Request for Proposals (RFP)

Installation of 200kW Generator for SALEM-SOUTH LYON DISTRICT LIBRARY

9800 Pontiac Trail, South Lyon, MI 48178

I. PURPOSE

The purpose of this project is to replace/remove the existing Generator and install a new Emergency Backup Generator and all associated equipment which will provide automatic backup power at the Salem-South Lyon District Library (SSLDL). At the same time, several items of electrical equipment will have their respective power supply feeds upgraded to larger wiring. Additional earth ground wiring will be installed for a better "ground grid" for the facility.

II. INSTRUCTIONS TO BIDDERS

SSLDL is soliciting requests for proposals from qualified vendors that can properly remove the current Cummins 100 kW NG Generator and install a new library purchased Cummins, Model# C200N6B NG 200kW Generator (thru Source**well**) on an existing cement pad and connecting to the current 600 amps ONAN Transfer Switch located at the SSLDL, 9800 Pontiac Trail, South Lyon, MI 48178. Additional work requested is listed in the "Scope of Work" as well as in the specifications listed in the Bid Form attached.

III. SCOPE OF WORK

1. Disconnect the current Cummins 100kW Generator from the natural gas supply and remove it from the cement pad in a manner to allow it to be re-used by another party, without damage.
2. Pick-up and offload the new Cummins 200kW NG Generator that has been shipped from the manufacturer and install on cement pad. Connect unit to natural gas service provided by Consumers Energy.
3. Remove prior 3/0 AWG electric cables and replace them with 2000mcm/kcmil 90°c copper wire or run parallel 500mcm/kcmil 90°c copper wire to the transfer switch. Use additional conduit if more space is required by code for the run of new larger wires to transfer switch. The 3/0 wire should be removed in a manner which allows it to be reused.

Some of the following items could be completed prior to the arrival of the new generator.

4. Remove 1/0 AWG copper electrical power cables to the exterior YORK chiller unit and replace it with 4/0 AWG 90°c copper wire. The 1/0 wire should be removed in a manner that allows it to be reused.
5. Remove #8 AWG copper wire currently supplying power to both BRYANT A/C units and replace with #2 AWG 90°c copper wire. An additional exterior flex conduit may need to be used. Replace both double pole 40a breakers with 2 new double pole time delay 50a breakers in sub-panel "F", which powers both BRYANT A/C units.
6. Earth Grounding sub-panel box "C", in the Book Rm/Admin area, to a newly placed copper coated-steel ground rod of 5/8 or larger; using one of the 3/0 AWG copper wires. This wire to be CAD welded to the newly installed ground rod and will be verified to be less than 25 ohms-ground, when completed.
7. Earth Grounding sub-panel box in Admin Offices area to a newly placed copper coated-steel ground rod of 5/8" or larger; using 1/0 AWG copper wire. This wire to be CAD welded to the newly installed ground rod and will be verified to be less than 25 ohms-ground, when completed.
8. Earth Grounding sub-panel box "E", in the IT/Computer Lab area, same as item #7.
9. Earth Grounding sub-panel box "G", off the Olson meeting room, same as item #6.
10. Earth Grounding sub-panel "F", off the new Youth section, same as item #7.
11. Earth Grounding main panel/transfer switch in basement, same as item #6.

NOTE: In some cases, ground rods may need to be "stacked" with one or more rods to obtain the required ohms reading. There is not one standard ground resistance threshold that is used by all these organizations. However, the NFPA and IEEE have recommended a ground resistance value of 5 ohms or less. The NEC Chap: 250.56, has specified to "Make sure that system impedance to ground is less than 25 ohms".

The bid must include all sitework, including, but not limited to, all conduit/wiring hardware as needed, placement/securing to cement pad, trenching, backfilling, site grade restoring, gas plumbing and permitting that is required. Consulting with Cummins factory tech for installation, start-up and testing to be included.

All wiring and equipment provided and used will meet or exceed current NEC guidelines.

This RFP is available on our website (www.ssldl.info) or by contacting the Library Director 9800 Pontiac Trail, South Lyon, MI 48178, (248) 437-6431, or ppoplawska@ssldl.info.

RESPONSES
The (mailed or hand delivered) Sealed Proposals must be received at SSLDL, 9800 Pontiac Trail, South Lyon, MI 48178 **by 5:45 pm on July 31st, 2025.**

There will be a public opening of the bids at a Facility Committee meeting on July 31st, 2025, at 6:00 pm. Proposals, if mailed, should be addressed as noted below. **Faxed or emailed proposals will not be considered.**

Mailed or Hand delivered sealed bids should be made Attention:
SSLDL, Library Director
Request for Proposal (RFP) Replacement Generator Installation
9800 Pontiac Trail
South Lyon, MI 48178

PROPOSALS MUST INCLUDE

- Company Profile and copy of State of Michigan License.
- Cover Letter signed by an authorized representative of the vendor submitting.
- Scope of work for installation of components.
- Proposed schedule of work.
- All associated costs.
- Any warranties.
- References (a minimum of three (3)).
- Proof of insurance
- Acknowledgement that site will be restored to preinstallation condition.

SSLDL reserves the right to accept or reject any and all proposals. A Vendor's failure to submit its proposal prior to the deadline will cause the proposal to be disqualified. Late proposals or amendments will not be opened or accepted for evaluation.

All proposals submitted shall become property of the SSLDL and will not be returned.

CONTACT INFORMATION
For questions related to the RFP process contact:
Daniel Siivola, Trustee
dsiivola@ssldl.info 734-679-0280
CC: Norm Pratt, Head of Maintenance
npratt@ssldl.info 248-437-6431

The preferred contact method is email. All inquiries or requests concerning this Request for Proposal shall be made in writing and must be received before the close of business five days prior to the deadline to the attention of D SIIVOLA. The SSLDL is not responsible for oral interpretations given by any SSLDL representative.

III. SITE VISITS & SYSTEM EVALUATIONS:

Vendors are encouraged to contact the Library Director at ppoplawska@ssldl.info to schedule a site visit.

BID FORM	Comply yes/no
Installation of a new 200Kw generator and all associated equipment to provide automatic backup power.	
All conduit/wiring and hardware to be included in the bid. Current electrical wires from the generator to the transfer switch will need to be changed to meet the larger amps & distance of run, with two parallel 500mcm/ kcmil 90°c copper wires or single 2000mcm 90°c copper wire per phase.	
The electrical feed to the exterior YORK chiller should be upsized to a larger wire size of 4/0 AWG 90°c copper wire.	
The electrical feeds to both BRYANT units should be upsized to a larger wire size of #2 AWG 90°c copper, to include changing the current 40a breakers to new double pole 50a time delayed breakers that would be used in sub-panel F. Provide additional new conduit if needed.	
Reuse the (1/0) and (3/0) wires removed from above upgrades to provide earth grounding conductors from sub-panel boxes from around the building; they would be CAD welded to newly installed ground rods and each verified to be less than 25 ohms-ground.	

The bid must include all site work, including, but not limited to, the placement on the pad, trenching and backfilling, and finish grade.	
Consult and coordinate with Cummins factory tech for start-up, testing, and training.	
The generator bid shall include all gas plumbing and permitting required to connect the new generator on site.	
All permitting and inspections are the responsibility of the winning bidder.	
Disconnect electrical wires and remove current 100kW generator from cement pad undamaged and in a condition to be used by another party.	

PRICING

Standard Terms and Conditions:
SSLDL reserves the right to amend this RFP prior to the proposal due date. All amendments and additional information will be posted on the library website: www.ssldl.info.

SSLDL reserves the right to waive any informality in proposals, to accept the proposals or portions thereof, and to reject any and all proposals, should it be deemed in the best interest of the library to do so. Nothing in this document shall require SSLDL to proceed with Engineering and/or any of the identified services. SSLDL reserves the right to substantiate Respondent's qualifications, capability to perform, availability and past performance records.

The cost for developing the proposal is the sole responsibility of the Contractor. All proposals submitted become the property of the SSLDL.

SSLDL reserves the right to approve subcontractors. All work performed under contract to SSLDL becomes the property of SSLDL in the format specified by SSLDL. A Certificate of Insurance is required from all consultants, contractors and vendors doing business with SSLDL. Within two (2) weeks of the Notice of Award, the Contractor must submit a Certificate of Insurance naming the SSLDL as "additional insured." Failure to furnish the required certificate within the required time frame may result in the award being terminated.

The successful Contractor(s) selected shall agree to defend, indemnify and hold SSLDL harmless from any and all claims, demands, suits, causes of action and judgments arising from or related to Contractor's performance, including claims of professional malpractice or negligence. Such indemnity shall include SSLDL's reasonable attorneys' fees as well. The above referenced indemnity shall be in addition to and as a complement to the below described insurance coverage, which coverage is a mandatory requirement of this RFP and any award hereunder.

Specifically, the successful Contractor(s) shall provide the following coverage(s) and amount(s). Commercial General Liability $2,000,000.00 Automobile Liability $2,000,000.00 Workers Compensation $1,000,000.00 Errors and Omissions $2,000,000.00 Umbrella Coverage $2,000,000.00

All policies shall be underwritten by companies licensed to sell insurance in Michigan and who are rated A+ or better by AM Best Company. Self-insurance pools or trusts are not an acceptable substitute for the referenced commercial coverage.

CONFLICT OF INTEREST

SSLDL seeks to work with Consultants and Contractors that represent the consumers, not the suppliers, avoiding both the appearance, as well as any actual conflict of interest. Any failure to disclose a conflict of interest which is discovered after the award has been made, but which existed at the time of proposal submission, will be grounds for termination of any resulting contract.

BIDDER LIST (plus posting on SSLDL's website):

CEC Instruments Inc	Bill Campbell

Mark McVicar	Christine Watkins

ADDENDUM AND REVISION ONE TO RFP

Installation of 200Kw generator

For the Salem-South Lyon District Library

As of July 9th, 2025, the following changes are made to and are a part of the RFP:

"Scope of Work".

ADDED [clarify] to (CUMMINS) Item 3: Both the Neutral and Ground connecting wires to the transfer switch shall also be NO LESS THAN one 500mcm/kcmil 90°c copper wire each.

ADDED [clarify] to (YORK) Item 4: Both the Neutral and Ground connecting wires to the electrical panel shall also be 4/0 AWG 90°c copper wire.

ADDED [clarify] to (BRYANTs) Item 5: Both the Neutral and Ground connecting wires to electrical sub-panel "F" shall also be #2 AWG 90°c copper wire.

REMOVED/DELETED: Items 6, 7, 8, 9, 10.

CORRECTED Item 11 (new Item 6) shall read: Earth Grounding of the main panel; the grounding wires connected to the two grounding points in the cement floor by the main panel will be replaced with 3/0 AWG (or larger) copper wire, CAD welded to both grounding points. The grounding point at this location will be verified to be less than 25 ohms-ground when completed.

CORRECTED BOX 4 under "**BID FORM**": This box shall conform to the information listed in new item 6 found in the Scope of Work.

ADDITIONAL WORK may be requested.

SUBMITTAL POWER GENERATION EQUIPMENT

PROJECT NAME:	Salem-South Lyon Lib
DATE:	07/01/2025
CUSTOMER:	Salem-South Lyon Lib
SUPPLIER:	Cummins Sales and Service
PROJECT #:	TBD
SALES REPRESENTATIVE:	Dennis Robak 248-207-2876 dennis.robak@cummins.com
PROJECT MANAGER:	Joshua Gayer 412-820-8417 joshua.gayer@cummins.com

Warranty Statement

Generator Sets

Commercial Standby Extended Warranty

English
Original Instructions

7-2017

A058F886 (Issue 1)

Limited Standby 5 Year or 2,500 Hour Parts + Labor + Travel Extended Warranty – L189

Commercial Generating Set

When purchased, this limited extended warranty applies to all Cummins Power Generation® branded commercial generating sets and associated accessories (hereinafter referred to as "Product").

This warranty covers any failures of the Product, under normal use and service, which result from a defect in material or factory workmanship.

Warranty Period:

The warranty start date is the date of initial start up, first rental, demonstration or 18 months after factory ship date, whichever is sooner. The coverage duration is 5 years from warranty start date or 2,500 hours, whichever occurs first.

Emergency Standby Power (ESP) is defined as the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage. The permissible average power output over 24 hours of operation shall not exceed 70% of the ESP.

Cummins Power Generation® Responsibilities:

In the event of a failure of the Product during the extended warranty period due to defects in material or workmanship, Cummins Power Generation® will only be responsible for the following costs:

- All parts and labor required to repair the Product.
- Reasonable travel expenses to and from the Product site location.
- Maintenance items that are contaminated or damaged by a warrantable failure.

Owner Responsibilities:

The owner will be responsible for the following:

- Notifying Cummins Power Generation® distributor or dealer within 30 days of the discovery of failure.
- Installing, operating, commissioning and maintaining the Product in accordance with Cummins Power Generation®'s published policies and guidelines.
- Providing evidence for date of commissioning.
- Providing sufficient access to and reasonable ability to remove the Product from the installation in the event of a warrantable failure.

In addition, the owner will be responsible for:

- Incremental costs and expenses associated with Product removal and reinstallation resulting from non-standard installations.
- Costs associated with rental of generating sets used to replace the Product being repaired.
- Costs associated with labor overtime and premium shipping requested by the owner.
- All downtime expenses, fines, all applicable taxes, and other losses resulting from a warrantable failure.

Limitations:

This limited extended warranty does not cover Product failures resulting from:

- Inappropriate use relative to designated power rating.
- Inappropriate use relative to application guidelines.
- Failures due to normal wear, corrosion, varnished fuel system parts, lack of reasonable and necessary maintenance, unauthorized modifications and/or repair, and use of add-on or modified parts.
- Improper and/or unauthorized installation.
- Owner's or operator's negligence, accidents or misuse.
- Noncompliance with any Cummins Power Generation® published guideline or policy.
- Use of improper or contaminated fuels, coolants or lubricants.
- Improper storage before and after commissioning.
- Owner's delay in making Product available after notification of potential Product problem.
- Replacement parts and accessories not authorized by Cummins Power Generation®.
- Use of Battle Short Mode

Limitations Continued:

- Owner or operator abuse or neglect such as: operation without adequate coolant or lubricants; overfueling; overspeeding; lack of maintenance to lubricating, cooling or air intake systems; late servicing and maintenance; improper storage, starting, warm-up, run-in or shutdown practices, or for progressive damage resulting from a defective shutdown or warning device.
- Damage to parts, fixtures, housings, attachments and accessory items that are not part of the generating set.

This limited extended warranty does not cover costs resulting from:

- Difficulty in gaining access to the Product.
- Damage to customer property.
- Repair of cosmetic damage to enclosures.

Items not covered by this limited extended warranty:

- Batteries
- Enclosures
- Coolant heaters
- Exhaust systems and aftertreatment components
- Maintenance items

www.power.cummins.com

CUMMINS POWER GENERATION® RIGHT TO FAILED COMPONENTS:

Failed components claimed under warranty remain the property of Cummins Power Generation®. Cummins Power Generation® has the right to reclaim any failed component that has been replaced under warranty.

THE WARRANTIES SET FORTH HEREIN ARE THE SOLE WARRANTIES MADE BY CUMMINS POWER GENERATION ® IN REGARD TO THE PRODUCT. CUMMINS POWER GENERATION® MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

IN NO EVENT IS CUMMINS POWER GENERATION® LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

This limited extended warranty shall be enforced to the maximum extent permitted by applicable law. This limited extended warranty gives the owner specific rights that may vary from state to state or from jurisdiction to jurisdiction.

Product Model Number:_____

Product Serial Number:_____

Date in Service:_____

Serving Cummins Customers
in the
Northern Region

NOTICE

THIS SUBMITTAL IS BASED UPON OUR INTERPRETATION OF THE PROJECT REQUIREMENTS AND/OR SPECIFICATIONS AND IS IN ACCORDANCE WITH YOUR ORDER AND PRODUCT AVAILABILITY. PLEASE REVIEW THE ENCLOSED DATA COMPLETELY AND CAREFULLY. SHOULD ADDITIONAL INFORMATION OR CLARIFICATION BE REQUIRED, PLEASE FORWARD A SUBMITTAL COPY, COMPLETE WITH YOUR NOTATIONS, TO OUR OFFICE WITHIN THIRTY (30) DAYS FOR A PROMPT RESPONSE AND/OR RESUBMITTAL.

CONSIDERABLE ATTENTION IS GIVEN TO THE PREPARATION OF THIS SUBMITTAL TO ENSURE IT IS COMPLETE, CONCISE AND CORRECT AS POSSIBLE. PLEASE REVIEW IT CAREFULLY AND THOROUGHLY.

For questions or comments regarding this submittal, please contact your Cummins Sales Representative listed on the Cover Page.

To inquire about factory ship dates, arranging delivery and to schedule start-up of your Cummins Power Generation equipment, please contact the Project Manager listed on the Cover Page of this submittal.

**** Start-Ups must be Scheduled 2 Weeks in Advance ****

Sales and Service

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Salem-South Lyon Lib

IMPORTANT!

FUEL SUPPLY REQUIREMENTS

Fuel Source: _____

Fuel Consumption at Full Load: _____ SCFH

Required Operating Fuel Pressure: _____ in H_2O
(fuel pressure required while the generator set is in operation at running pressure to engine mounted regulator, no load to full load)

Required Fuel Pressure and Volume MUST be available under ALL operating conditions at the generator set location.

All generator sets must be installed with a flexible fuel line and fuel strainer prior to the engine connection:

Flexible Fuel Line: [ ] included loose accessory
[ ] included engine mounted

Fuel Strainer: [ ] included loose accessory

Please contact your salesperson for any questions.

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Specification Sheet

Spark-Ignited Generator set

125, 150, 175, & 200 kW
Standby
EPA Emissions

Description

Cummins Power Generation generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby applications.

Features

Gas engine - Rugged 6-cyclinder Cummins QSJ8.9G spark-ignited engine delivers reliable power. The electronic air/fuel ratio control provides optimum engine performance 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.

Control system - The PowerCommand® 2.3 electronic control is standard equipment and provides total generator set system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard cooling package provides reliable running at up to 50 °C (122 °F) ambient temperature.

Enclosures - The aesthetically appealing enclosure incorporates special designs that deliver one of the quietest generators of its kind. Aluminum material plus durable powder coat paint provides the best anti-corrosion performance. The generator set enclosure has been evaluated to withstand 180 MPH wind loads in accordance with ASCE7-10. The design has hinged doors to provide easy access for service and maintenance.

NFPA - The generator set 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 and dealer network.

