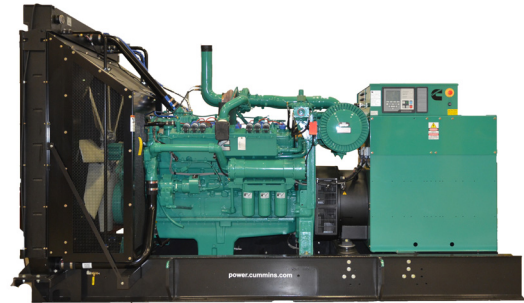




Specification sheet

Gaseous fuel generator set

GTA 28E engine series
400 kW - 500 kW 60 Hz



Description

The Cummins GTA 28E engine series commercial generator set (GenSet) boasts an EPA-certified fully-integrated power generation system providing optimum performance, reliability and versatility for stationary emergency standby power applications.

Features

- Cummins engine - cutting-edge diesel technology since 1919
- Cost-saving EPA-certified GenSet - no site emissions testing
- Designed, tested and certified to UL 2200 standards (See Fuel installation requirements on page 4)
- Stamford rugged and reliable alternator with state-of-the-art technology
- One-year warranty supported by a worldwide Cummins twenty-four hour, seven days-a-week, distributor network
- Accepts 100% rated load in a single step
- Surge rating - 110% of nameplate
- The GenSet accepts full rated load in a single step in accordance with NFPA 110 Type 10 (ten seconds) for Level 1 and Level 2 Emergency or Standby Power Supply Systems (EPSSs)
- Standard Power Command Control (PCC) 3300 technology provides digital (precise) frequency and voltage regulation
- Efficient and localized operation monitoring and control options:
 - Modbus over the Internet (monitor and control)
 - Remote HMI (monitor and control)
 - Field server reliable interface to a building management system Supervisory Control and Data Acquisition (SCADA) (monitor, only)

Model	Standby power rating* 60 Hz kW (kVa)	Emissions compliance	Engine data sheet
C400N6	400 (500)	EPA SI Stationary Emergency Certified	TBD
C450N6	450 (562)		FR 005399
C500N6B	500 (625)		FR 005397

* Tested at 0.8 power factor (PF) per NFPA 110.

GenSet specifications

Voltage regulation, no load to full load	±1%
Random voltage variation	±1% (three-phase only)
Frequency regulation	Isochronous
Random frequency variation	±0.5%

Engine specifications

Base Engine	Cummins Model GTA28E
Displacement	28 L (1709 in ³)
Regenerative Power	31 kW
Cylinder Block Configuration	Cast iron with replaceable wet cylinder liners
Cranking Current	1400 CCA (cold soak at -18 °C (0 °F) or above)
Battery Charging Alternator	43 amps
Battery Type	8D (x2)
Starting Voltage	24-volt, negative ground
Standard Cooling System	See derates on Engine Data Sheet
Lube Oil Filter Types	Three spin-on canisters-combination full flow with bypass

Alternator specifications

Design	Brushless, 4-pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Direct-coupled by flexible disc
Insulation System	Class H per NEMA MG1-1.65 or better
Standard Temperature Rise*	125 °C
Exciter Type	Permanent Magnet Generator (PMG)
Phase Rotation	A (U), B (V), C (W)
Alternator Cooling	Direct-drive centrifugal blower

* For UL 1004 ratings, refer to temperature rise at 120 °C or below, and ambient temperature up to 40 °C

Full-load amperage (FLA) at rated voltage

Model	Rating	Voltage*								
		120/240 (1 Ph)	120/208	127/220	139/240	220/380	240/416	254/440	277/480	347/600
C400N6	Standby	N/A	1388	1312	1203	760	694	656	601	481
C450N6	Standby	N/A	1561	1476	1353	855	781	738	677	541
C500N6B	Standby	N/A	1735	1640	1504	950	867	820	752	601

*Three-phase FLA based on 0.8 power factor (PF).

