# Q RANGE DIESEL GENERATOR SET

# C38D5Q


## 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 applications.

## STANDARD FEATURES

Cummins engine – Rugged 4 cycle industrial diesel delivers reliable power, and fast response to load changes.

Alternator - Stamford S series self-excited alternator Optional Auxiliary Winding is also available.

Cooling system - 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.

Open and enclosed genset versions available.

Warranty - Backed by a comprehensive warranty and wide distributor and dealer network.

Coolant heater - The enclosed version is fitted as standard with coolant heater 230 V to ensure engine start during low ambient temperatures by circulating warmed coolant through the engine. Optional for open versions.

Enhanced battery system - Including a flooded/SLI technology battery, charger and disconnector as standard.

## GENERAL DATA

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **GENSET** | **C38D5Q diesel generator set** | | | | | | |
| **ENGINE** | X3.3 G1 | | | | | | |
| **CONTROLLER** | PS0600 | | | | | | |
| | **Model** | **Phases** | **Voltage (V)** | **Frequency (Hz)** | **ESP Power (kVA/kW)** | **PRP Power (kVA/kW)** | **Current ESP (A)** |
| **ALTERNATOR** | S1L2-J1 | 3 | 400/230 | 50 | 38 / 30.4 | 35 / 28 | 54.8 |

## FUEL CONSUMPTION

| | STANDBY (kVA/kW) | | | | PRIME (kVA/kW) | | | |
|---|---|---|---|---|---|---|---|---|
| RATINGS | 38.5 / 30.4 | | | | 35 / 28 | | | |
| LOAD | 1/4 | 1/2 | 3/4 | Full | 1/4 | 1/2 | 3/4 | Full |
| l/h | 3.2 | 4.8 | 7.0 | 10.8 | 3.1 | 4.5 | 6.4 | 9.0 |

## SPECIFICATIONS

| GENERATOR SET SPECIFICATIONS | |
|---|---|
| Governor type | Mechanical |
| Performance class | Genset models have been tested in accordance with ISO 8528-5. Consult factory for transient performance information |
| Voltage regulation, no load to full load | ± 2.5% |
| Random voltage variation | ± 2.5% |
| Frequency regulation | Droop |
| Random frequency variation | ± 0.75 % |
| Electromagnetic Compatibility Performance | Emissions to EN61000-6-3: 2007 + A1: 2011<br>Immunity to EN61000-6-2: 2005 |
| Coolant Heater ** | 230VAC, 1000W |
| Fuel tank capacity | 55 l |
| Autonomy @ 75%PRP | 8.6 h |
| Guaranteed sound power level - Lw(A) (Enclosed) | 96 dB(A) |
| Sound pressure level - Lp(A) (Enclosed):<br>@1m<br>@7m | <br>78 dB(A)*<br>68 dB(A)* |

*Estimated ** Optional Open set version

| ENGINE SPECIFICATIONS | | |
|---|---|---|
| | Standby Rating | Prime Rating |
| Engine manufacturer | Cummins | |
| Engine model | X3.3-G1 | |
| Design | 4 cycle, in-line, 4 cylinder diesel, naturally aspirated | |
| Displacement, l | 3.3 | |
| Rated speed, rpm | 1500 | |
| Lube oil capacity, l (Standard oil pan/Total system with combo filters) | 6.8/7.5 | |
| Gross engine power output, kWm | 36 | 32 |
| Bore, mm | 91.4 | |
| Stroke, mm | 127 | |
| Cylinder block | Alloy cast iron, in-line, 4 cylinder | |
| Battery charging alternator, A | 36 | |
| Starting voltage, VDC | 12 | |
| Fuel system | Direct injection | |
| Fuel filter | Spin-on fuel filter with water separator | |
| Air cleaner type | Heavy duty Dry replaceable element with restriction indicator | |
| Lube oil filter type(s) | Spin-on full flow filter | |
| Standard cooling system | 50 °C ambient radiator with coolant recovery system | |