	Natural Gas		
	Standby (60 Hz)		Data sheets
Model	kW	kVA	60 Hz
C125N6	125	156	NAD-6303
C150N6	150	188	NAD-6304
C175N6B	175	218	NAD-6632
C200N6B	200	250	NAD-6633

Generator Set Specifications

Governor regulation class	ISO 8528 Part 1 Class G3
Voltage regulation, no load to full load	± 1.0%
Random voltage variation	± 1.0%
Frequency regulation	Isochronous
Random frequency variation	± 0.25% @ 60 Hz
Radio frequency emissions compliance	FCC code title 47 part 15 class B

Engine Specifications

Design	Turbocharged and Aftercooled
Bore	114.1 mm (4.49 in)
Stroke	144.5 mm (5.69 in)
Displacement	8.9 liters (543 in^3)
Cylinder block	Cast iron, in-line 6 cylinder
Battery capacity	850 amps standard, dual battery optional
Battery charging alternator	100 amps
Starting voltage	12-volt, negative ground
Lube oil filter type(s)	Spin-on
Standard cooling system	125 kW - 50 °C (122 °F) ambient cooling system 150 kW - 45 °C (113 °F) ambient cooling system 175 kW - 50° C (122° F) ambient cooling system 200 kW - 45° C (113° F) ambient cooling system
Rated speed	1800 rpm

Alternator Specifications

Design	Brushless, 4 pole, drip proof, revolving field
Stator	2/3 pitch
Rotor	Direct coupled, flexible disc
Insulation system	Class H per NEMA MG1-1.65
Standard temperature rise	120 ºC (248 °F) standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
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

1-phase	3-phase				
• 120/240	• 120/208	• 120/240	• 277/480	• 347/600	• 127/220

Generator Set Options

Fuel system
- ☐ 125 and 150 kW:
  - ○ Single fuel – natural gas or propane vapor, field selectable
  - ○ Dual fuel – natural gas or propane vapor, auto changeover
- ☐ 175 and 200 kW:
  - ○ Single fuel – natural gas
- ☐ Low fuel gas pressure warning

Engine
- ☐ Normal or Heavy-duty engine air cleaner
- ☐ Shut down – low oil pressure
- ☐ Extension – oil drain
- ☐ Engine oil heater

Electrical
- ☐ One, two or three circuit breaker configurations
- ☐ 80% rated circuit breakers
- ☐ 100% rated LSI circuit breakers

Control
- ☐ PC2.3 with AmpSentry
- ☐ PC3.3 with Paralleling option
- ☐ AC output analog meters
- ☐ Stop switch – emergency
- ☐ Auxiliary output relays (2)
- ☐ Auxiliary configurable signal inputs (8) and relay outputs (8)

Alternator
- ☐ 120 °C temperature rise alternator
- ☐ 105 °C temperature rise alternator
- ☐ PMG
- ☐ Alternator heater, 120V Reconnectable full 1 phase output alternator

Enclosure
- ☐ Aluminum enclosures with muffler installed – green color
  - ○ Weather
  - ○ Sound Level 1
  - ○ Sound Level 2
  - ○ Winter

Cooling system
- ☐ Shutdown – low coolant level
- ☐ Warning – low coolant level
- ☐ Extension – coolant drain
- ☐ Coolant heater options:
  - ○ < 4 °C (40 °F) - Cold weather
  - ○ < -17 °C (0 °F) - Extreme cold

Exhaust system
- ☐ Exhaust connector NPT
- ☐ Exhaust muffler mounted

Generator set application
- ☐ Base barrier – elevated genset
- ☐ Battery rack, single or dual battery
- ☐ Radiator outlet duct adapter

Warranty
- ☐ Base warranty – 2 year / 1000 hours, standby
- ☐ 3-year standby warranty options
- ☐ 5-year standby warranty options

Generator Set Accessories

- ☐ Coolant heaters – 1500W / 2000W
- ☐ Battery rack, single or dual battery
- ☐ Battery heater kit
- ☐ Engine oil heater
- ☐ Remote control displays
- ☐ Auxiliary output relays (2)
- ☐ Auxiliary configurable signal inputs (8) and relay outputs (8)
- ☐ Annunciator – RS485
- ☐ Remote monitoring device – PowerCommand 500/550
- ☐ Battery charger – stand-alone, 12V
- ☐ Circuit breakers
- ☐ Enclosure Sound Level 1 to Sound Level 2 upgrade kit
- ☐ Base barrier – elevated generator set
- ☐ Mufflers – industrial, residential, or critical
- ☐ Alternator PMG
- ☐ Alternator heater

Control System PowerCommand 2.3

An integrated generator set control system providing voltage regulation, engine protection and operator interface.

Power Management - 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 (5,000 meters).

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
- Emergency stop
- Fuel-in-rupture-basin warning or shutdown

Operator/display panel

- Manual off switch
- 320 x 240 Pixels graphic LED backlight LCD with push button access for viewing engine and alternator data and providing setup, controls, and adjustments (English, Spanish, or French).
- 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-line and Line-to-neutral AC volts
- 3-phase AC current
- Frequency
- Total kVa

Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature
- Engine speed

Other data

- Generator set model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 2-phase line-to-line sensing
- Configurable torque matching

Control functions

- Time delay start and cooldown
- Cycle cranking
- PCCNet interface
- (2) Configurable inputs
- (2) Configurable outputs
- Remote emergency stop
- Automatic transfer switch (ATS) control
- Generator set exercise, field adjustable

Options

- ☐ Auxiliary output relays (2)
- ☐ Remote annunciator with (3) configurable inputs and (4) configurable outputs
- ☐ PMG alternator excitation
- ☐ PowerCommand 500/550 for remote monitoring and alarm notification (accessory)
- ☐ Auxiliary, configurable signal inputs (8) and configurable relay outputs (8)
- ☐ Digital governing
- ☐ AC output analog meters (bargraph)
  - Color-coded graphical display of:
    - 3-phase AC voltage
    - 3-phase current
    - Frequency
    - kVa
- ☐ Remote operator panel

For further detail on PC 2.3, see document S-1569
For further detail on PC 3.3, see document S-1570

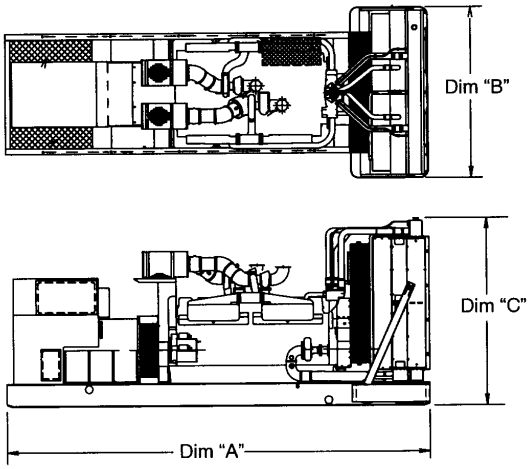
Ratings Definitions

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 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* wet kg (lbs.)
		Open Set		
C125N6	2867 (113)	1016 (40)	1415 (56)	1580 (3483)
C150N6	2867 (113)	1016 (40)	1415 (56)	1580 (3483)
C175N6B	2867 (113)	1016 (40)	1478 (58)	1610 (3543)
C200N6B	2867 (113)	1016 (40)	1478 (58)	1698 (3735)
		Weather Protective Enclosure		
C125N6	2867 (113)	1016 (40)	1836 (72)	1661 (3662)
C150N6	2867 (113)	1016 (40)	1836 (72)	1661 (3662)
C175N6B	2867 (113)	1016 (40)	1836 (72)	1691 (3728)
C200N6B	2867 (113)	1016 (40)	1836 (72)	1779 (3922)
		Sound Attenuated Enclosure Level 1		
C125N6	3621 (143)	1016 (40)	1836 (72)	1776 (3915)
C150N6	3621 (143)	1016 (40)	1836 (72)	1776 (3915)
C175N6B	3621 (143)	1016 (40)	1836 (72)	1806 (3982)
C200N6B	3621 (143)	1016 (40)	1836 (72)	1894 (4176)
		Sound Attenuated Enclosure Level 2		
C125N6	4061 (160)	1016 (40)	1836 (72)	1791 (3940)
C150N6	4061 (160)	1016 (40)	1836 (72)	1791 (3940)
C175N6B	4061 (160)	1016 (40)	1836 (72)	1821 (4015)
C200N6B	4061 (160)	1016 (40)	1836 (72)	1909 (4209)

* Weights above are average. Actual weight varies with product configuration

Codes and Standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

	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.		This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.
			The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies.
International Building Code	The generator set is certified to International Building Code (IBC) 2012.		All low voltage models are CSA certified to product class 4215-01.
		U.S. EPA	Engine certified to U.S. EPA SI Stationary Emission Regulation 40 CFR, Part 60.

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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Minneapolis, MN 55432
USA

Phone 763 574 5000
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NAS-6298-EN (12/22) A057Y417

power.cummins.com

Generator Set Data Sheet

Model: C200N6B
Frequency: 60 Hz
Fuel type: Natural gas
kW rating: 200 Natural gas standby

Emissions level: EPA Emissions

Fuel Consumption

	Natural Gas Standby			
	kW (kVA)			
Ratings	200 (250)			
Load	1/4	1/2	3/4	Full
scfh	834.1	1442.4	1961.2	2599.1
m^3/hr	23.62	40.85	55.54	73.61

Engine

	Natural gas Standby Rating
Engine model	QSJ8.9G-G3
Configuration	Cast Iron, In line, 6 cylinders
Aspiration	Turbocharged and aftercooled
Gross engine power output, kWm (bhp)	231 (310)
Bore, mm (in)	114.1 (4.49)
Stroke, mm (in)	144.5 (5.69)
Rated speed, rpm	1800
Compression ratio	8.5:1
Lube oil capacity, L (qt)	21 (22)

Fuel Supply Pressure

Minimum operating pressure, kPa (in H_2O)	1.5 (6)
Maximum operating pressure, kPa (in H_2O)	3.5 (14)

Air

	Natural gas Standby Rating
Combustion air, m^3/min (scfm)	17 (600)
Maximum normal duty air cleaner restriction, kPa (in H_2O)	3.7 (15.0)
Maximum heavy-duty air cleaner restriction, kPa (in H_2O)	3.7 (15.0)

Exhaust	Natural gas Standby Rating
Exhaust flow at set rated load, m^3/min (cfm)	39.6 (1399.5)
Exhaust temperature at set rated load, °C (°F)	588.9 (1092)
Maximum back pressure, kPa (inH_2O)	9 (36.1)

Standard set-mounted radiator cooling	Natural gas Standby rating
Ambient design, °C (°F)	50 (122)
Fan load, kWm (HP)	10.1 (13.5)
Coolant capacity (with radiator), L (US gal)	21 (5.6)
Cooling system air flow, m^3/min (scfm)	368.1 (13000)
Maximum cooling air flow static restriction, kPa (inH_2O)	0.125 (0.5)

Weights	Natural gas
Unit wet weight kg (lb)	1842 (4060)

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

Derating factors

Natural gas	
Standby	Engine power available up to 600 m (1969 ft) and ambient temperatures up to 40° C (104° F). Above these conditions, derate at 3.2% per 300 m (985 ft) and 2.5% per 5.5° C (10° F).

Ratings definitions

Emergency Standby Power (ESP)	Limited-Time Running Power (LTP)	Prime Power (PRP)	Base Load (Continuous) Power (COP)
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.	Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.	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.	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.

Alternator data

Three phase output

$$\frac{kW \times 1000}{Voltage \times 1.73 \times 0.8}$$

Single phase output

$$\frac{kW \times SinglePhaseFactor \times 1000}{Voltage}$$

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any buildings electrical system except through an approved device or after building main switch is open.

Specification Sheet

PowerCommand® 2.3 Control System

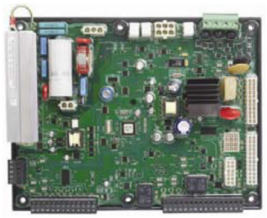
Control System Description

The PowerCommand control system is a microprocessor-based generator set monitoring, metering and control system designed to meet the demands of today's engine driven generator sets. The integration of all control functions into a single control system provides enhanced reliability and performance, compared to conventional generator set control systems. These control systems have been designed and tested to meet the harsh environment in which gensets are typically applied.

Features

- 320 x 240 pixels graphic LED backlight LCD.
- Multiple language support.
- AmpSentry™ protective relay - true alternator overcurrent protection.
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.
- Digital voltage regulation. Three phase full wave FET type regulator compatible with either shunt or PMG systems.
- Generator set monitoring and protection.
- 12 and 24 VDC battery operation.
- Modbus® interface for interconnecting to customer equipment.
- Warranty and service. Backed by a comprehensive warranty and worldwide distributor service network.
- Certifications - suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.

PowerCommand Digital Genset Control PCC 2300



Description

The PowerCommand generator set control is suitable for use on a wide range of generator sets in non-paralleling applications. The PowerCommand control is compatible with shunt or PMG excitation style. It is suitable for use with reconnectable or non-reconnectable generators, and it can be configured for any frequency, voltage and power connection from 120-600 VAC Line-to-Line.

Power for this control system is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 30 VDC.

Features

- 12 and 24 VDC battery operation.
- Digital voltage regulation - Three phase full wave FET type regulator compatible with either shunt or PMG systems. Sensing is three phase.
- Full authority engine communications (where applicable) - Provides communication and control with the Engine
- due to thermal Control Module (ECM).
- AmpSentry" protection provides industry-leading alternator overcurrent protection:
  - Time-based generator protection applicable to both line-to-line and line-to-neutral, that can detect an unbalanced fault condition and swiftly react appropriately. Balanced faults can also be detected by AmpSentry and appropriate acted upon.
- Reduces the risk of Arc Flash overload or electrical faults by inverse time protection
- Common harnessing - with higher feature Cummins controls. Allows for easy field upgrades.
- Generator set monitoring - Monitors status of all critical engine and alternator functions.
- Digital genset metering (AC and DC).
- Genset battery monitoring system to sense and warn against a weak battery condition.
- Configurable for single or three phase AC metering.
- Engine starting - Includes relay drivers for starter, Fuel Shut Off (FSO), glow plug/spark ignition power and switch B+ applications.
- Generator set protection – Protects engine and alternator.
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.
- Advanced serviceability - using InPower™, a PC-based software service tool.
- Environmental protection - The control system is designed for reliable operation in harsh environments. The main control board is a fully encapsulated module that is protected from the elements.
- Modbus interface for interconnecting to customer equipment.
- Configurable inputs and outputs - Four discrete inputs and four dry contact relay outputs.
- Warranty and service - Backed by a comprehensive warranty and worldwide distributor service network.
- Certifications - Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.

Base Control Functions

HMI Capability

Operator adjustments - The HMI includes provisions for many set up and adjustment functions.

Generator set hardware data - Access to the control and software part number, generator set rating in kVA and generator set model number is provided from the HMI or InPower.

Data logs - Includes engine run time, controller on time, number of start attempts, total kWh, and load profile (control logs data indicating the operating hours at percent of rated kW load, in 5% increments. The data is presented on the operation panel based on total operating hours on the generator.)

Fault history - Provides a record of the most recent fault conditions with control date and time stamp. Up to 32 events are stored in the control non-volatile memory.

Alternator data

- Voltage (single or three phase Line-to-Line and Line-to-Neutral)
- Current (single or three phase)
- kW, kVar, power factor, kVA (three phase and total)
- Frequency

AmpSentry: 3x current regulation for downstream tripping/motor inrush management. Thermal damage curve (3-phase short) or fixed timer (2 sec for 1- Phase Short or 5 sec for 2-Phase short).

Engine data

- Starting battery voltage
- Engine speed
- Engine temperature
- Engine oil pressure
- Engine oil temperature
- Intake manifold temperature
- Comprehensive Full Authority Engine (FAE) data (where applicable)

Service adjustments - The HMI includes provisions for adjustment and calibration of generator set control functions. Adjustments are protected by a password. Functions include:

Service adjustments (continued)

- Engine speed governor adjustments
- Voltage regulation adjustments
- Cycle cranking
- Configurable fault set up
- Configurable output set up
- Meter calibration
- Display language and units of measurement

Engine Control

SAE-J1939 CAN interface to full authority ECMs (where applicable). Provides data swapping between genset and engine controller for control, metering and diagnostics.

12 VDC/24 VDC battery operations - PowerCommand will operate either on 12 VDC or 24 VDC batteries.

Temperature dependent governing dynamics (with electronic governing) - modifies the engine governing control parameters as a function of engine temperature. This allows the engine to be more responsive when warm and more stable when operating at lower temperature levels.

Isochronous governing - (where applicable) Capable of controlling engine speed within +/-0.25% for any steady state load from no load to full load. Frequency drift will not exceed +/-0.5% for a 33 ℃ (60 ℉) change in ambient temperature over an 8 hour period.

Droop electronic speed governing - Control can be adjusted to droop from 0 to 10% from no load to full load.

Remote start mode - It accepts a ground signal from remote devices to automatically start the generator set and immediately accelerate to rated speed and voltage. The remote start signal will also wake up the control from sleep mode. The control can incorporate a time delay start and stop.

Remote and local emergency stop - The control accepts a ground signal from a local (genset mounted) or remote (facility mounted) emergency stop switch to cause the generator set to immediately shut down. The generator set is prevented from running or cranking with the switch engaged. If in sleep mode, activation of either emergency stop switch will wakeup the control.

Sleep mode - The control includes a configurable low current draw state to minimize starting battery current draw when the genset is not operating. The control can also be configured to go into a low current state while in auto for prime applications or applications without a battery charger.

Engine starting - The control system supports automatic engine starting. Primary and backup start disconnects are achieved by one of two methods: magnetic pickup or main alternator output frequency. The control also supports configurable glow plug control when applicable.

Cycle cranking - Is configurable for the number of starting cycles (1 to 7) and duration of crank and rest periods. Control includes starter protection algorithms to prevent the operator from specifying a starting sequence that might be damaging.

Time delay start and stop (cooldown) - Configurable for time delay of 0-300 seconds prior to starting after receiving a remote start signal and for time delay of 0-600 seconds prior to shut down after signal to stop in normal operation modes. Default for both time delay periods is 0 seconds.

Alternator Control

The control includes an integrated three phase Line-to-Line sensing voltage regulation system that is compatible with shunt or PMG excitation systems. The voltage regulation system is a three phase full wave rectified and has an FET output for good motor starting capability.

Major system features include:

Digital output voltage regulation - Capable of regulating output voltage to within +/-1.0% for any loads between no load and full load. Voltage drift will not exceed +/- 1.5% for a 40 ºC (104 ºF) change in temperature in an eight hour period. On engine starting or sudden load acceptance, voltage is controlled to a maximum of 5% overshoot over nominal level. The automatic voltage regulator feature can be disabled to allow the use of an external voltage regulator.

Droop voltage regulation - Control can be adjusted to droop from 0-10% from no load to full load.

Torque-matched V/Hz overload control - The voltage roll-off set point and rate of decay (i.e. the slope of the V/Hz curve) is adjustable in the control.

Fault current regulation - PowerCommand will regulate the output current on any phase to a maximum of three times rated current under fault conditions for both single phase and three phase faults. In conjunction with a permanent magnet generator, it will provide three times rated current on all phases for motor starting and short circuit coordination purpose.

Protective Functions

On operation of a protective function the control will indicate a fault by illuminating the appropriate status LED on the HMI, as well as display the fault code and fault description on the LCD. The nature of the fault and time of occurrence are logged in the control. The service manual and InPower service tool provide service keys and procedures based on the service codes provided.