Rated load fuel consumption in standard cubic feet per hour (CFH)*

Model	Rating	Fuel type	100% Load	75% Load	50% Load	25% Load
C400N6	Standby	NG	5946	4645	3490	2477
C450N6	Standby	NG	6454	5012	3669	2488
C500N6B	Standby	NG	6994	5413	3839	2452

*See Fuel installation requirements on page 4.

NOTE: Fuel inlet pressure, measured at the fuel shut off valve while under full load, must be 254 to 508 mm WC (10 to 20 in. WC). Fuel supply pressure must not exceed 635 mm WC (25 in. WC) under any conditions.

PowerCommand 3.3 control system



An integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1570 for more detailed information on the control.

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.

Easily upgradeable - PowerCommand controls are designed with common control interfaces.

Reliable design - The control system is designed for reliable operation in harsh environment.

Multi-language support - English, Spanish, French (standard); other languages (optional).

Operator panel features

Operator/display panel

- Displays paralleling breaker status.
- 320 x 240 pixels graphic LED backlight LCD.
- Provides direct control of the paralleling breaker.
- Alphanumeric display with pushbuttons.
- Auto, manual, start, stop, fault reset, and lamp test/panel lamp switches.
- LED lamps indicating GenSet running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop.

Paralleling control functions

- First Start Sensor System selects first genset to close to bus.
- Phase Lock Loop Synchronizer with voltage matching.
- Sync check relay.
- Isochronous kW and kVar load sharing.
- Load govern control for utility paralleling.
- Extended Paralleling (baseload/peak shave) Mode.
- Digital power transfer control, for use with a breaker pair to provide open transition, closed transition, ramping closed transition, peaking and base load functions.

Other control features

- 150 watt anti-condensation heater.
- DC distribution panel.
- AC auxiliary distribution panel.

Alternator data

- Line-to-neutral and line-to-line AC volts.
- Three-phase AC current.
- Frequency.
- kW, kVar, and power factor kVA (three-phase and total).
- Winding temperature (optional).
- Bearing temperature (optional).

Engine data

- DC voltage and engine speed.
- Lube oil pressure and temperature.
- Coolant temperature.
- Comprehensive FAE data.

Other display data

- GenSet model data.
- Start attempts, starts, running hours, kW hours.
- Load profile (operating hours at % load in 5% increments).
- Fault history – up to 32 events.
- Data logging and fault simulation (requires InPower™).
- Air cleaner restriction indication.
- Exhaust temperature in each cylinder.

Standard control functions

Digital governing

- Temperature dynamic governing.
- Integrated digital electronic isochronous governing.

Digital voltage regulation

- Configurable torque matching.
- 3-phase, 4 wire line-to-line sensing.
- Integrated digital electronic voltage regulator.

AmpSentry AC protection

- AmpSentry protective relay.
- Over current and short circuit shutdown.
- Over current warning.
- Single and three-phase fault regulation.
- Low oil pressure warning and shutdown.
- High coolant temperature warning and shutdown.
- Low coolant level warning and shutdown.
- Low coolant temperature warning.
- Over and under voltage shutdown.
- Over and under frequency shutdown.
- Overload warning with alarm contact.
- Reverse power and reverse var shutdown.
- Field overload shutdown.
- Fuel-in-rupture-basin warning or shutdown.
- Full authority electronic engine protection.
- AMM arc flash provision

Engine protection

- Cranking lockout; overspeed shutdown; and battleshort.
- Sensor failure indication.
- Low fuel level warning or shutdown.
- Fail to start (overcrank) and fail to crank shutdown.
- Full authority electronic engine protection.
- Battery voltage monitoring, protection, and testing.

Control functions

- Data logging and cycle cranking.
- Load shed.
- Remote emergency stop.
- Time delay start and cooldown.
- Configurable inputs and outputs (20).
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.

