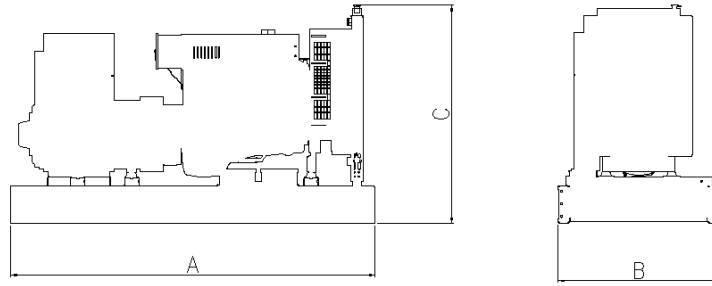
- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed
- Configurable inputs and outputs (4)
- Remote emergency stop

Options

- Auxiliary output relays (2)



**PowerCommand® 3.3
control operator/
display panel**





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 |
|-----------------|---------------|---------------|---------------|-----------------------|-----------------------|
| C900 D6 | 4297 | 1685 | 2079 | 7195 | 7374 |
| C1000 D6 | 4571 | 1702 | 2332 | 7195 | 7374 |

* **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. |
| 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. |

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