Protective functions include:

Battle Short Mode

When enabled and the *battle short* switch is active, the control will allow some shutdown faults to be bypassed. If a bypassed shutdown fault occurs, the fault code and description will still be annunciated, but the genset will not shutdown. This will be followed by a *fail to shutdown* fault. Emergency stop shutdowns and others that are critical for proper operation are not bypassed. Please refer to the control application guide or manual for list of these faults.

Derate

The derate function reduces output power of the genset in response to a fault condition. If a derate command occurs while operating on an isolated bus, the control will issue commands to reduce the load on the genset via contact closures or modbus.

Configurable Alarm and Status Inputs

The control accepts up to four alarm or status inputs (configurable contact closed to ground or open) to indicate a configurable (customer-specified) condition.

The control is programmable for warning, shutdown or status indication and for labeling the input.

Emergency Stop

Annunciated whenever either emergency stop signal is received from external switch.

Full Authority Electronic Engine Protection

Engine fault detection is handled inside the engine ECM. Fault information is communicated via the SAE-J1939 data link for annunciation in the HMI.

General Engine Protection

Low and high battery voltage warning - Indicates status of battery charging system (failure) by continuously monitoring battery voltage.

Weak battery warning - The control system will test the battery each time the generator set is signaled to start and indicate a warning if the battery indicates impending failure.

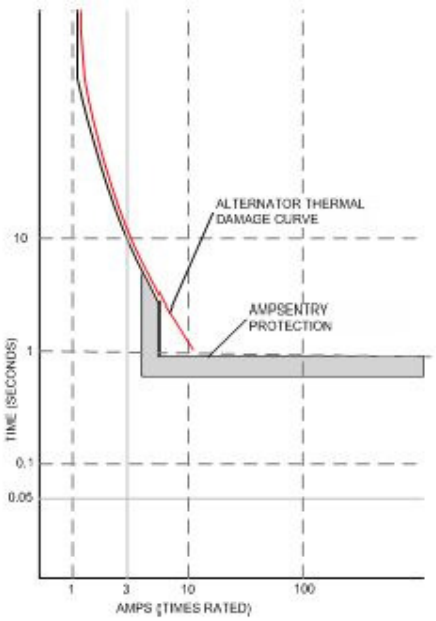
Fail to start (overcrank) shutdown - The control system will indicate a fault if the generator set fails to start by the completion of the engine crack sequence.

Fail to crank shutdown - Control has signaled starter to crank engine but engine does not rotate.

Cranking lockout - The control will not allow the starter to attempt to engage or to crank the engine when the engine is rotating.

Alternator Protection

AmpSentry protective relay - A comprehensive monitoring and control system integral to the PowerCommand Control System that guards the electrical integrity of the alternator and power system by providing protection against a wide array of fault conditions in the generator set or in the load. It also provides single and three phase fault current regulation so that downstream protective devices have the maximum current available to quickly clear fault conditions without subjecting the alternator to potentially catastrophic failure conditions. Thermal damage curve (3-Phase short) or fixed timer (2 sec for 1-Phase short, 5 sec for 2-Phase short). See document R1053 for a full-size time over current curve.



AmpSentry Maintenance Mode (AMM) - Instantaneous tripping, if AmpSentry Maintenance mode is active (50mS response to turn off AVR excitation/shutdown genset) for arc flash reduction when personnel are near genset.

High AC voltage shutdown (59) - Output voltage on any phase exceeds preset values. Time to trip is inversely proportional to amount above threshold. Values adjustable from 105-125% of nominal voltage, with time delay adjustable from 0.1-10 seconds. Default value is 110% for 10 seconds.

Low AC voltage shutdown (27) - Voltage on any phase has dropped below a preset value. Adjustable over a range of 50-95% of reference voltage, time delay 2-20 seconds. Default value is 85% for 10 seconds. Function tracks reference voltage. Control does not nuisance trip when voltage varies due to the control directing voltage to drop, such as during a V/Hz roll-off during synchronizing.

Under frequency shutdown (81 u) - Generator set output frequency cannot be maintained. Settings are adjustable from 2-10 Hz below reference governor set point, for a 5- 20 second time delay. Default: 6 Hz, 10 seconds.

Under frequency protection is disabled when excitation is switched off, such as when engine is operating in idle speed mode.

Over frequency shutdown/warning (81 o) - Generator set is operating at a potentially damaging frequency level. Settings are adjustable from 2-10 Hz above nominal governor set point for a 1-20 second time delay. Default: 6 Hz,
20 seconds, disabled.

Overcurrent warning/shutdown - Thresholds and time delays are configurable. Implementation of the thermal damage curve with instantaneous trip level calculated based on current transformer ratio and application power rating.

Loss of sensing voltage shutdown - Shutdown of generator set will occur on loss of voltage sensing inputs to the control.

Field overload shutdown - Monitors field voltage to shutdown generator set when a field overload condition occurs.

Over load (kW) warning - Provides a warning indication when engine is operating at a load level over a set point.

Adjustment range: 80-140% of application rated kW, 0-120 second delay. Defaults: 105%, 60 seconds.

Reverse power shutdown (32) - Adjustment range: 5-20% of standby kW rating, delay 1-15 seconds. Default: 10%, 3 seconds.

Reverse Var shutdown - Shutdown level is adjustable: 15-50% of rated Var output, delay 10-60 seconds. Default: 20%, 10 seconds.

Short circuit protection - Output current on any phase is more than 175% of rating and approaching the thermal damage point of the alternator. Control includes algorithms to protect alternator from repeated over current conditions over a short period of time.

Field Control Interface

Input signals to the PowerCommand control include:

- Coolant level (where applicable)
- Fuel level (where applicable)
- Remote emergency stop
- Remote fault reset
- Remote start
- Battleshort
- Rupture basin
- Start type signal
- Configurable inputs - Control includes (4) input signals from customer discrete devices that are configurable for warning, shutdown or status indication, as well as message displayed

Output signals from the PowerCommand control include:

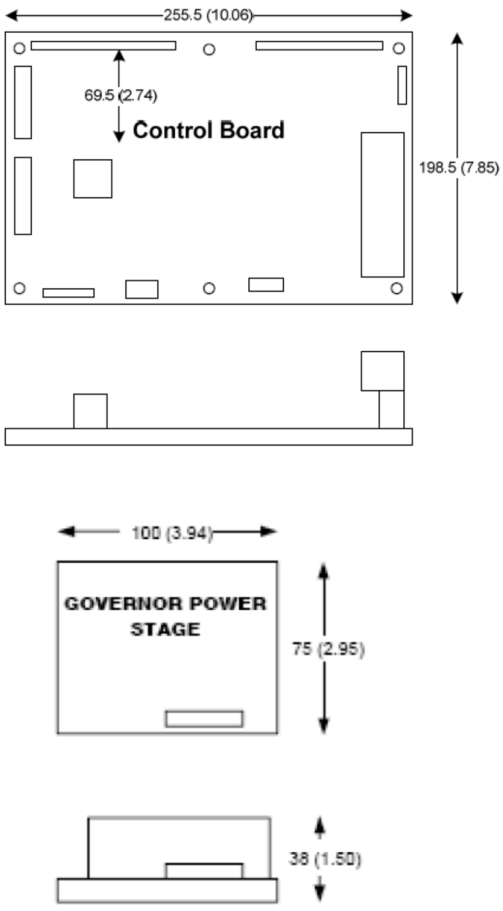
- Load dump signal: Operates when the generator set is in an overload condition.
- Delayed off signal: Time delay based output which will continue to remain active after the control has removed the run command. Adjustment range: 0 – 120 seconds. Default: 0 seconds.
- Configurable relay outputs: Control includes (4) relay output contacts (3 A, 30 VDC). These outputs can be configured to activate on any control warning or shutdown fault as well as ready to load, not in auto, common alarm, common warning and common shutdown.
- Ready to load (generator set running) signal: Operates when the generator set has reached 90% of rated speed and voltage and latches until generator set is switched to off or idle mode.

Communications Connections Include:

- PC tool interface: This RS-485 communication port allows the control to communicate with a personal computer running InPower software.
- Modbus RS-485 port: Allows the control to communicate with external devices such as PLCs using Modbus protocol.

  Note - An RS-232 or USB to RS-485 converter is required for communication between PC and control.
- Networking: This RS-485 communication port allows connection from the control to the other Cummins products.

Mechanical Drawings



PowerCommand Human Machine Interface HMI320

Description

This control system includes an intuitive operator interface panel that allows for complete genset control as well as system metering, fault annunciation, configuration and diagnostics. The interface includes five genset status LED lamps with both internationally accepted symbols and English text to comply with customer's needs. The interface also includes an LED backlit LCD display with tactile feel soft-switches for easy operation and screen navigation. It is configurable for units of measurement and has adjustable screen contrast and brightness.

The *run/off/auto* 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.

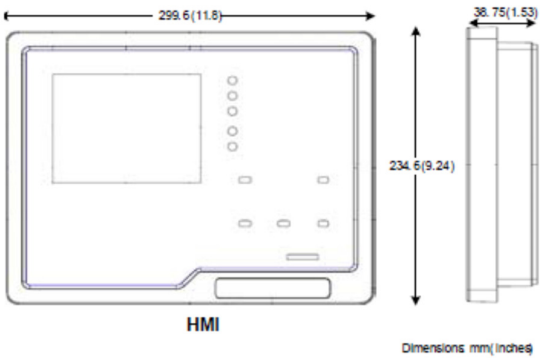
Features

- LED indicating lamps:
  - Genset running
  - Remote start
  - Not in auto
  - Shutdown
  - Warning
  - Auto
  - Manual and stop
- 320 x 240 pixels graphic LED backlight LCD.
- Four tactile feel membrane switches for LCD defined operation. The functions of these switches are defined dynamically on the LCD.
- Seven tactile feel membrane switches dedicated screen navigation buttons for up, down, left, right, ok, home and cancel.
- Six tactile feel membrane switches dedicated to control for auto, stop, manual, manual start, fault reset and lamp test/panel lamps.
- Two tactile feel membrane switches dedicated to control of circuit breaker (where applicable).
- Allows for complete genset control setup.
- Certifications: Suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards.
- LCD languages supported: English, Spanish, French, German, Italian, Greek, Dutch, Portuguese, Finnish, Norwegian, Danish, Russian and Chinese Characters.

Communications connections include:

- PC tool interface - This RS-485 communication port allows the HMI to communicate with a personal computer running InPower.
- This RS-485 communication port allows the HMI to communicate with the main control board.

Mechanical Drawing



Software

InPower (beyond 6.5 version) is a PC-based software service tool that is designed to directly communicate to PowerCommand generator sets and transfer switches, to facilitate service and monitoring of these products.

Environment

The control is designed for proper operation without recalibration in ambient temperatures from -40 ºC to +70º C (-40 ºF to 158 ºF) and for storage from -55 ºC to +80 ºC (-67 ºF to 176 ºF). Control will operate with humidity up to 95%, non-condensing.

The HMI is designed for proper operation in ambient temperatures from -20 ºC to +70 ºC (-4 ºF to 158 ºF) and for storage from -30 ºC to +80 ºC (-22 ºF to 176 ºF).

The control board is fully encapsulated to provide superior resistance to dust and moisture. Display panel has a single membrane surface, which is impervious to effects of dust, moisture, oil and exhaust fumes. This panel uses a sealed membrane to provide long reliable service life in harsh environments.

The control system is specifically designed and tested for resistance to RFI/EMI and to resist effects of vibration to provide a long reliable life when mounted on a generator set. The control includes transient voltage surge suppression to provide compliance to referenced standards.

Certifications

PowerCommand meets or exceeds the requirements of the following codes and standards:

- NFPA 110 for level 1 and 2 systems.
- ISO 8528-4: 1993 compliance, controls and switchgear.
- CE marking: The control system is suitable for use on generator sets to be CE-marked.
- EN50081-1,2 residential/light industrial emissions or industrial emissions.
- EN50082-1,2 residential/light industrial or industrial susceptibility.
- ISO 7637-2, level 2; DC supply surge voltage test.
- Mil Std 202C, Method 101 and ASTM B117: Salt fog test.
- UL 6200 recognized and suitable for use on UL 2200 Listed generator sets.
- CSA C282-M1999 compliance
- CSA 22.2 No. 14 M91 industrial controls.
- PowerCommand control systems and generator sets are designed and manufactured in ISO 9001 certified facilities.

Warranty

All components and subsystems are covered by an express limited one year warranty. Other optional and extended factory warranties and local distributor maintenance agreements are available.

PCCNet COMPATIBLE

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

Our energy working for you.™

PDS-1569 | PD00000157 | (12/19)

Alternator data sheet — Frame size: UCD3J

Characteristics

Weights:	Wound stator assembly:	670.205 lb	304 kg
	Rotor assembly:	597.45 lb	271.9 kg
	Complete alternator:	1602.76 lb	727 kg
Maximum speed:		2250 rpm	
Excitation current:	Full load:	2.20 Amps	
	No load:	0.50 Amps	
Insulation system:	Class H throughout		

1 Ø Ratings (1.0 power factor)		**60 Hz** (winding no)					**50 Hz** (winding no)			
(Based on specific temperature rise at 40 °C ambient temperature)		Double delta			4 lead		Double delta			
		120/240			120/240		110-120 220-240			
125 °C Rise ratings	kW/kVA	161/201			175/219		140/175			
105 °C Rise ratings	kW/kVA	150/188			157/196		126/158			

3 Ø Ratings (0.8 power factor)		Upper broad range			LBR*	347/600	Broad range			
(Based on specified temperature rise at 40 °C ambient temperature)		120/208 240/416	127/220 255/440	139/240 277/480	190-208 380-416	347/600	110/190 220/380	115/200 230/400	120/208 240/415	127/220 254/440
150 °C Rise ratings	kW	230	240	255	255	230	200	200	200	172
	kVA	288	300	319	319	288	250	250	250	215
125 °C Rise ratings	kW	215	225	240	240	215	184	184	184	164
	kVA	269	281	300	300	269	230	230	230	205
105 °C Rise ratings	kW	200	211	220	220	200	168	168	168	148
	kVA	250	264	275	275	250	210	210	210	185
80 °C Rise ratings	kW	170	180	190	190	170	154	154	154	128
	kVA	213	225	238	238	213	193	193	193	160

3 Ø Reactances (per unit, ±10%)	**416**	**440**	**480**	**380**	**600**	**380**	**400**	**415**	**440**
(Based on full load at 105 °C rise rating)									
Synchronous	2.651	2.457	2.221	2.00	2.00	1.939	1.75	1.626	N/A
Transient	0.164	0.153	0.137	0.13	0.13	0.103	0.093	0.086	N/A
Subtransient	0.096	0.09	0.08	0.07	0.07	0.07	0.064	0.059	N/A
Negative sequence	0.117	0.109	0.098	0.14	0.14	0.117	0.105	0.098	N/A
Zero sequence	0.048	0.045	0.04	0.04	0.04	0.044	0.04	0.037	N/A

3 Ø Motor starting		Broad range	LBR*	600	Broad range
Maximum kVA	(Shunt)	770	770	770	535
(90% sustained voltage)	(PMG)	920	920	920	678

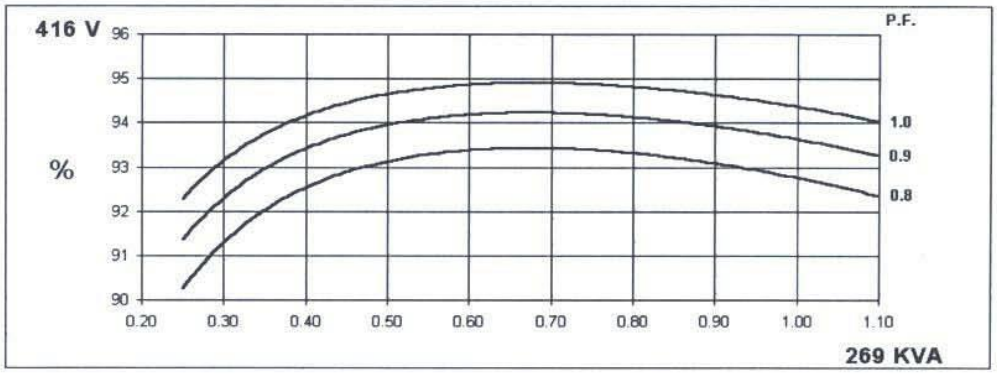
Time constants (Sec)				
Transient	0.045	0.045	0.045	0.045
Subtransient	0.015	0.015	0.015	0.015
Open circuit	1.270	1.270	1.270	1.270
DC	0.030	0.030	0.030	0.030

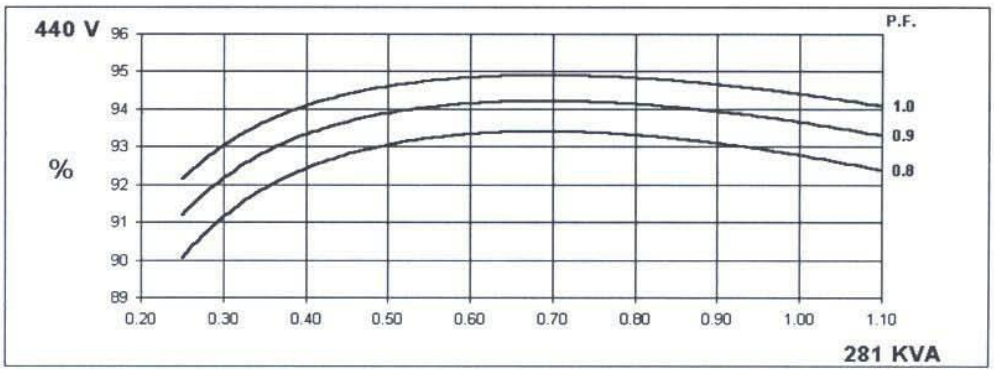
Windings (@ 20° C)					
Stator resistance	(Ohms per phase)	0.0128	0.0128	0.0128	0.0128
Rotor resistance	(Ohms)	2.0000	2.0000	2.0000	2.0000
Number of leads		12	12	6	12

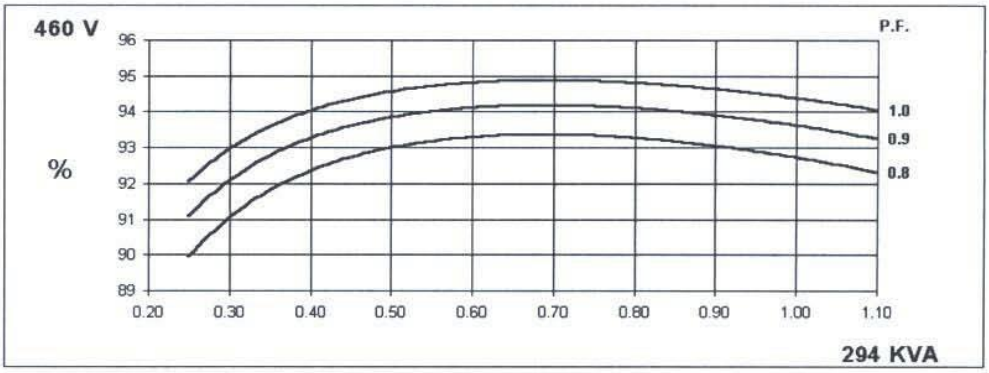
* Lower broad range 110/190 thru 120/208, 220/380 thru 240/416.