| ALTERNATOR SPECIFICATIONS | |
|---|---|
| Alternator manufacturer | Stamford |
| Alternator model | S1L2-J1 |
| Voltage, VAC | 400/230 |
| Design | Brushless, single bearing |
| Stator | 2/3 pitch |
| Insulation system | Class H |
| Standard temperature rise | 125-163 °C Standby @ 27°C ambient |
| Exciter type | Self-excited |
| Winding | 311 |
| Phase rotation | A (U), B (V), C (W) |
| Alternator cooling | Direct drive centrifugal blower fan |

| BATTERY SYSTEM | |
|---|---|
| Design | Lead acid, flooded/SLI technology battery |
| Number of batteries | 1 |
| Battery Voltage, VDC | 12 |
| Battery Capacity, Ah | 75 |
| Battery Charger | Standard. 12/24VDC, 4A |
| Battery Disconnector | Standard |

| INTAKE AIR SYSTEM* | |
|---|---|
| | Standby Rating |
| Combustion Air, m3/min | 2.0 |
| Maximum air cleaner restriction, kPa | 6.2 |

*Engine based data

| EXHAUST SYSTEM* | |
|---|---|
| | Standby Rating |
| Exhaust gas flow at set rated load, m3/min | 2.2 |
| Exhaust gas temperature (engine), °C | 600 |
| Maximum exhaust back pressure (engine), kPa | 4.75 |

*Engine based data

| COOLING SYSTEM | |
|---|---|
| Ambient design, °C (open genset) | 50 |
| Ambient design, °C (enclosed genset) | 45 |
| Fan load, kWm | 1.2 |
| Coolant capacity (with radiator), l | 26 |
| Cooling system air flow, $m^3$/sec @ 12.7 mm $H_20$ (open genset) | 1.06 |

| FUEL FLOW | |
|---|---|
| Maximum fuel flow, L/h | 40 |
| Maximum fuel inlet restriction, mm Hg | 73.66 |
| Maximum fuel inlet temperature, °C | 60 |

| TRANSPORTATION, STORAGE & HANDLING | |
|---|---|
| **Lifting configuration*** | **Multi-point (4) - Enclosed** |
| **Forklift pockets** | **Enclosed and Open versions** |

*See outline drawing for details

## GENERATOR SET OPTIONS

| OPTIONAL COMPONENTS | OPEN VERSION | ENCLOSED VERSION |
|---|---|---|
| |  |  |
| Genset fitted | | |
| **Coolant Heater** | o | ● |
| **Socket- kit Panel** | - | o |
| **Alternator - Auxiliary Winding (AUXWDG)*** | o* | o* |
| **Extended autonomy fuel tank** | - | o (Coming soon) |
| **3-way valve** | o | o |
| Loose options | | |
| **Residential Muffler** | o | ● |
| **Industrial Muffler** | o | - |
| **Maintenance Kit** | o | o |
| **Optional Warranty** | o | o |
| QSOL availabilty | | |
| **Genset Literature in other Languages** | ● | ● |

● Standard; o Optional; - Not Available; *Minimum Order Quantity required

Note: other options upon request, please contact your Sales Representative for availability and/or for any additional customization request.

## WARRANTY

All components and subsystems are covered by an express limited warranty, please consult details in Global Commercial Warranty Statement depending on your application. Other optional and extended factory warranties and local distributor maintenance agreements are available.

## CONTROL SYSTEM

PowerStart 600 – The PowerStart control is a microprocessor-based generator set monitoring and control system suitable for use on a wide range of generator sets in non-paralleling applications. 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.

## MAJOR FEATURES

- Auto Main Failure (AMF) Functionality - Provides load transfer operation in open transition mode. AMF Test with or without load options.
- Battery Management - Genset battery monitoring system to warn against a weak battery connection or low/high voltage and Sleep mode to minimize starting battery current draw when genset Is not operating
- Communications interface – Control comes standard Modbus interface for interconnecting to customer PLC/BMS.
- Advance Serviceability – InPower™ PC-based Software service tool available for detailed diagnostics, setup, data logging and fault simulation.
- Environmental protection – The control system is designed and tested for reliable operation in harsh environment.
- English and symbology-based language support.
- 12 and 24 VDC battery operation.

## OPERATOR PANEL FEATURES

- Integrated 128x64 Pixel monochrome graphic LCD Display
- Tactile-feel soft switches for easy LCD display navigation, genset operation and control setup
- LED lamps indicating: Genset Running, Remote Start, AMF Test Active, Genset Shutdown, Warning, Load connected to Utility, Manual Mode, Stop Mode and Auto Mode.
- 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.

