Diesel generator set
VTA28 series engine
681 kVA 60 Hz
Data Center Continuous

Description
This Cummins® 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 compliant - 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 medium-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.

Motorized circuit breaker – Optional 3 or 4 pole motorized circuit breaker available.

<table>
<thead>
<tr>
<th>Model</th>
<th>60 Hz</th>
<th>Data sheets</th>
</tr>
</thead>
<tbody>
<tr>
<td>C600 D6</td>
<td>681 (545)</td>
<td>DS76-CPGK-DC</td>
</tr>
</tbody>
</table>

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### Generator set specifications

<table>
<thead>
<tr>
<th>Genset performance class</th>
<th>ISO 8528 G3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage regulation, no load to full load</td>
<td>± 0.5%</td>
</tr>
<tr>
<td>Random voltage variation</td>
<td>± 0.5%</td>
</tr>
<tr>
<td>Frequency regulation</td>
<td>Isochronous</td>
</tr>
<tr>
<td>Random frequency variation</td>
<td>± 0.25%</td>
</tr>
<tr>
<td>EMS compatibility</td>
<td>EN61000-6-4/EN61000-6-2</td>
</tr>
</tbody>
</table>

### Engine specifications

<table>
<thead>
<tr>
<th>Design</th>
<th>4 cycle, in-line, turbocharged and after-cooled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore</td>
<td>139.7 mm (5.5 in.)</td>
</tr>
<tr>
<td>Stroke</td>
<td>152.4 mm (6 in.)</td>
</tr>
<tr>
<td>Displacement</td>
<td>28 L (1710 in³)</td>
</tr>
<tr>
<td>Cylinder block</td>
<td>Cast iron with replaceable cylinder liners, 40° V12 cylinder</td>
</tr>
<tr>
<td>Battery capacity</td>
<td>660 amps at ambient temperature 32 °F (0 °C)</td>
</tr>
<tr>
<td>Battery charging alternator</td>
<td>35 Amps</td>
</tr>
<tr>
<td>Starting voltage</td>
<td>24 volt, negative ground</td>
</tr>
<tr>
<td>Fuel system</td>
<td>Direct injection</td>
</tr>
<tr>
<td>Fuel filter</td>
<td>Spin on fuel filters with water separator</td>
</tr>
<tr>
<td>Air cleaner type</td>
<td>Dry replaceable element with restriction indicator</td>
</tr>
<tr>
<td>Lube oil filter type(s)</td>
<td>Three spin on full flow</td>
</tr>
<tr>
<td>Standard cooling system</td>
<td>122 °F (40 °C) ambient radiator</td>
</tr>
</tbody>
</table>

### Alternator specifications

<table>
<thead>
<tr>
<th>Design</th>
<th>Brushless, 4 pole, drip-proof revolving field</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stator</td>
<td>2/3 pitch</td>
</tr>
<tr>
<td>Rotor</td>
<td>Direct coupled by flexible disc</td>
</tr>
<tr>
<td>Insulation system</td>
<td>Class H</td>
</tr>
<tr>
<td>Standard temperature rise</td>
<td>150 °C</td>
</tr>
<tr>
<td>Exciter type</td>
<td>Permanent Magnet Generator (PMG)</td>
</tr>
<tr>
<td>Phase rotation</td>
<td>A (U), B (V), C (W)</td>
</tr>
<tr>
<td>Alternator cooling</td>
<td>Direct drive centrifugal blower fan</td>
</tr>
<tr>
<td>AC waveform Total Harmonic Distortion (THDV)</td>
<td>No load &lt; 1.5%. Non distorting balanced linear load &lt; 5%</td>
</tr>
<tr>
<td>Telephone Influence Factor (TIF)</td>
<td>&lt; 50%</td>
</tr>
<tr>
<td>Telephone Harmonic Factor (THF)</td>
<td>&lt; 2%</td>
</tr>
</tbody>
</table>

### Available voltages

**60 Hz Line – Neutral/Line - Line**

- 120/208
- 127/200
- 220/380
- 230/400
- 240/416
- 225/440
- 277/480

*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

**Alternator**
- Alternator heater
- Exciter voltage regulator (PMG)

**Cooling**
- Antifreeze 50/50 (Ethylene glycol)

**Circuit breaker**
- 3 or 4 pole manual circuit breaker
- 3 or 4 pole motorized circuit breaker

**Control panel**
- PowerCommand 3.3
- PowerCommand 3.3 MLD
- Shutdown audible alarm
- Shunt trip – 24 VDC

**Enclosure**
- 20 ft container

**Warranty**
- 2 years for Prime application
- 5 years for Standby application
- 10 years for major components

**Silencer**
- 9 dB attenuation industrial silencer
- 25 dB residential delivered loose

*Note: Some options may not be available on all models - consult factory for availability.*
**PowerCommand 3.3 (MLD)**

The PowerCommand 3.3 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)

**Masterless Load Demand (MLD)**

- Load dependent start/stop of multi-gen system
- Predictive load input
- Run hour equalization

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InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation. Prototype tested: UL, CSA and CE compliant. Designed for various load types, ensuring stable operation with all load types. InPower™ software provides comprehensive diagnostics, setup, data logging, and fault simulation. Optional Features:

- Field overload protection
- Engine protection
- Data logging and fault simulation
- Advanced control methodology

**Operator panel features**

- 320x240 pixels graphic LED backlight LCD
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches

**Paralleling control functions**

- Digital frequency synchronization and voltage matching
- Isochronous kW and kVar load sharing controls

**AmpSentry AC protection**

- AmpSentry protective relay
- Over current and short circuit shutdown
- Over current warning

**Engine protection**

- Battery voltage monitoring, protection and testing
- Over speed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown

**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

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PowerCommand 3.3 control operator/ display panel

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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

<table>
<thead>
<tr>
<th>Model</th>
<th>Dim ‘A’ (mm)</th>
<th>Dim ‘B’ (mm)</th>
<th>Dim ‘C’ (mm)</th>
<th>Set weight dry* (kg)</th>
<th>Set weight wet* (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C600 D6</td>
<td>3934</td>
<td>1468</td>
<td>2179</td>
<td>5630</td>
<td>5839</td>
</tr>
</tbody>
</table>

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

### Codes and standards

<table>
<thead>
<tr>
<th>ISO 9001</th>
<th>CE</th>
<th>2000/14/EC</th>
<th>ISO 8528</th>
</tr>
</thead>
<tbody>
<tr>
<td>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</td>
<td>This generator set is available with CE certification.</td>
<td>All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.</td>
<td>This generator set has been designed to comply with ISO 8528 regulation.</td>
</tr>
</tbody>
</table>

For more information contact your local Cummins distributor or visit power.cummins.com

Our energy working for you.”

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