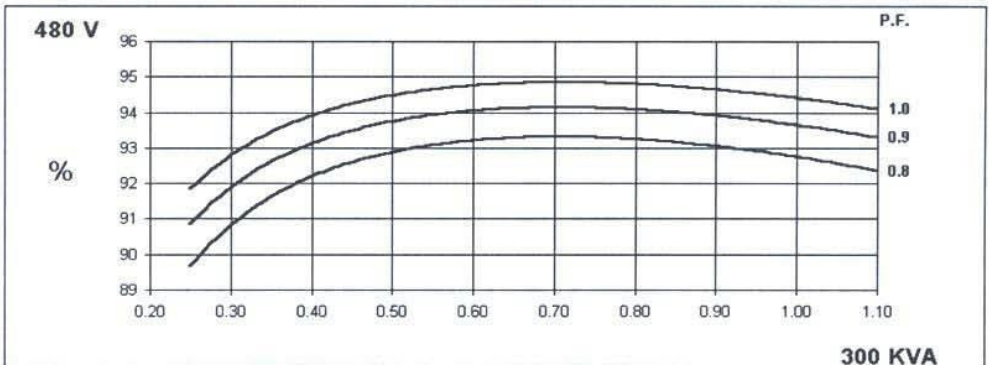
Winding 311

THREE PHASE EFFICIENCY CURVES



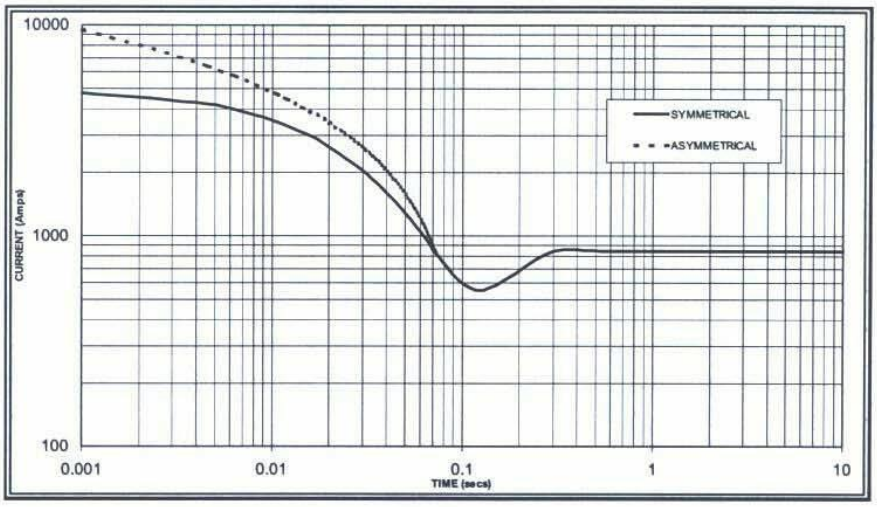






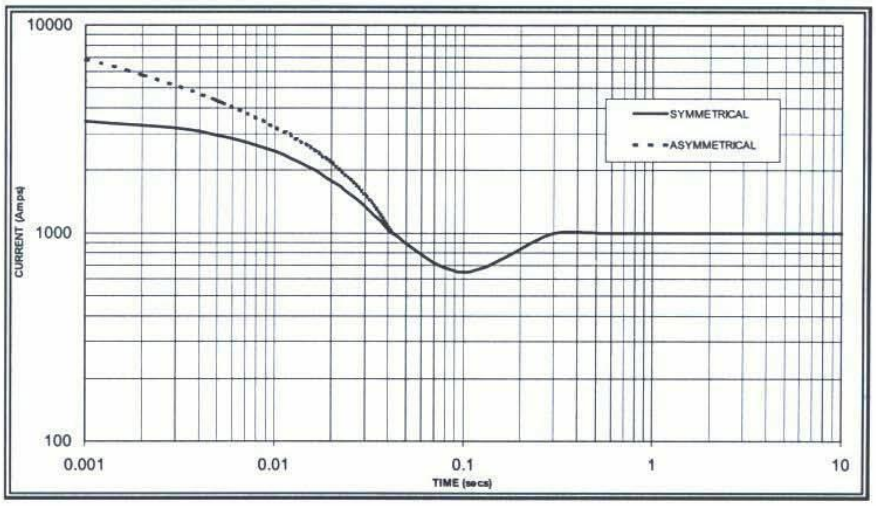
Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed
Based on star (wye) connection.

50 Hz



Sustained Short Circuit = 850 Amps

60 Hz



Sustained Short Circuit = 1,000 Amps

Note 1

The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

50Hz		60Hz	
Voltage	Factor	Voltage	Factor
380v	X 1.00	416v	X 1.00
400v	X 1.05	440v	X 1.07
415v	X 1.10	460v	X 1.12
440v	X 1.16	480v	X 1.16

The sustained current value is constant irrespective of voltage level

Note 2

The following multiplication factor should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

	3-phase	2-phase L-L	1-phase L-N
Instantaneous	x 1.00	x 0.87	x 1.30
Minimum	x 1.00	x 1.80	x 3.20
Sustained	x 1.00	x 1.50	x 2.50
Max. sustained duration	10 sec.	5 sec.	2 sec.

All other times are unchanged

Note 3

Curves are drawn for Star (Wye) connected machines. For other connection the following multipliers should be applied to current values as shown :

Parallel Star = Curve current value X 2

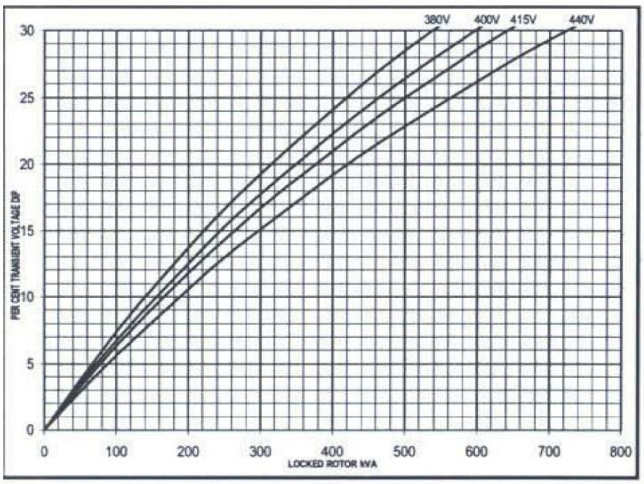
Series Delta = Curve current value X 1.732

Winding 311

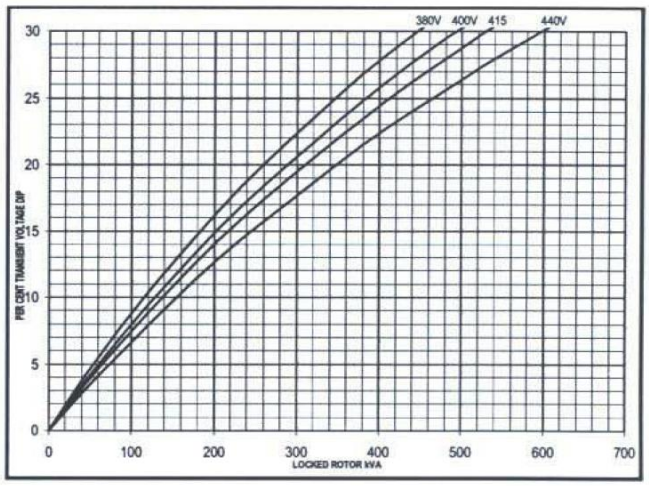
Locked Rotor Motor Starting Curve

50 Hz

MX

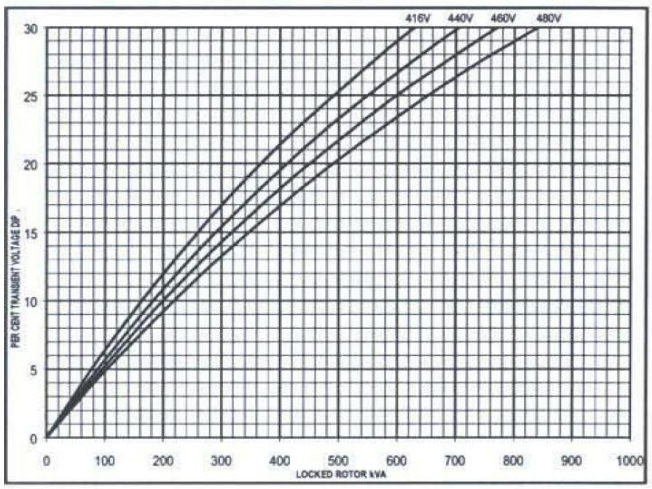


SX

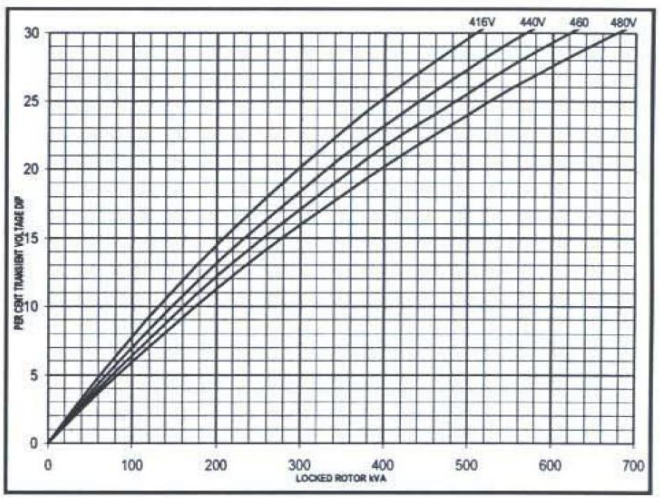


60 Hz

MX



SX



Additional Generator Accessories & Services

Salem-South Lyon Lib

1. Cummins Equipment Start-Up Service during Normal Business Hours
2. Lube Oil and Antifreeze
3. 12 VDC Engine Starting Battery
4. On-Site Load Bank Test
5. On-Site Personnel Training
6. Circuit Breaker One (1) 200A-600A 100% Rated Mounted Right LSI

BP-125

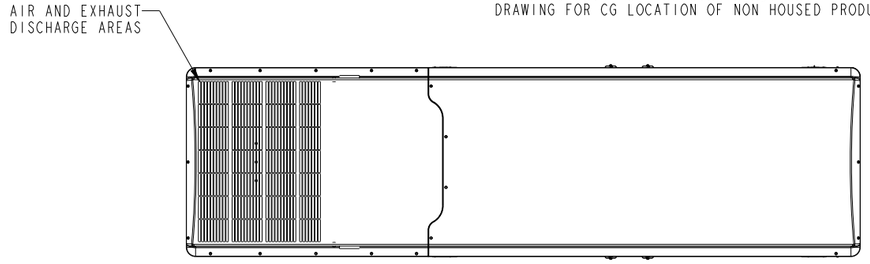
PTC® Creo® Parametric

REL NO	REV	NO	REVISION	DWN	CKD	APVD	DATE
ECO-164828	A	1	PRODUCTION_RELEASE	YN	NK	A_CHINTHALURI	30SEP16

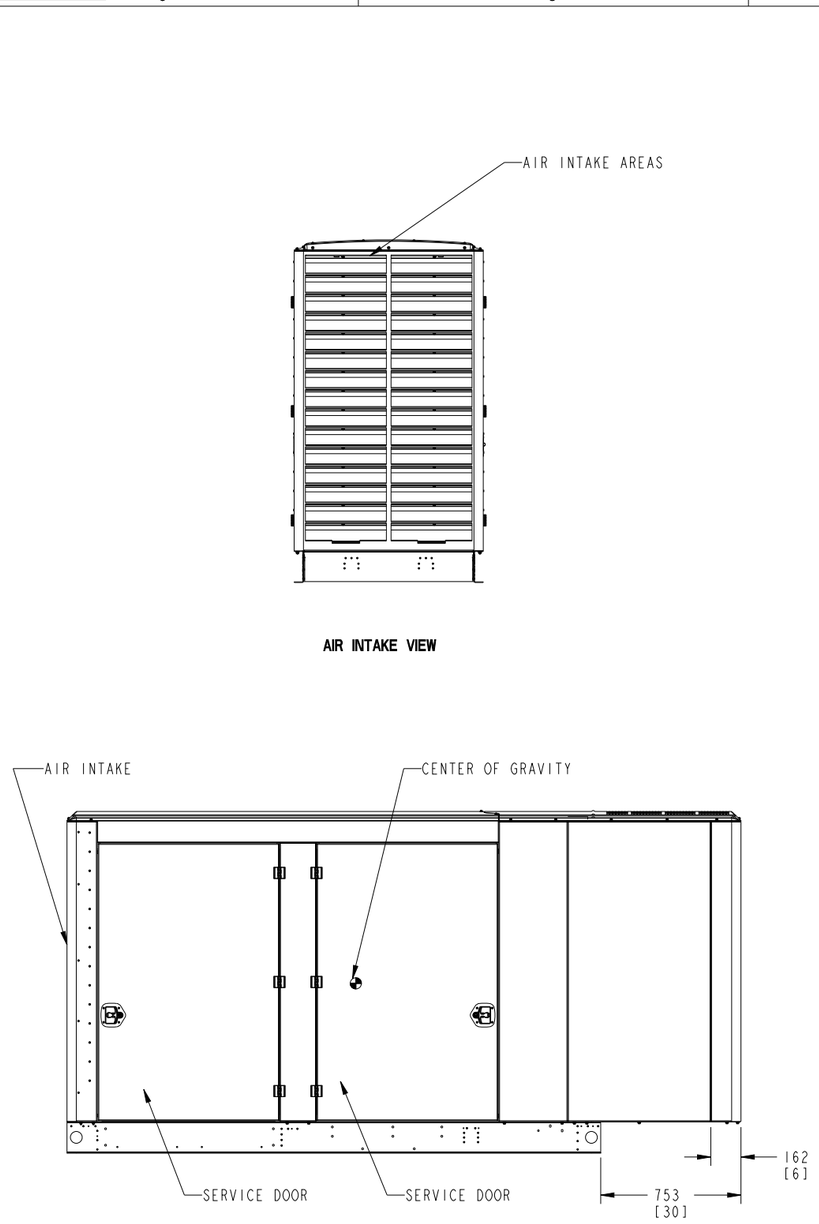
NOTES:

1. DIM [] IN INCHES
2. WITH THIS HOUSING INSTALLED ON AN OPEN GENERATOR SET, THE TOTAL WEIGHT WILL INCREASE BY 196 KG (432 LBS). THIS INCLUDES THE MUFFLER.
3. THE CENTER OF GRAVITY OF THE GENERATOR SET WHEN EQUIPPED WITH THIS HOUSING SHIFTS APPROXIMATELY 63MM (2.48 INCH) TOWARDS THE AIR DISCHARGE END OF THE HOUSING AND 36MM (1.42 INCH) HIGHER FROM THE GROUND, COMPARED TO THE EQUIVALENT NON-HOUSED PRODUCT WITH THE F179 SKID. SEE HOUSING READY SKID BASE OUTLINE DRAWING FOR CG LOCATION OF NON HOUSED PRODUCT.