### Genset Operation & Fault Management

- Genset monitoring- monitor status of all critical engine and alternator functions
- Digital genset metering (AC and DC)
- Configurable for single phase or three phase or split phase AC metering
- Genset Protection (engine and alternator)
- Utility Voltage monitoring and protection
- Configurable time delay for start and stop (cooldown)
- Engine starting includes solid state output to operate external relay to start the engine, fuel shut off (FSO) and glow Plug (where applicable)
- Remote start capability in Auto mode
- Configurable start cranking cycle
- Real time clock for fault and event stamping
- Data Log including engine run time and controller on time Fault History
- Record of the most recent fault events in non-volatile memory
- Emergency stop shut down
- Low fuel level warning
- Exerciser clock and time of delay start/stop initiate a test without load.
- Maintenance due alarm (running hours/real time)
- Low fuel level warning

### Configuration

- Configurable Inputs and Outputs
- Configurable alarm inputs to cause a shutdown or warning response

### Warranty

- Warranty and service backed by a comprehensive warranty and worldwide distributor service network

**Note: Please, refer to PS0600 product literature for additional Information on Control System.**


PowerStart 600 control operator/Display

## RATINGS DEFINITIONS

### Emergency Standby Power (ESP):

Applicable for supplying power continuously to varying electrical loads for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528-1 and ISO 3046-1, obtained and corrected in accordance with ISO 15550

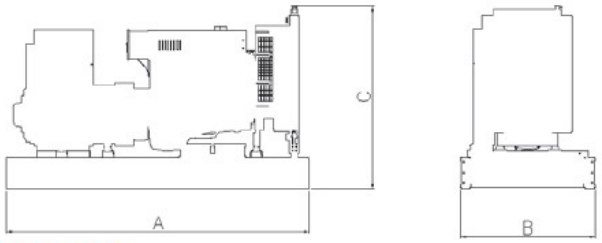
### Limited-Time Running Power (LTP):

Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528-1.

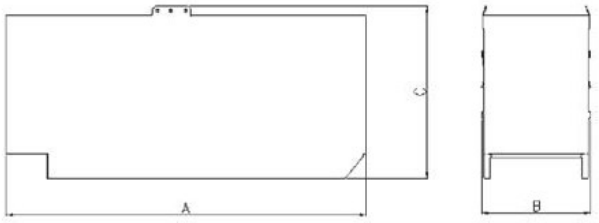
### Prime Power (PRP):

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528-1. Ten percent overload capability is available in accordance ISO 3046-1, obtained and corrected in accordance with ISO 15550.

OPEN




ENCLOSED




This outline drawing is to provide representative configuration details for model series only.
Do not use for installation design

## DIMENSIONS

| MODEL | OPEN | | | | | ENCLOSED | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 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 |
| **C38D5Q** | 1965 | 815 | 1125 | 649 | 691 | 1975 | 825 | 1285 | 800 | 842 |

* Note: Weights represent a set with standard features. Wet weights do not include fuel.

## REFERENCE DOCUMENTS

Additional documents are available for consult in Seismic™ (cummins.seismic.com) for detailed technical information.

## CODES AND STANDARDS

| | | | |
|---|---|---|---|
| **ISO 9001**<br>**ISO 14001** | This product was manufactured in a facility whose quality management system is certified to ISO 9001 and its Health Safety Environmental Management Systems certified to ISO 14001. | CE | This generator set is available as CE marked |
| | | UKCA | This generator set is available as UKCA marked |
| **2000/14/EC** | All enclosed products are designed to meet EU Noise Directive 2000/14/EC. | ISO 8528 | This generator set has been designed to comply with ISO 8528 standards. |
| **2014/30/EU**<br>**2006/42/EC**<br>**2011/65/EU**<br>**2014/35/EU** | All products are designed to meet or exceed EU legislation on Electromagnetic Compatibility (EMC), Machinery Safety, Restriction of the use of certain hazardous substances (RoHS) and Electrical Equipment for use within certain voltage limits. | | |

For more information, please contact your local Cummins distributor or visit cummins.com
Power Onward ™.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