GenSet options and accessories

Engine

- 240/480 V, 4000 W coolant heaters
- 120/208/240 V, 300 W lube oil heater

Alternator

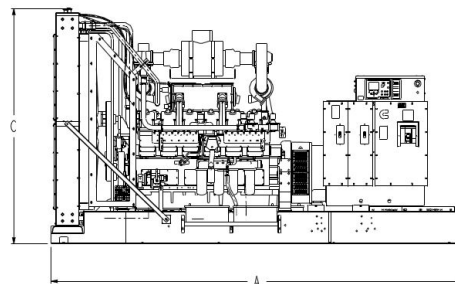
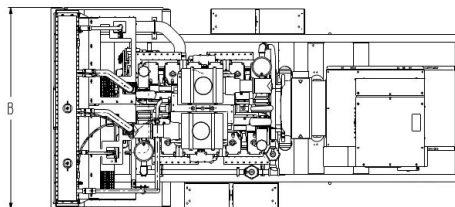
- 80 °C rise
- 105 °C rise

Fuel system - flexible fuel connector and fuel strainer

Exhaust system - Catalyst removal, upon request

Generator set

- AC entrance box
- Batteries and battery charger
- Main line circuit breaker
- PowerCommand Network Aux 101, 102 module
- Modbus to BACnet Module
- Weather protective enclosure (F001) with silencer
- Level I and Level II enclosure w/silencer
- Audible alarm, remote drains, and oil maintainer
- Remote annunciator panel
- Spring isolators
- Two-year standby warranty
- Five-year basic power warranty



This outline drawing is for reference only.
Do not use for installation design.

	Dim "A" mm (in.)	Dim "B" mm (in.)	Dim "C" mm (in.)
All Models	4216 (166)	2083 (82)	2486 (98)

NOTE: Consult drawings for applicable weights. See enclosure Specification Sheet for enclosure dimensions.

Codes and standards



Underwriters Laboratory (UL) is a world leader in product safety testing and certification. This GenSet is certified to UL2200 as open set, weather enclosure, and sound-attenuated enclosure configurations. The generator is certified to UL1004. The PowerCommand® Control System is certified to UL508. (See Fuel Installation Requirements on this page.)



CSA Group tests products under a formal process to ensure that they meet the safety and/or performance requirements of applicable standards. This GenSet is certified to: CSA 22.2 No. 100 Motors and Generators; CSA 22.2 No. 0.4-044 Bonding of Electrical Equipment; CSA 22.2 No. 14 Industrial Control Equipment; and CSA 22.2 No. 0 General Requirements - Canadian Electrical Code, Part II. (See Fuel Installation Requirements on this page.)



Engine is certified to Stationary Emergency U.S. EPA New Source Performance Standards (NSPS), 40 CFR 60 subpart JJJJ. U.S. applications must be applied per this EPA regulation.



This product has been manufactured under the controls established by a Bureau Veritas Certification approved management system that conforms to ISO 9001:2015.

Fuel installation requirements

Gas supply pressure is specified at the inlet to the on-engine fuel shut off valve. Additional options added to the fuel train, such as those for CSA compliance, and/or flexible fuel connections or strainers, add restriction that must be considered when determining gas supply pressure.

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 is in accordance with ISO 3046, AS 2789, DIN 6271, and BS 5514.

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) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271, and BS 5514.

Demand Response Power Rating - Spark Ignited Gas (DRP):

Applicable for supplying electrical power in parallel with commercially available power in variable and non-variable load applications. This fuel rating is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engine operation is limited to a total of 500 hours per year. Engines may be operated in parallel to the public utility for up to 500 hours per year, with an average load factor no greater than 80% of rated Demand Response Power. Engines with Standby Power ratings available can be run in Emergency Standby applications up to the Standby Power rating for up to 50 hours per year. The customer should be aware, however, that the life of any engine will be reduced by constant high load operation.



Warning: Backfeed to a utility system can cause electrocution and/or property damage. Do not connect GenSets to any building electrical system except through an approved device or after the building main disconnect is open. Neutral connection must be bonded in accordance with National Electrical Code.

Specifications are subject to change without notice.

Power You Can Rely On

To order, contact centralregionorders@cummins.com.



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