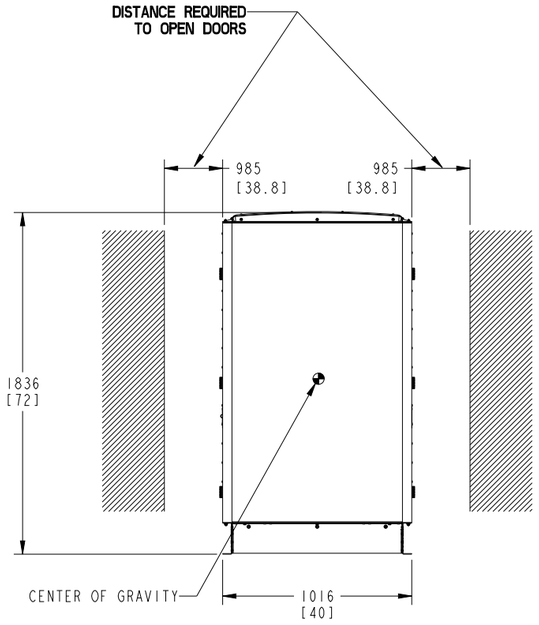
AIR INTAKE VIEW



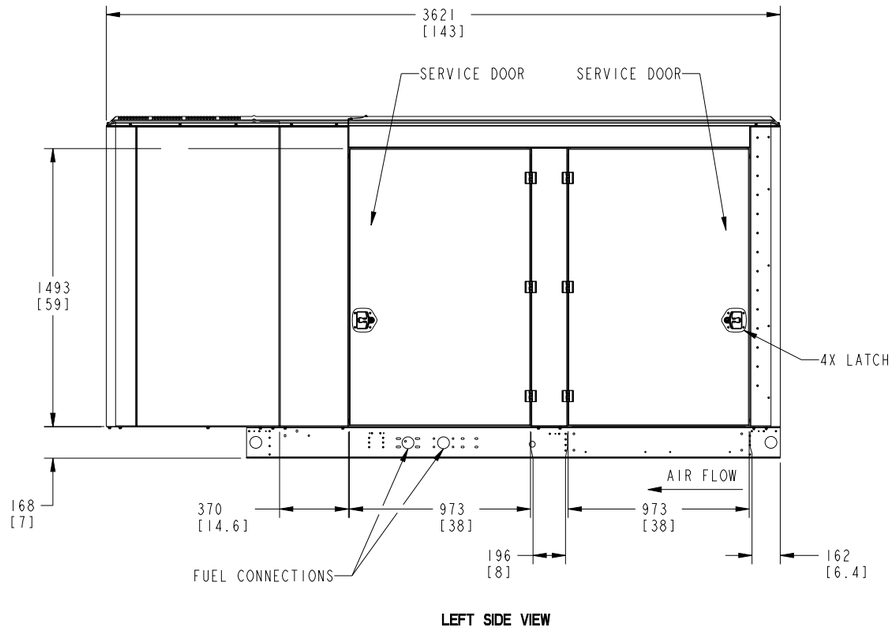
TOP VIEW



RIGHT SIDE VIEW



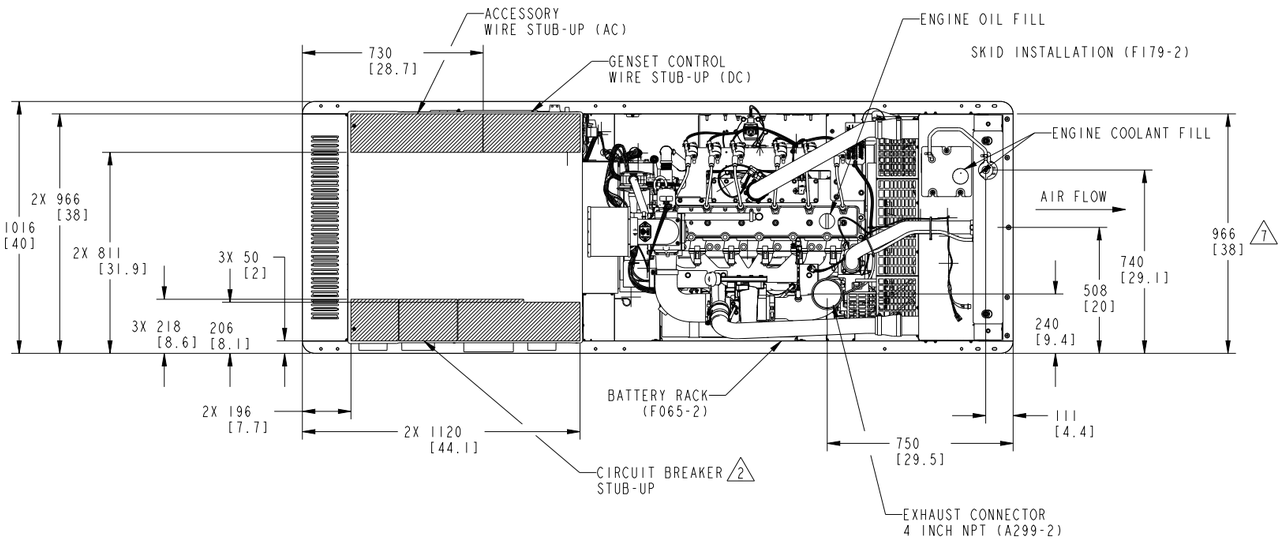
AIR OUTLET VIEW

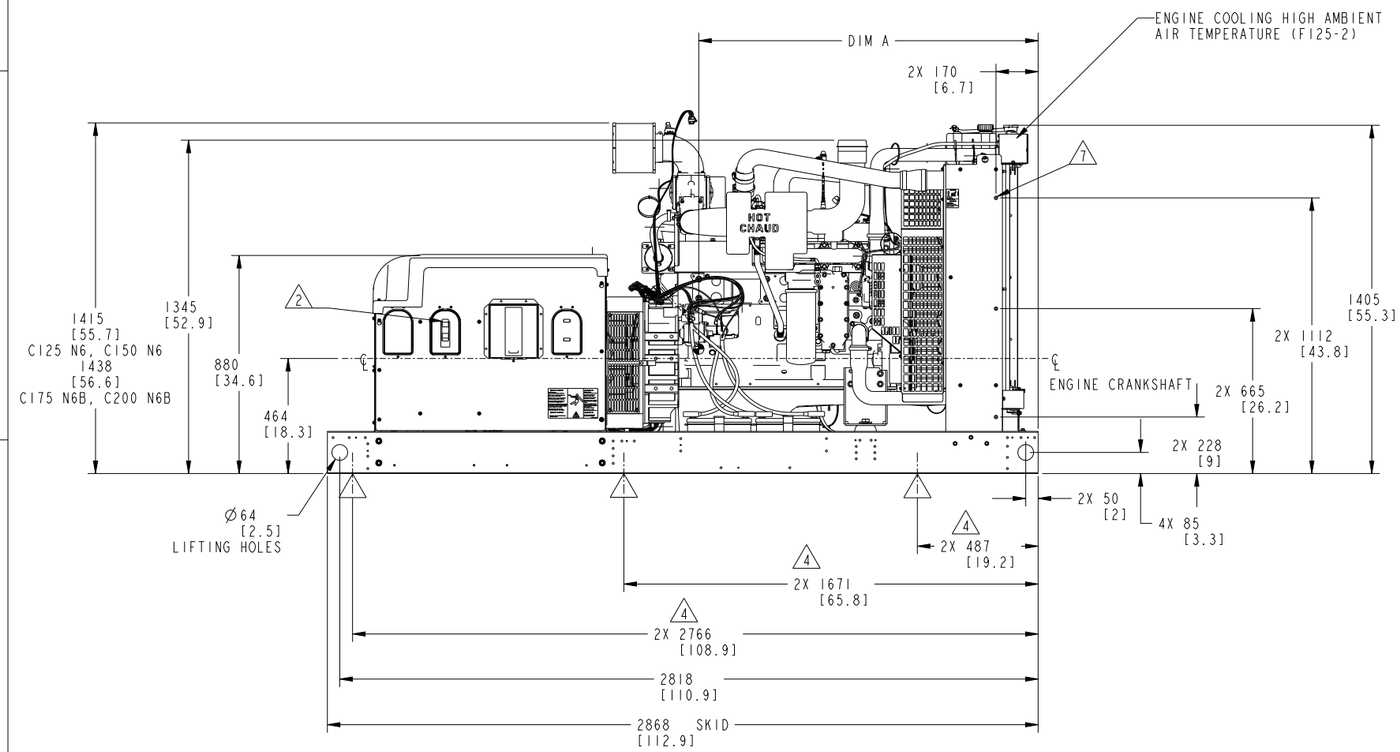


LEFT SIDE VIEW

F231-2 ENCLOSURE CONFIGURATION

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS		SIM TO A051P365	DWN Y_NICHIT	Cummins	CUMMINS POWER GENERATION
DIM: X ±1; .X ±0.8; .XX± 0.38 — HOLE: 0.00- 4.99 +0.15/-0.08; 5.00- 9.99 +0.20/-0.10; 10.00-17.49 +0.25/-0.13; 17.50-24.99 +0.30/-0.13		DO NOT SCALE PRINT	CKD N_KASIBHOTLA		
			APVD A_CHINTHALURI		OUTLINE, ENCLOSURE
			DATE 20SEP16	SITE CODE	
ANG TOL ± 1.0°	SCALE 1/15	THIS DOCUMENT (AND THE INFORMATION SHOWN THEREON) IS CONFIDENTIAL AND PROPRIETARY AND SHALL NOT BE DISCLOSED TO OTHERS IN HARD COPY OR ELECTRONIC FORM, REPRODUCED BY ANY MEANS, OR USED FOR ANY PURPOSE WITHOUT WRITTEN CONSENT OF CUMMINS INC.	FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5-2009	FIRST USED ON ARROW	PGF — DWG SIZE D — A055V240 — CAD SHEET 1 OF 2

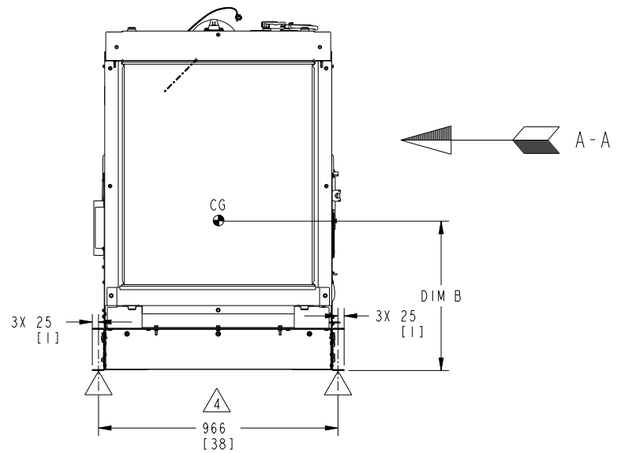




NOTES:

1. DIMENSIONS SHOWN IN [ ] ARE IN INCHES.
2. REFER TO CIRCUIT BREAKER OUTLINE DRAWING FOR COMPLETE ELECTRICAL STUB-UP INFORMATION FOR SPECIFIC BREAKERS AND BREAKER POSITIONS.
3. CONTROL INTERFACE CONNECTION SHOULD BE MADE WITH FLEXIBLE CONNECTIONS.
4. Ø21 [0.8] HOLES MARKED BY △ FOR SECURING TO MOUNTING SURFACE.
5. OIL DRAIN EXTENSION: 15.8 [0.62] INCH ID HOSE.
6. FOR IBC SEISMIC CERTIFIED INSTALLATION, SEE GENSET IBC SEISMIC INSTALLATION REQUIREMENT DRAWING.
7. Ø7.3 [0.28] HOLES FOR OPTIONAL COOLING EXHAUST AIR DUCT ADAPTER.
8. REFER TO GENSET FOUNDATION OUTLINE FOR ELECTRICAL AND OTHER FOUNDATION SPECIFICS.

TABULATION				
ALT DATA SHEET #	DIM A	DIM B	GENSET WET WEIGHT	
			KG	LB
ADS-208	1400	546	1485	3267
ADS-209	1421	544	1534	3375
ADS-210	1445	541	1571	3457
ADS-211	1467	538	1610	3543
ADS-212	1495	533	1698	3735
ADS-213	1495	533	1698	3735

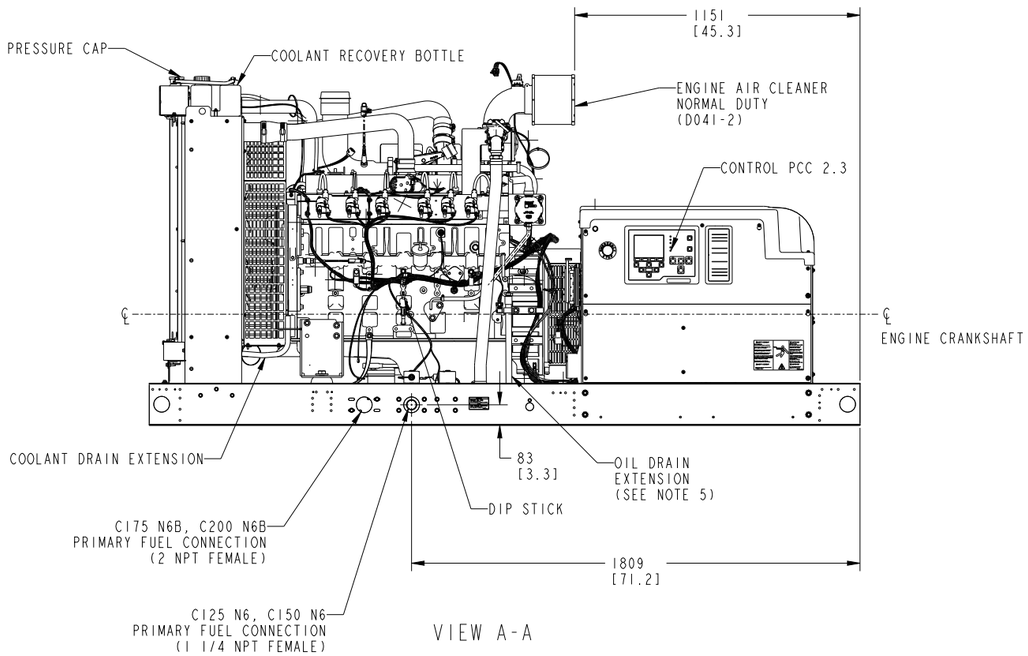


C125 N6, C150 N6, C175 N6B, C200 N6B

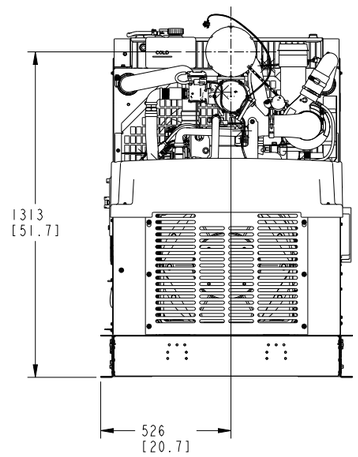
Cummins Inc.		
DIMENSIONS ARE IN: MILLIMETERS [ ] ARE IN: -	SIZE: D	SCALE:3:32
DIMENSIONING AND TOLERANCING PER: ASME Y14.5-2009	THIRD ANGLE PROJECTION	CAD SYSTEM PTC® Creo® Parametric

Document Generated: 17AUG2022 19:56 GMT

Part Number: **A055J588** Part Revision: **D**
Part Name: **OUTLINE,GENSET**
Drawing Category: **Detail** State: **Released**



VIEW A-A



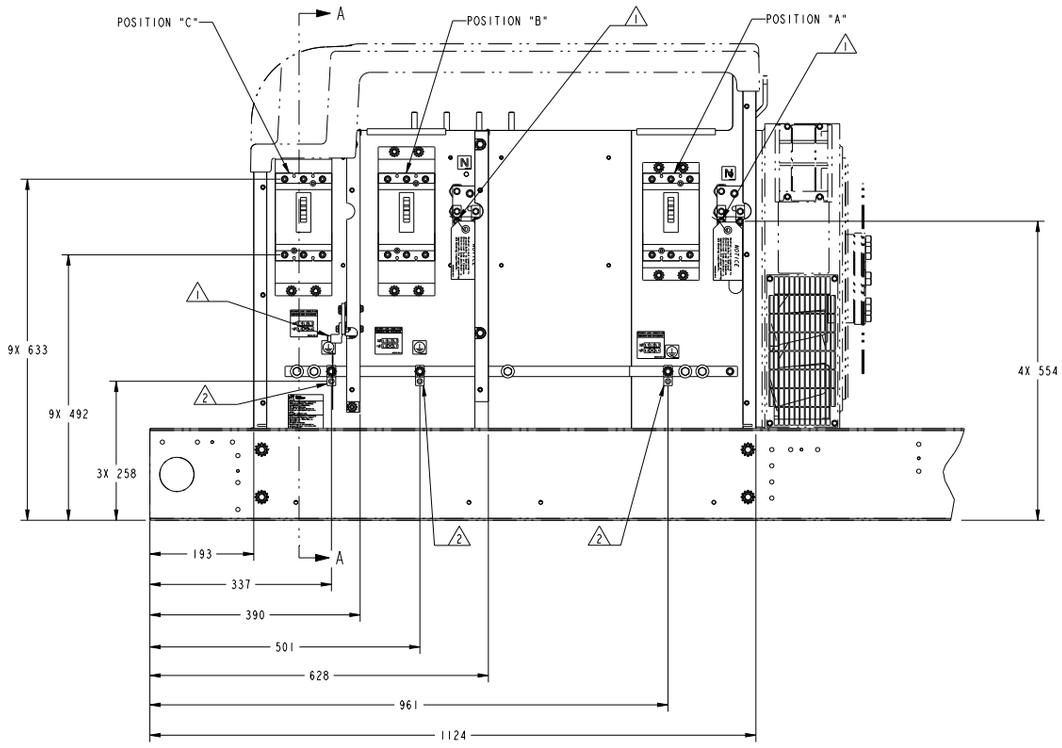
C125 N6, C150 N6, C175 N6B, C200 N6B

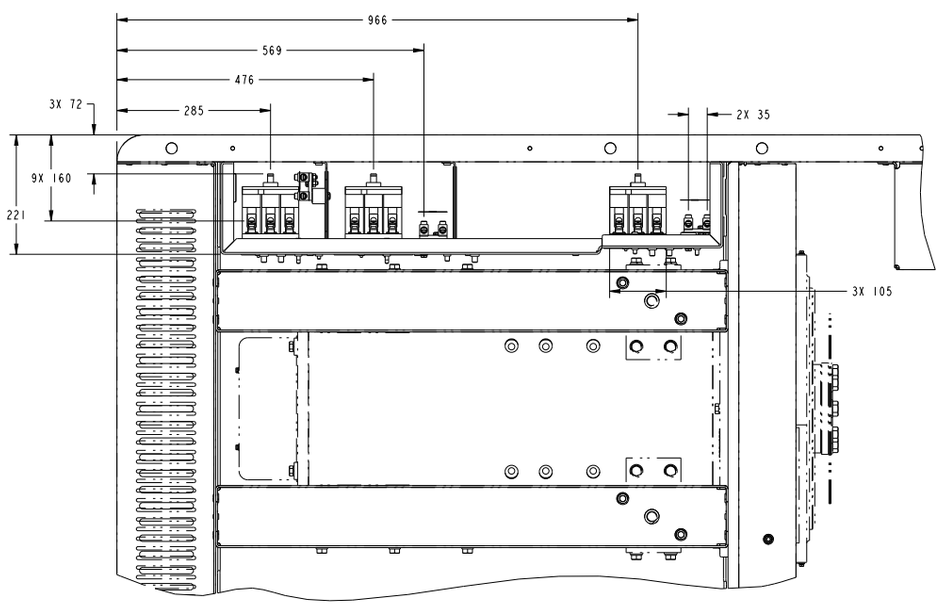
Cummins Inc.		
DIMENSIONS ARE IN: MILLIMETERS [ ] ARE IN: -	SIZE: D	SCALE:3:32
DIMENSIONING AND TOLERANCING PER: ASME Y14.5-2009	THIRD ANGLE PROJECTION	CAD SYSTEM PTC® Creo® Parametric

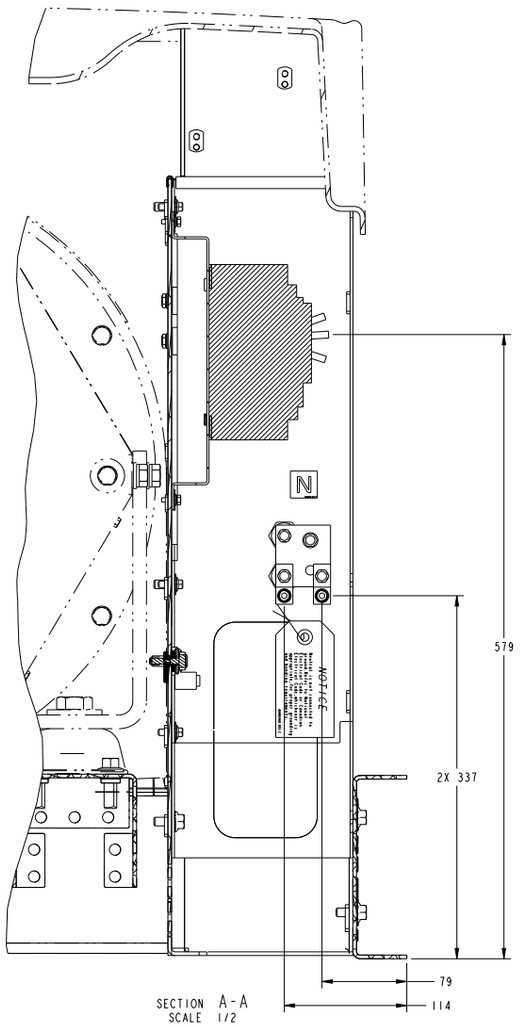
PTC® Creo® Parametric

REL NO	REV	NO	REVISION	DRN	CKD	APVD	DATE
ECO-181477	E	1	ADD SHEET 6	RT	MT	M.TULADHAR	05NOV18
		2	ZONE (A1) ADD TABLE	RT	MT	M.TULADHAR	05NOV18
		3	ZONE (B1) UPDATE "CIRCUIT BREAKER ACCESSORIES" TABLE	RT	MT	M.TULADHAR	05NOV18

"H" FRAME SHOWN (15 - 150 amp)







SECTION A-A
SCALE 1/2

NOTES:

1. NEUTRAL LUG (1) #14-2/0.
2. GROUND LUG (1) #14-1/0.
3. NEUTRAL LUG (1) #6-350 kcmil.
4. NEUTRAL LG (2) #2-600 kcmil OR (4) 1/0-250 kcmil.

FRAME	LUG	LUG WIRE RANGE	WIRE STRIP LENGTH	CB LUG TORQUE
H-FRAME THERMAL-MAGNETIC 15-150 AMP 80% RATED	AL150HD	(1) AL #14 - 3/0 AWG (1) CU #14 - 3/0 AWG	0.65 inch	#14 - #10 50 lb-in (6.0 Nm) #8 - 3/0 120 lb-in (14.0 Nm)
J-FRAME THERMAL-MAGNETIC 175 AMP 80% RATED	AL175HD	(1) AL #4 - 4/0 AWG (1) CU #4 - 4/0 AWG	1.00 inch	225 lb-in (26.0 Nm)
J-FRAME THERMAL-MAGNETIC 200-250 AMP 80% RATED	AL250JD	(1) AL 3/0 - 350 kcmil (1) CU 3/0 - 350 kcmil	1.00 inch	225 lb-in (26.0 Nm)
J-FRAME LSI ELECTRONIC TRIP ADJUSTABLE TRIP 70-250 AMP 100% RATED, COPPER CONDUCTORS ONLY	CU250JD	(1) CU 1/0 - 300 kcmil	1.00 inch	250 lb-in (28.0 Nm)
L-FRAME (400) LSI ELECTRONIC TRIP ADJUSTABLE TRIP 125-400 AMP 80% RATED	AL400L61K3	(1) AL #2 - 500 kcmil (1) CU #2 - 600 kcmil	1.20 inch	442 lb-in (50 Nm)
L-FRAME (400) LSI ELECTRONIC TRIP ADJUSTABLE TRIP 125-400 AMP 100% RATED, COPPER CONDUCTORS ONLY	AL600LS52K3	(2) CU 2/0 - 500 kcmil	(1) 1.20 inch (1) 2.40 inch	442 lb-in (50 Nm)
L-FRAME (600) LSI ELECTRONIC TRIP ADJUSTABLE TRIP 200-600 AMP 80% RATED 100% RATED, COPPER CONDUCTORS ONLY	AL600LS52K3	(2) AL 2/0 - 500 kcmil (2) CU 2/0 - 500 kcmil	(1) 1.20 inch (1) 2.40 inch	442 lb-in (50 Nm)
P-FRAME MANUAL & AUTOMATIC LSI ELECTRONIC TRIP ADJUSTABLE TRIP 400, 600 & 800 AMP 80% AND 100% RATED	AL800LS52K3	(3) AL 3/0 - 500 kcmil (3) CU 3/0 - 500 kcmil	(3) 1.20 inch	442 lb-in (50 Nm)

CIRCUIT BREAKER ACCESSORIES	
1	SHUNT TRIP (MX) P/N A043X760 12 VDC COIL BURDEN < 5 WATTS 10 AMP IN-RUSH
2	AUXILIARY CONTACTS P/N A043X785 OPEN/CLOSED (OF) TRIP INDICATION (SD) FORM C CONTACTS RATING: 6 AMPS AT 24 VAC, 48 VAC, 110 VAC 6 AMPS AT 24 VDC, 2.5 AMPS AT 48 VDC 0.6 AMPS AT 110 VDC H & J FRAME, MAXIMUM OF 4 CONTACTS PER CIRCUIT BREAKER L FRAME, MAXIMUM OF 5 CONTACTS PER CIRCUIT BREAKER P FRAME, MAXIMUM OF 5 CONTACTS PER CIRCUIT BREAKER
3	ACCESSORY KIT P/N A060M822 FOR TOP ENTRY LOAD CABLE ENTRY APPLICABLE FOR MODEL AND BREAKER CONFIGURATION AS PER "TABLE 1"

TABLE 1

KIT PART NUMBER	MODELS AFFECTED		ENCLOSURES AFFECTED
A060M822	C125 N6-C150 N6		OPEN ONLY
	C125 D6D- C200 D6D		
KIT PART NUMBER	NUMBER OF CB'S	LIMITATION		
		POS A	POS B	POS C
A060M822	1	ANY RATING	-	-
	2	ANY RATING	600A OR BELOW	-
	3	ANY RATING	400A OR BELOW	250A OR BELOW

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS

DIM: X ±1; .X ±0.8; .XX± 0.38

DECIMAL: 0.00- 4.99 +0.15/-0.08; 5.00- 9.99 +0.20/-0.10; 10.00-17.49 +0.25/-0.13; 17.50-24.99 +0.30/-0.13

ANG TOL ± 1.0°

SCALE 1/4

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SIM TO .

DO NOT SCALE PRINT

DRN A.JOHNSON

CKD A.JOHNSON

APVD P.LARSON

DATE 02MAY16

FOR INTERPRETATION OF DIMENSIONS AND TOLERANCES SEE ASME Y14.5-2009

FIRST USED ON ARROW

SITE CODE PGF

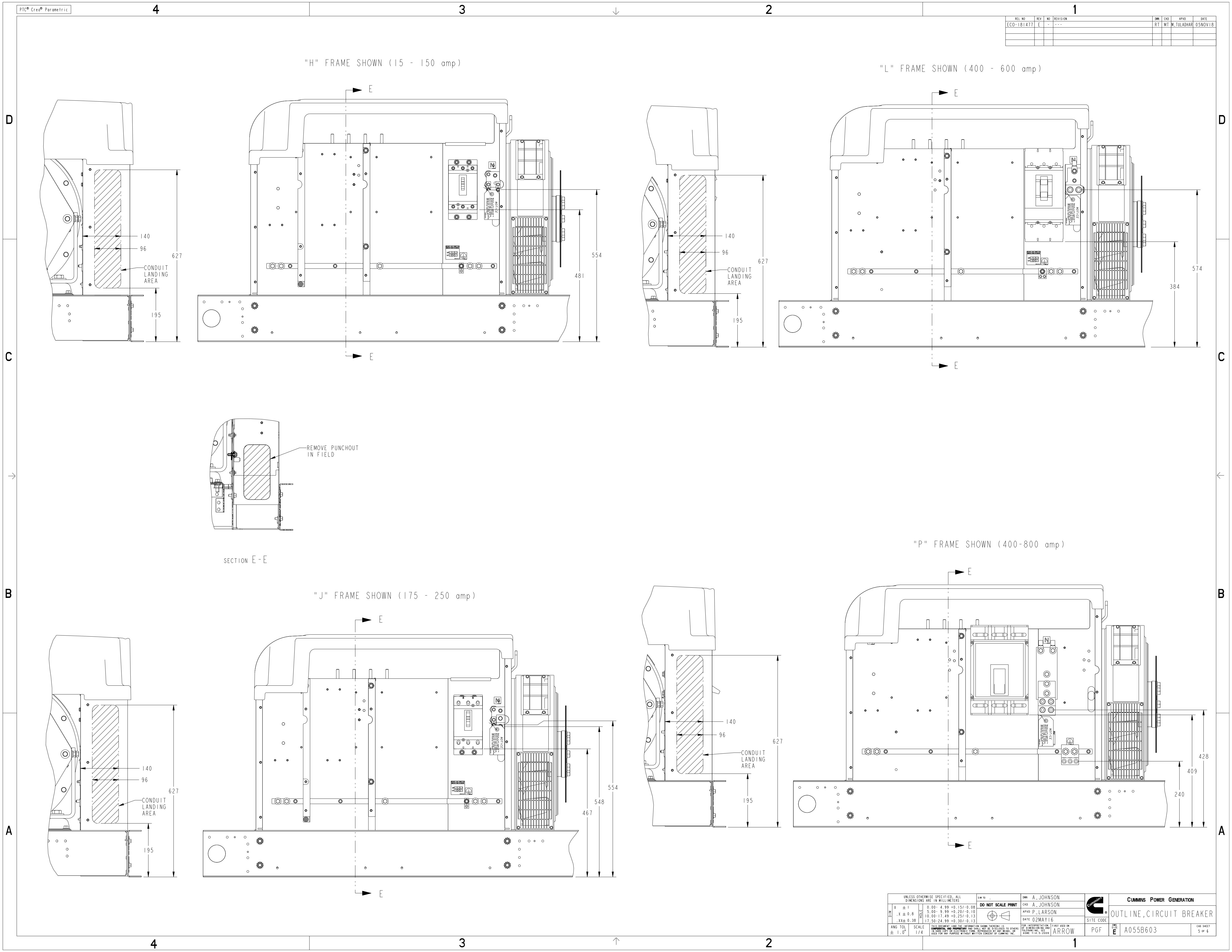
CUMMINS POWER GENERATION

OUTLINE,CIRCUIT BREAKER

DWG NO E A055B603

CAD SHEET 1 of 6

Regulatory Review and Approval is required prior to changing this item per PGG 1-01-01-116. This item impacts compliance with these External Regulations: UL,CSA


PTC® Creo® Parametric
REL NO | REV | NO | REVISION | DWN | CKD | APVD | DATE
ECO-181477 | E | - | --- | RT | MT | M.TULADHAR | 05NOV18
"H" FRAME SHOWN (15 - 150 amp)
"L" FRAME SHOWN (400 - 600 amp)
"J" FRAME SHOWN (175 - 250 amp)
"P" FRAME SHOWN (400-800 amp)
140
96
627
554
481
195
574
384
548
467
428
409
240
CONDUIT LANDING AREA
REMOVE PUNCHOUT IN FIELD
SECTION E-E
E
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETERS
DIM X ± 1 .X ± 0.8 .XX± 0.38
HOLE 0.00- 4.99 +0.15/-0.08 5.00- 9.99 +0.20/-0.10 10.00-17.49 +0.25/-0.13 17.50-24.99 +0.30/-0.13
ANG TOL ± 1.0°
SCALE 1/4
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DWN A_JOHNSON
CKD A_JOHNSON
APVD P_LARSON
DATE 02MAY16
FOR INTERPRETATION OF DIMENSIONING AND TOLERANCING, SEE ASME Y14.5-2009
FIRST USED ON ARROW
SITE CODE PGF
CUMMINS POWER GENERATION
OUTLINE,CIRCUIT BREAKER
DWG SIZE E
A055B603
CAD SHEET 5 OF 6

Regulatory Review and Approval is required prior to changing this item per PGG 1-01-01-116. This item impacts compliance with these External Regulations: UL,CSA

Part A055B603 E

Description	Legacy Name	External Regulations	Application Status	Release Phase Code	Security Classification	Alternates
OUTLINE,CIRCUIT BREAKER	A055B603	UL,CSA	Production Only	Production	Internal use Only	

Part Specifications :A055B603 E

Name	Description	Legacy Name
A030B356	SPECIFICATION,MATERIAL	CES10903
A055B604	DRAWING,ENGINEERING	A055B604

PowerCommand® Annunciator Discrete Input or PCCNet

> Specification sheet

Our energy working for you.™

Power Generation

Description

The Universal Annunciator Module provides visual and audible indication of up to 20 separate alarm or status conditions, based on discrete (relay) inputs or network inputs. Each LED can be controlled by either a discrete wire input or by a signal on the PCCNet network sent from an external device, such as a PCC1301 or PCC2100 (version 2.4 or later) control.

In addition to the LEDs, the annunciator can control four custom relays based on signals received over the PCCNet. When one of the annunciator's discrete inputs is activated, the annunciator will broadcast that information over the network. By taking advantage of the network, discrete inputs and custom relays, the annunciator can be used as expanded I/O for a genset controller.

Easily installed in a location to give immediate notification of an alarm or warning status. Designed to give operating/monitoring personnel quick-glance status information. The module directly senses battery voltage to provide green/yellow/red alarm and status information for that parameter.

Genset controller complies with NFPA level two requirements when used with the display but without the annunciator panel. When used with the annunciator it meets NFPA level one requirements (emergency and standby power systems). The annunciator module can also be used for monitoring of transfer switch or other equipment status.

Features

- Visual and audible warnings of up to 20 separate alarm or status conditions.
- LEDs can be controlled either via PCCNet or discrete input.
- Status of discrete inputs is broadcast on network.
- Four custom relays can be controlled over the PCCNet network.
- Configurable LED color (red, yellow or green) and selectable horn operation allows maximum flexibility.
- Standard NFPA 110 label, field configurable for other alarm status and conditions.
- Each audible alarm is annunciated, regardless of the number of existing alarm conditions displayed.
- Sealed membrane panel design provides environmental protection for internal components and is easy to clean.
- Configurable for negative (ground) input or positive input.
- Integral DC voltage sensing.
- Flush or surface mount provisions.
- UL Listed and labeled; CSA certified; CE marked.

S-1472e (8/09)

Specifications

Signal requirements

Positive - Input impedance is 1.82 kOhms to ground; maximum input voltage = 31 VDC.

Negative - Input impedance is 1.82 kOhms to Bat+: inputs are at Bat+ level when open.

Sink/source current threshold for detection - 150 uA minimum, 3 mA maximum.

Typical conductor size: 16 ga for 304.8 m (1000 ft)

Max conductor size for terminal: 12 ga

Relay outputs

0.2 A at 125 VAC and 1 A at 30 VDC

Network connections

Use Belden 9729 two pair, stranded, shielded 24 AWG twisted pair cable for all PCCNet connections. Total network length can not exceed 1219 m (4000 ft). Up to 20 nodes can be connected to the network.

Note: Any communications wire connected to the generator set should be stranded cable.

Power

Maximum consumption: 15 watts

Battery voltage

Functional range - Audible and visual conditions operational from 6.5 to 31 VDC.

Low voltage setting - 12.0 VDC for 12 Volt nominal systems; 24.0 for 24 Volt nominal systems.

High voltage setting - 16.0 Volt for 12 Volt nominal systems; 32.0 Volt for 24 Volt nominal systems.

Alarm horn

Sound level: 90 dB at 30 cm

Physical

Weight (with enclosure): 1.4 kg (3.0 lbs)

Temperature

-20 °C to +70 °C (-4 °F to +158 °F)

Humidity

10% to 95% RH (non-condensing)

Default lamp configurations

Can be configured for current NFPA 110 standard or as a replacement for Legacy (pre-2001) NFPA 110 annunciator (300-4510 or 300 4511)

		NFPA 110		
Lamp	**Description**	**Color**	**Horn**	**Flash**
DS1	Customer fault 1	Green	No	No
DS2	Customer fault 2	Amber	No	No
DS3	Customer fault 3	Red	No	No
DS4	Genset supplying load	Amber	No	No
DS5	Charger AC failure	Amber	Yes	No
DS6	Low coolant level	Amber	Yes	No
DS7	Low fuel level	Red	Yes	No
DS8	Check generator set	Amber	No	No
DS9	Not in auto	Red	Yes	Yes
DS10	Generator set running	Amber	No	No
DS11	High battery voltage	Amber	Yes	No
DS12	Low battery voltage	Red	Yes	No
DS13	Weak battery	Red	Yes	No
DS14	Fail to start	Red	Yes	No
DS15	Low coolant temp	Red	Yes	No
DS16	Pre-high engine temp	Amber	Yes	No
DS17	High engine temp	Red	Yes	No
DS18	Pre-low oil pressure	Red	Yes	No
DS19	Low oil pressure	Red	Yes	No
DS20	Overspeed	Red	Yes	No

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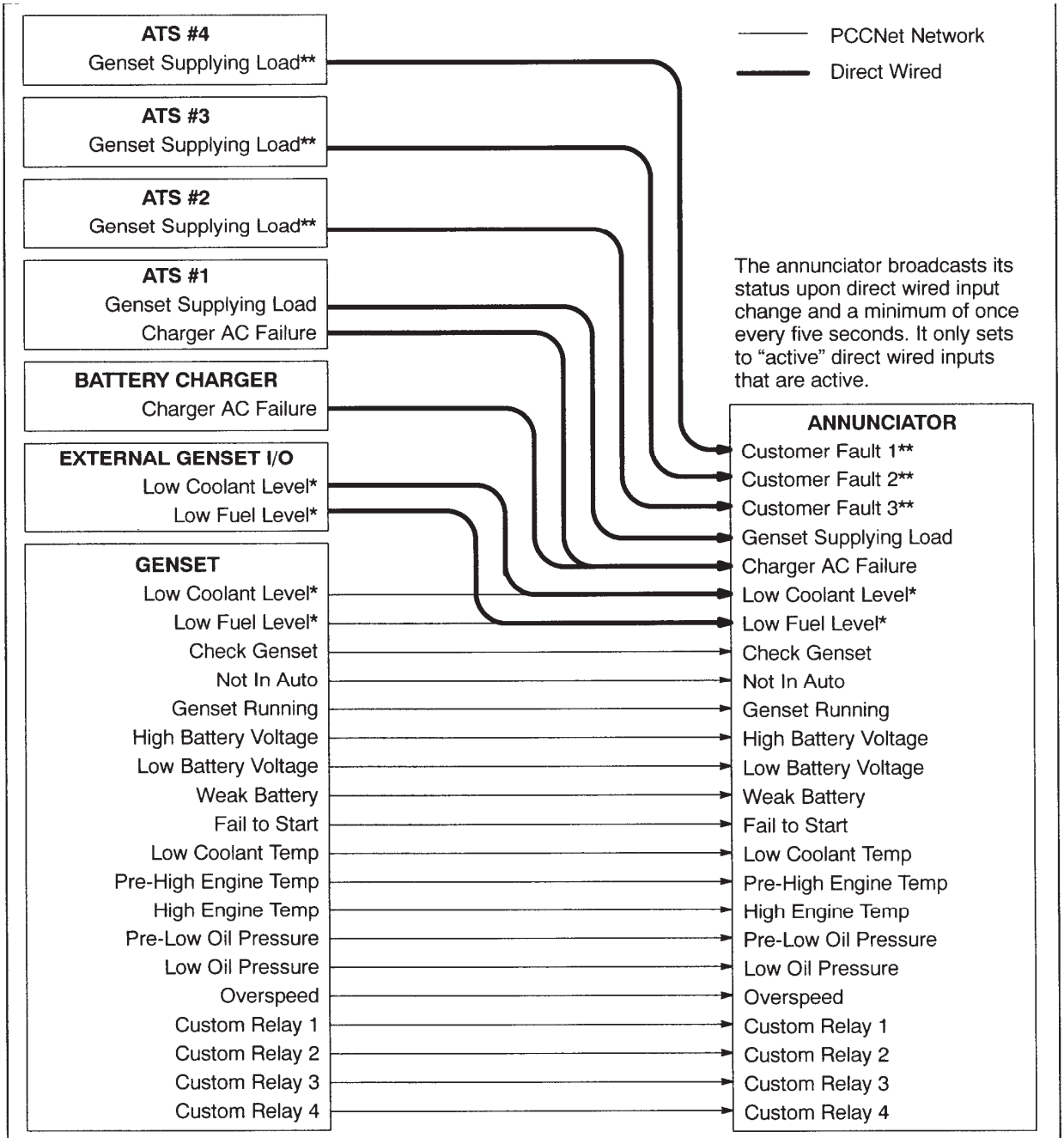
Typical installation



* Low Coolant Level and Low Fuel Level statuses can be either direct wired from External Genset I/O or be part of the PCCNet network status coming from the genset. If direct wired, then the annunciator sets the appropriate bit for the genset to reference.

** These can be Genset Supplying Load 2 thru 4 or Customer Faults.

When enabled, High Battery Voltage, Low Battery Voltage, and Normal Battery Voltage takes precedence over the hardwired input.

Normal Battery voltage can replace Weak Battery.

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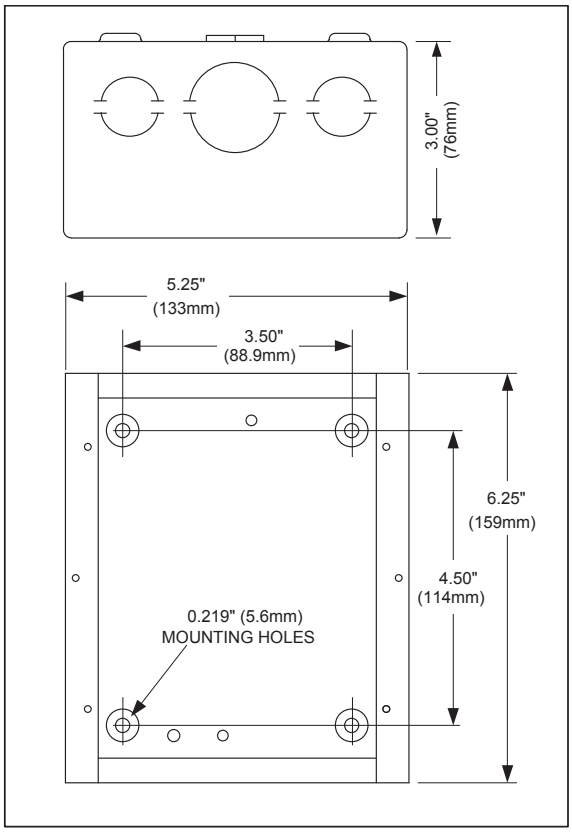
Dimensions



Dimensions: in (mm)

Ordering information

Part number	Description
0300-5929-01	Panel mount
0300-5929-02	Panel with enclosure

PCCNet COMPATIBLE

See your distributor for more information.

Cummins Power Generation

Americas
1400 73rd Avenue N.E.
Minneapolis, MN 55432 USA
Phone: 763 574 5000
Fax: 763 574 5298

Europe, CIS, Middle East and Africa
Manston Park Columbus Ave.
Manston Ramsgate
Kent CT 12 5BF United Kingdom
Phone 44 1843 255000
Fax 44 1843 255902

Asia Pacific
10 Toh Guan Road #07-01
TT International Tradepark
Singapore 608838
Phone 65 6417 2388
Fax 65 6417 2399

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Emergency Operator Stations
Power Control Stations

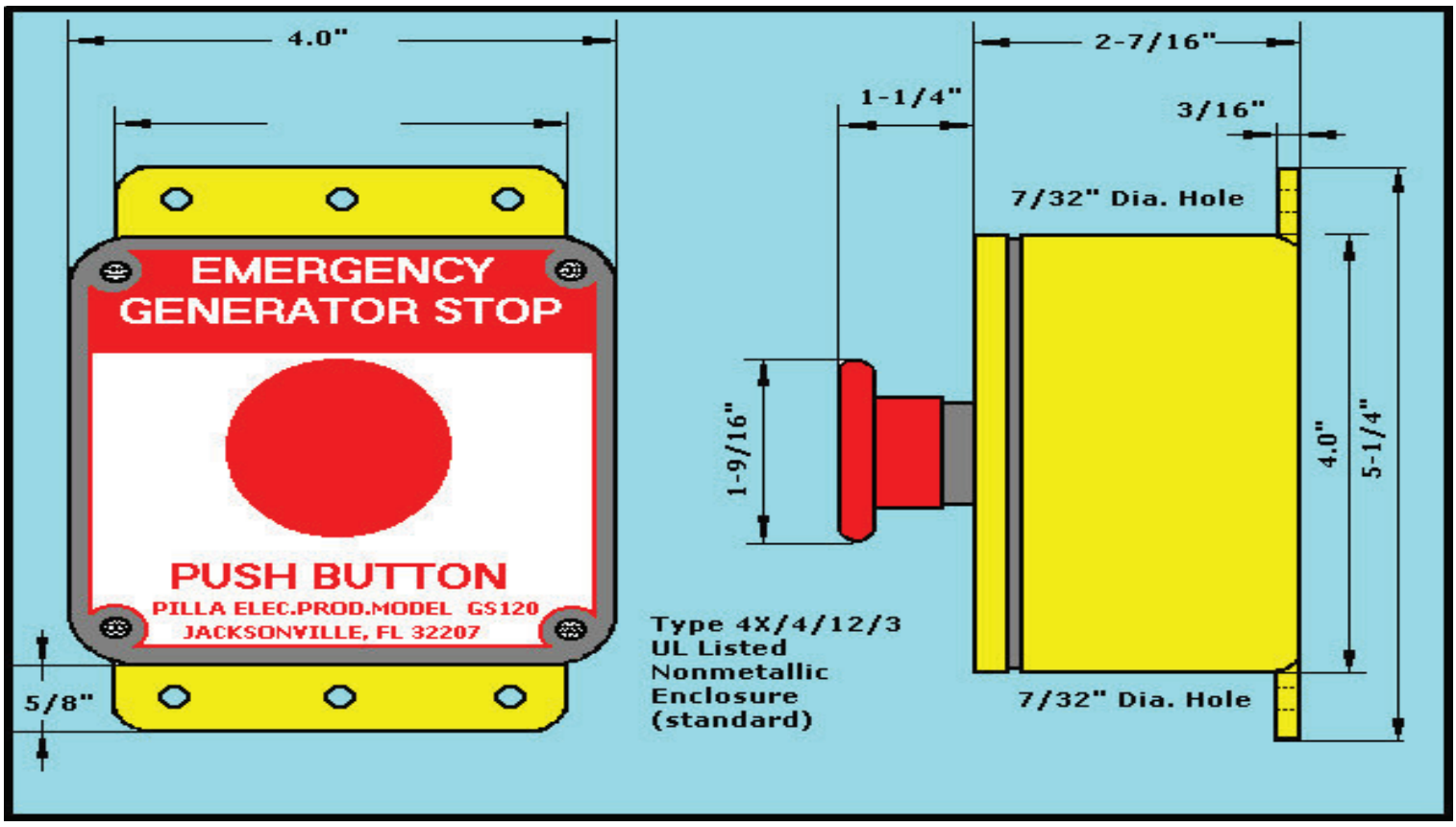
Pilla Electrical Products, Inc.

EMERGENCY GENERATOR STOP
PUSH BUTTON
PILLA MODEL SERIES GS120

CLEAR PROTECTIVE COVER PILCLHCOV1

FEATURES

- Large heavy duty mushroom operator, maintained "Pull to Reset" (standard)
- Maintained "Turn to Reset" mushroom model also available: Add model suffix TW
- Momentary mushroom model also available: Add suffix MO
- Nonmetallic NEMA 4X enclosure with stainless steel machine screws (standard)
- Bold, silk screen legends on white enamel aluminium face plate (standard)
- Economy NEMA 1 metal backbox models also available for both surface and flush mount applications
- Standard depth 4 x 4x 2.375 inch nonmetallic enclosure holds two contact blocks
- Extra depth 4 x 4x 4.5 inch nonmetallic enclosure holds six contact blocks: Add suffix XD
- Super depth 4 x 4x 6.5 inch nonmetallic enclosure holds ten contacts blocks: Add suffix SD
- Metal backbox models(surface and flush mount)use 4 x 4x 3 inch enclosure holding four contacts blocks
- All-metal models meet NYC, Chicago and other specific requirements: Add suffix MT1, MT4 or MS as needed
- Illuminated models include 120V lamp (standard, specify if other voltage desired) in mushroom or round push button (Note 2 above): Add model suffix IL
- Restricted operator access available: See options available above for model suffix RP/RR/CP/CR
- Resticted operator access available: See Series PIL accessory PILCHCOV1
- Key Release mushroom model restricts reset/release access only: Add suffix KR
- Contact blocks rated 10 AMP continuous up to 600 volts*



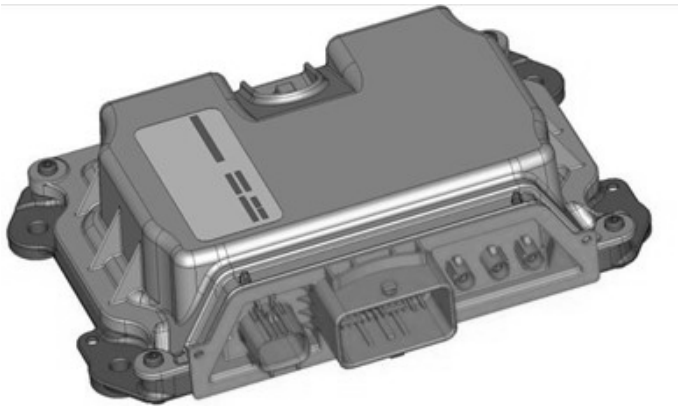
ACUMEN

T005FA NA VARIANT | T005FB EU VARIANT | T004FE GLOBAL NON-CELLULAR

DESCRIPTION

Acumen provides a convenient means of remote monitoring of generator sets, transfer switches and the Cummins engine control module (ECM).

Users can monitor remotely their devices from any PC or Mac computer through the PowerCommand Cloud™ through a web browser or mobile app. See the PowerCommand Cloud specsheets for additional information. Multiple users can monitor the power system equipment simultaneously.



- Fully integrated with PowerCommand Cloud.
- Supports 4G with 3G fallback.
- Real-time Site and Asset Monitoring.
- Fault & Event Notification
- Remote Control Capability of Asset.
- Built-In GPS capabilities.
- IP69K, enabling customers to mount it anywhere.
- Follows latest cybersecurity standards
- MMF2 - Automotive Grade Embedded SIM pre-loaded and pre-activated

FEATURES

Connectivity — Supports multiple connectivity options: direct ethernet, Wi-Fi (WPA2PSK), 4G LTE Cellular with 3G fallback.

Modbus support — Monitor and remotely control up a total of five generator/ATS.

Inputs/Outputs (I/O) - Multiple analog Inputs and multiple digital I/Os for peripheral devices and sensors

Built-in GPS — Monitor the location of power generation equipment for fleet management application.

Flexible mounting capability — Its robust design, rated IP69K allows for outdoor applications without additional enclosure.

Firmware-over-the-air (FOTA) — Remotely upgrade Acumen firmware changes.

Cloud compatible — Integrated and compatible with PowerCommand Cloud web infrastructure and mobile applications.

Off-line data logging — Store up to 48 hours of events for diagnostics purposes.

Third-party support — Supports third-party power system equipment using CCM-G, CCM-T. (Available by Q3, 2022).

Environmental robustness — IP69K certified, protected from dust and high-temperature spray downs

Product certification — cTUVus, CE, UKCA, FCC, IC

Cybersecurity — Cummins is committed to protecting our products from cyber threats. The Acumen product is developed in accordance to Cummins Product Cybersecurity processes and procedures which are based on the standards, guidelines, and best practices from the NIST (National Institute of Standards and Technology) Cybersecurity Framework as well as other standards such as SAE J3061, “Cybersecurity Guidebook for Cyber-Physical Vehicle Systems”.

Warranty and service — Backed by a comprehensive 1 year warranty and worldwide distributor service network

STANDARD KIT CONTENT

The Acumen kit includes the following components listed below:

- Gateway**
- Harness including power fusing and Modbus terminating resistors
- USB/Ethernet harness
- Environmental caps
- Mounting hardware including screws, washers, nuts
- Diversity antenna
- Hook and loop mounting plate
- CAN Y splitter
- CAN gender changer

**Note: T005FA and T005FB gateways have SIMs preloaded and preactivated with AT&T cellular service.

HARDWARE SPECIFICATIONS

Communications	Specification
Protocol	Modbus RTU/RS-485, J1939
Cellular	LTE (4G) Cat1 / 3G multi-mode module
CAN (2-wire)	CAN_H & CAN_L signals
RS485 (2-wire)	Modbus RTU D+ and D- signals
Ethernet	4 wire Ethernet interfaces compatible with Physical layer ASIC, IEEE 802.3u- ENDEC 10baseT, IEEE802.2u — PCS 100base-TX.
USB	USB 2.0
MMF2	eUICC-MFF2 (Automotive Grade Embedded SIM)
Configurable I/O	4x Analog Input (1X 0-36 VAC, 1X 0-36 VDC, 1X 0-1kΩ, 1X 30Ω-1kΩ) 5x Digital Input (4X high side, 1X low side) 1x High Side Output (450 mA) 2x Low Side Output (450 mA)
WiFi (WPA2PSK)	IEEE 802.11 b/g/n 2.4 GHz
GNSS	Supports GPS, Galileo, GLONASS and BeiDou
Internal antennas	1x GPS Antenna 1x LTE Main Antenna
Auxiliary Antenna connection	1x FAKRA Type X (GNSS) 1x FAKRA Type X (LTE1) 1x FAKRA Type X (LTE2)
Electrical certification	cTUVus, CE, UKCA, UL60950, CSA-C22.2 No. 60950-1-07, EN50128
Environmental certification	IEC 60945, IEC 60571, IEC 61373, IEC 60529, EN 61373, EN12663, IEC 62498-1
EMI/EMC certification	47 CFR Part 15, Subpart B, Class A, ICES-003A, EN55032 Class A, CNS 13438 Class A (Available Sep 2022),

POWER SUPPLY REQUIREMENTS	
Voltage Range	9-32 VDC**
Current (12V typical)	1.2A
Current (24V typical)	800mA
Power (Maximum)	19.2W

**Voltage must match the engine ECM voltage

Generator set batteries are the preferred power source. When using an alternative power supply, the above specification, is recommended. It is also recommended that the power supply have a minimum form factor of 30%.

ENVIRONMENTAL SPECIFICATION	
Vibration (unaccelerated)	3.5 G rms
Vibration (accelerated)	5.7 G rms
Operating Temperature	-40 to 90°C**
Storage Temperature	-40 to 85°C
Relative Humidity	93%

**Cellular function disabled over 70°C

Mounting and installation — Acumen can be installed remotely using the mounting plate included with the kit.

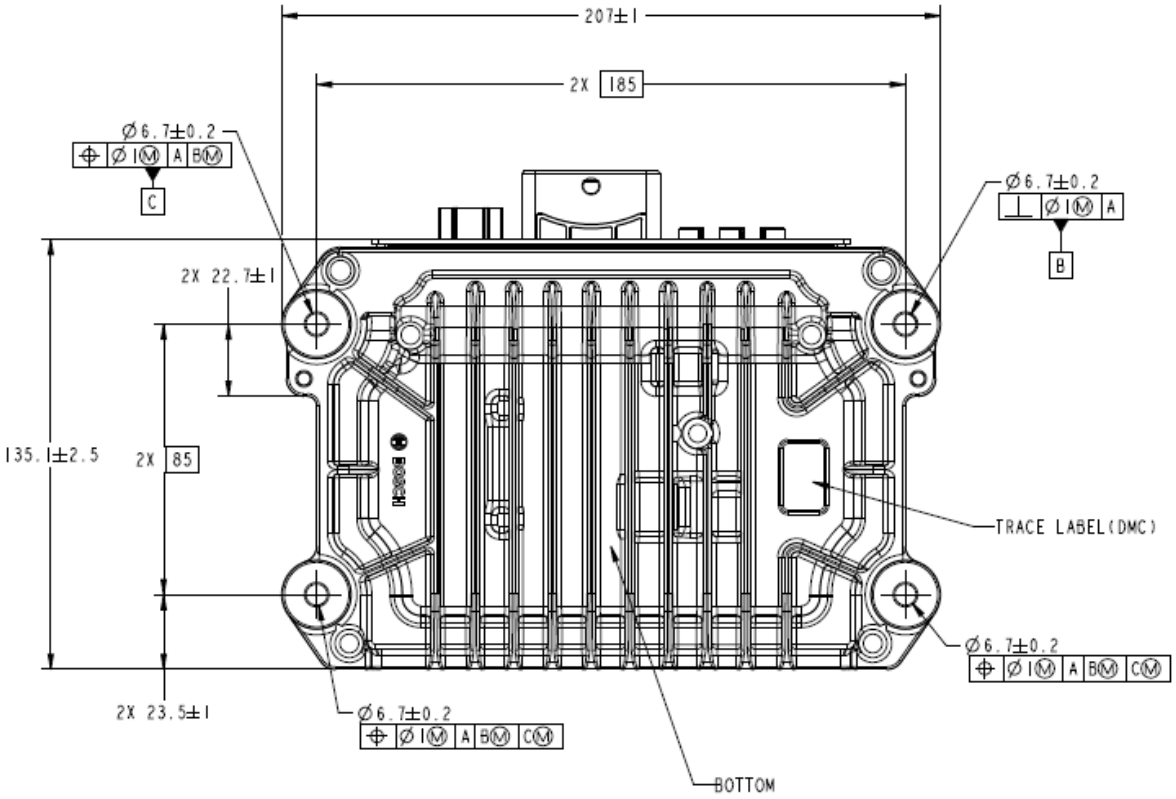
Modbus cable — A shielded twisted pair cable, Belden 9729 cable or equivalent, is recommended for Modbus communication between Acumen and any configured device.

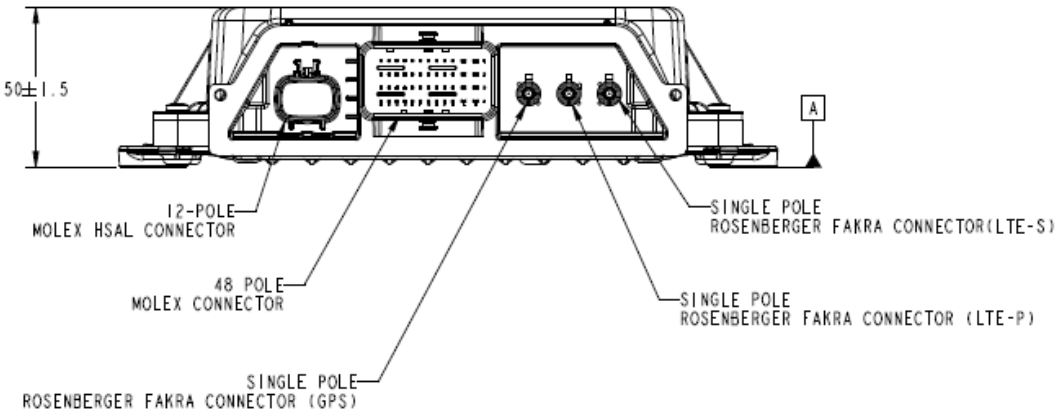
SYSTEM REQUIREMENTS

To connect to the Acumen gateway, the system must meet the following requirements:

- Browser: Chrome Is recommended
- Support Java
- USB (USB 1 or higher)

DIMENSIONS


207±1
2X 185
Ø6.7±0.2
Ø I Ⓜ A BⓂ
C
Ø6.7±0.2
Ø I Ⓜ A
B
2X 22.7±1
135.1±2.5
2X 85
TRACE LABEL(DMC)
Ø6.7±0.2
Ø I Ⓜ A BⓂ CⓂ
2X 23.5±1
Ø6.7±0.2
Ø I Ⓜ A BⓂ CⓂ
BOTTOM


50±1.5
A
12-POLE
MOLEX HSAL CONNECTOR
48 POLE
MOLEX CONNECTOR
SINGLE POLE
ROSENBERGER FAKRA CONNECTOR (GPS)
SINGLE POLE
ROSENBERGER FAKRA CONNECTOR(LTE-S)
SINGLE POLE
ROSENBERGER FAKRA CONNECTOR (LTE-P)

CELLULAR SPECIFICATIONS

LIST OF ACUMEN T005FA (NA VARIANT):	
Specification	**Details**
Modem	LARA-R202
LTE bands	2, 4, 5, 12
UMTS bands	850, 1900
GSM bands	No support

Country / Region	**Certification**
Argentina	ENACOM
Bolivia	ATT
Canada	ISED
Colombia	CRC
Ecuador	CONATEL
Mexico	NOM, IFETEL
Panama	ASEP
Peru	MPT
Uruguay	URSEC
United States	FCC, NRTL, PTCRB, AT&T

CELLULAR SPECIFICATIONS (CONTINUATION)

LIST OF ACUMEN T005FB (EU VARIANT):	
Specification	**Details**
Modem	LARA-R211
LTE bands	3, 7, 20
UMTS bands	No support
GSM bands	E-GSM 900 / DCS 1800

Country / Region	Certification
Algeria	**ARPT (available by Sep 2022)**
Angola	**INACOM (available by Sep 2022)**
Australia	**ACMA (available by Jul 2022)**
Bangladesh	**No Requirement**
Belarus	**MPT (available by Sep 2022)**
Botswana	**BTA (available by Jul 2022)**
Cameroon	**ART (available by Sep 2022)**
Chile	**SUBTEL (available by Sep 2022)**
Costa Rica	**CONATEL (available by Sep 2022)**
Europe EU 27	**CE, CB, AT&T**
Ghana	**NCA (available by Sep 2022)**
Hong Kong	**OFCA (available by Sep 2022)**
India	**WPC (available by Sep 2022)**
Indonesia	**SDPPI (available by Jul 2022)**
Israel	**MOC (available by Sep 2022)**
Jordan	**TRA (available by Sep 2022)**
Kazakhstan	**NA (available by Sep 2022)**
Kenya	**CA (available by Sep 2022)**
Malaysia	**SIRIM (available by Sep 2022)**
Mongolia	**CRC (available by Sep 2022)**
Morocco	**ANTR (available by Jul 2022)**
New Zealand	**R-NZ (available by Jul 2022)**
Philippines	**NTC (available by Sep 2022)**
Senegal	**ARTP (available by Sep 2022)**
Serbia	**RATEL (available by Sep 2022)**
South Africa	**ICASA (available by Jul 2022)**
South Korea	**KC (available by Sep 2022)**
Sri Lanka	**TRCSL (available by Sep 2022)**
Taiwan	**NCC (available by Sep 2022)**
Uganda	**UCC (available by Sep 2022)**
United Kingdom	**UKCA (available by Jul 2022)**
Uzbekistan	**STZ (available by Sep 2022)**
Vietnam	**MIC (available by Sep 2022)**
Zambia	**ZICTA (available by Dec 2022)**

COMPATIBLE POWERCOMMAND CONTROLS

For installation and communication, the following additional hardware may be required:

Modbus Controls — There is no additional hardware required for the following Modbus controls: PC80, PCC1302, PCC2300 and PCC3300.

LonWorks Controls — LonWorks-based controls such as PCC2100, PCC3100, PCC3200 and PCC3201 generator set controls and OTPC, BTPC, OHPC and CHPC transfer switch controls:

- PowerCommand Lon Gateway Protonode
- PowerCommand Network Communications Module (NCM)
- ModLon Connection Cable

Additional hardware required for non-communicating OTEC, GTEC or third-party transfer switch controls and third-party generator set controls.

- PowerCommand Lon Gateway Protonode
- PowerCommand Network Communication Module (CCM-G) - *Available Q3, 2022*
- PowerCommand Control Communication Module (CCM-T) - *Available Q3, 2022*
- PowerCommand Input/Output AUX101 Module - *Available Q1, 2023*
- PowerCommand Input/Output AUX102 Expansion Module - *Available Q1, 2023*

The following ECMs are compatible with Acumen:

- ECM
- CM500
- CM552
- CM850
- CM2350
- CM2350A
- CM2350A Lead Free
- CM2358
- CM2450

*For private data extraction, ECM needs to meet the following criteria: (1) JTAG disabled (2) AES128 Encryption support (3) CSU compatible bootloader

SERVICE PARTS ACCESSORIES

Part Name	Dimensions	Part Number
Real Time Clock (RTC) Battery		A064U197**
Remote Mount Antenna (Adhesive)	Cord Length 3 m 206 mm x 68 mm	A064U164
Remote Mount Antenna (Bolted)	Cord Length 7 m height 57mm	A068G686
Vibration Isolators		A065M633

**Not for sale in the EU

KIT PART NUMBERS

Part Name	Part Number	Description
T005FA	A068E639	NA variant - Wi-Fi + Cellular + Ethernet connectivity
T005FB	A068E640	EU variant - Wi-Fi + Cellular + Ethernet connectivity
T004FE	A068E641	Global variant - Wi-Fi + Ethernet connectivity (non-cellular)

Note: The same components are provided with each kit except for the gateway due compatibility with regional cellular specifications.

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

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S-6589 (Last revised: 5/2022)

Specification Sheet

PowerCommand Cloud™ Remote Monitoring System

Power Generation Telematics

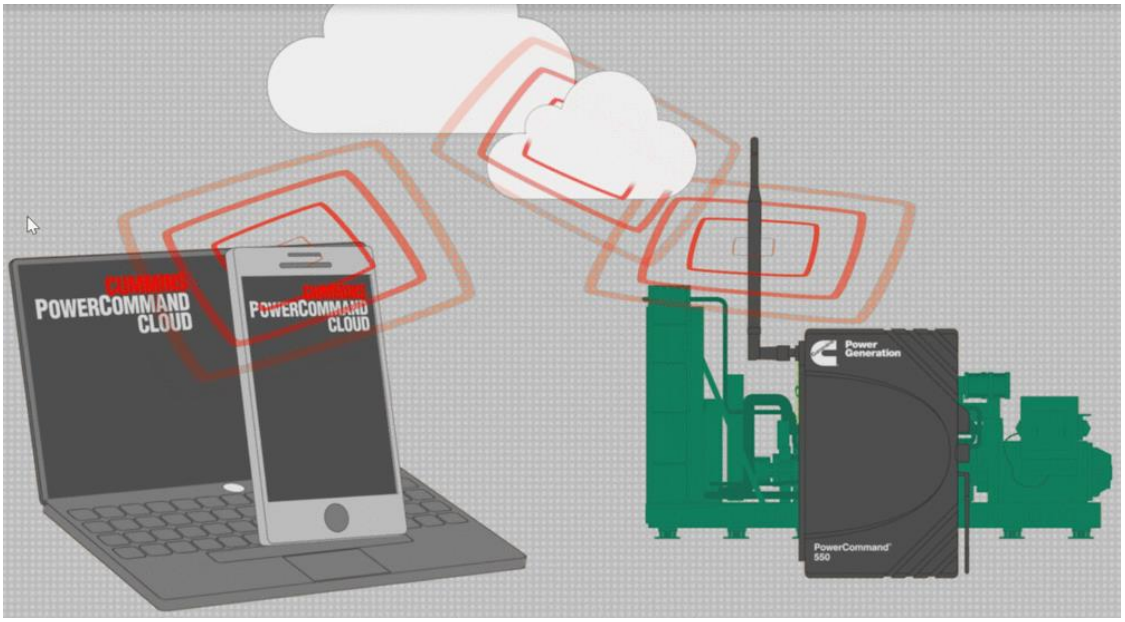
Description

The PowerCommand Cloud™ is a robust and reliable remote monitoring system that provides information and send notifications to ensure your generator is available when you need it.

With easy-to-use mobile and web interfaces, it sends notifications and gives you instant access to your equipment enabling real-time monitoring and control so you can make the right decisions, right away − thus minimizing downtime and maximizing power system performance.

Highlights

- Site and asset status at a glance
- Notifications
- Real-time Remote Monitoring through PowerCommand Cloud™
- Asset Control
- Convenient access through web UI and mobile app
- Multiple sites and equipment management
- Secure data transmission and storage
- Data Trending
- PowerCommand Controls are supported by a worldwide network of independent distributors who provide parts, service and warranty support



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Features

- **Communication:** The PowerCommand 500/550 **Cloud Link** communicates to the Power Generation asset controls and communicates telemetry data to the PowerCommand Cloud™.
- **Monitoring:** The PowerCommand **Web and Mobile app** monitors customer account and site information along with monitoring asset data (generator, transfer switch and sensors).
- **Asset Control:** The PowerCommand **Web and Mobile app** can control the system with start, stop and fault reset commands.
- **Notification:** The PowerCommand **Cloud** has the capability to notify users through email to users when an event becomes active.
- **Account/Fleet Management:** The PowerCommand **Web app** offers fleet management capability.
- **User Interface:** The PowerCommand 500/550 **Cloud Link** has a user interface for setup purposes and the web and mobile app monitoring purposes.
- **Event Storage and Export:** The PowerCommand **Cloud** stores the event log while the web and mobile app enables the user to monitor the event logs.
- **Data Storage and Export:** The PowerCommand Cloud stores the data and the web app enables data export and graphing of data trends.
- **On Device Diagnostics:** The PowerCommand 500/550 **Cloud Link** offers on device diagnostics.
- **Software Update:** The PowerCommand 500/550 **Cloud Link** offers local software update capability while the PowerCommand 500/550 **Web app** enables execution of the remote software updates.

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S-6344

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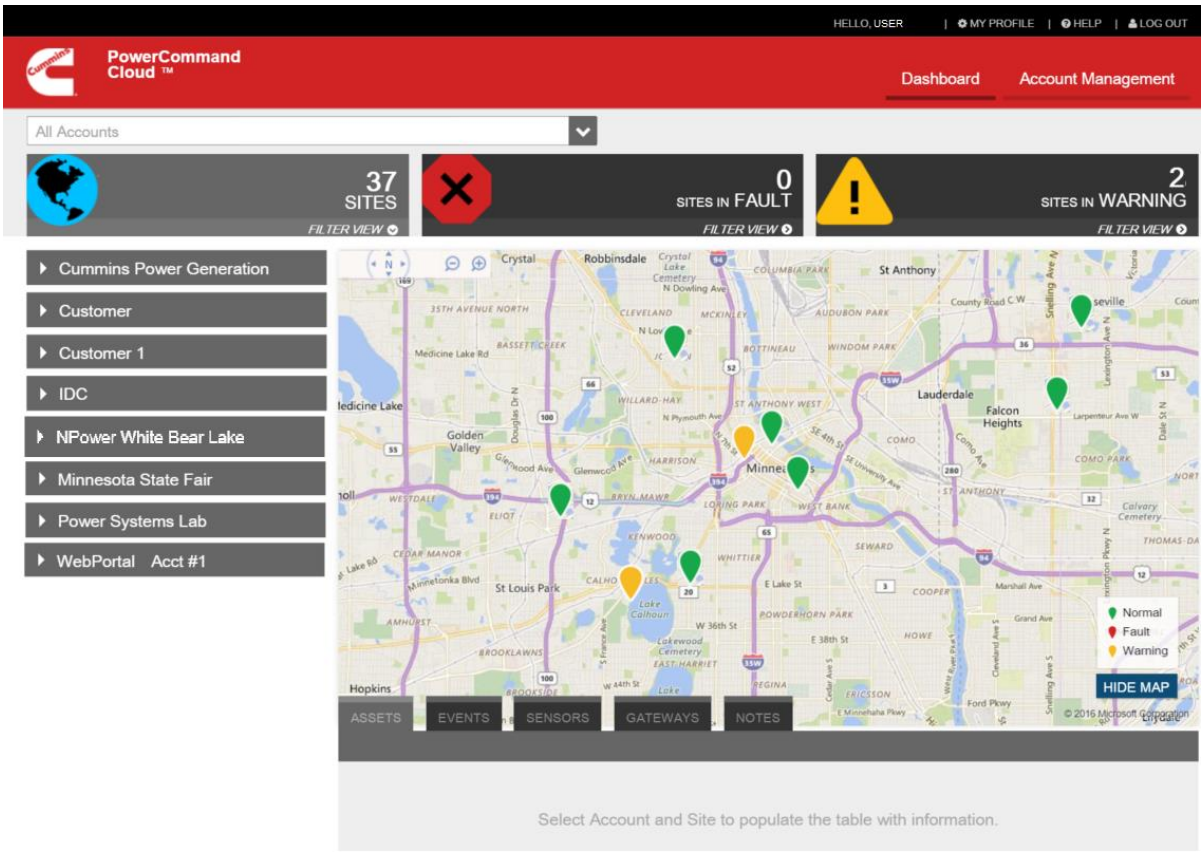
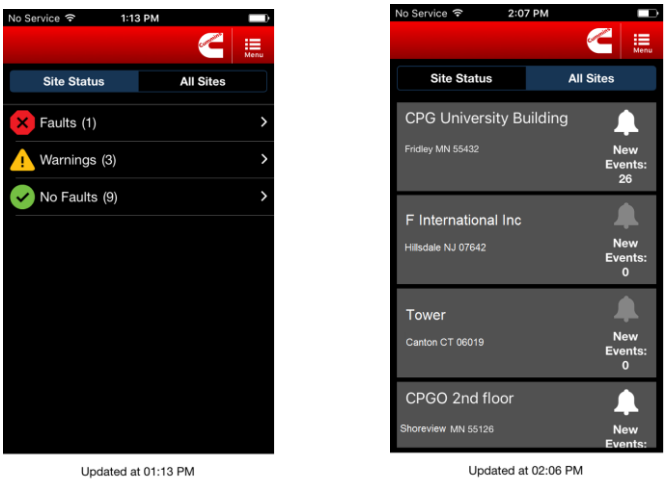
PowerCommand Cloud™ User Interface

Users can remotely access real-time information using mobile and web app.



The web Dashboard allows users to view the status of all configured devices in one glance.

The Dashboard provides an overall system status at a glance that may include multiple sites and devices connected to the cloud. Users have the flexibility to filter assets by status and location and then access information about specific sites and equipment.



Mobile APP Dashboard screens.

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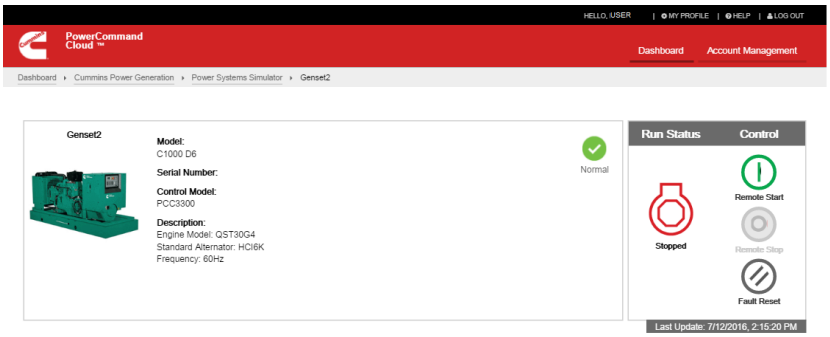
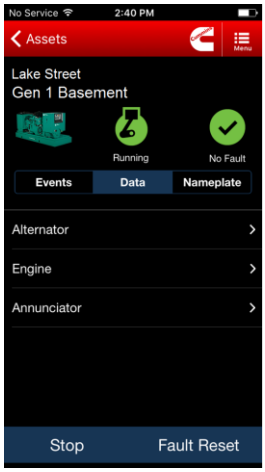
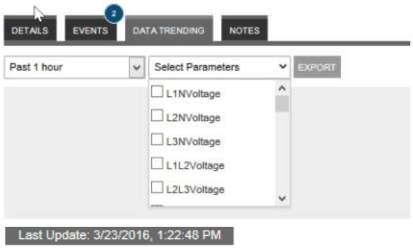
Genset Information

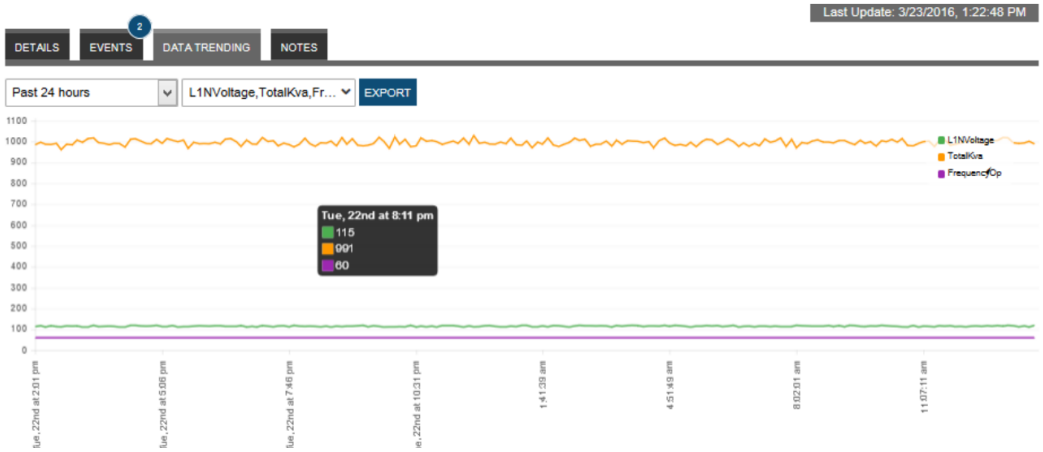


The genset status and telemetry information is available via both the mobile app and web app.



- **Asset Details:** Easy access to Generator's details such as model, serial number, and control model.
- **Annunciator Data:** This section displays the key status, warning and fault events where color coding is used (green, amber, red) depending on the event severity according to NFPA110.
- **Alternator Data:** User can access vital electrical genset information.
- **Engine Data:** Engine information is available in this section.
- **Data Trending:** The user can create graphs for a particular device by selecting a parameter and duration. In addition, asset data can be exported to .csv files.





Power Generation

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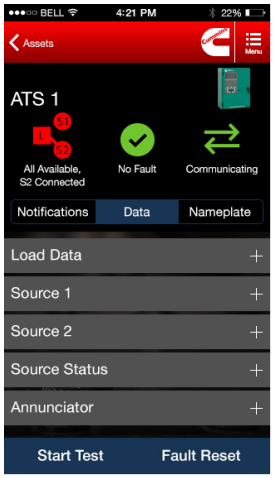
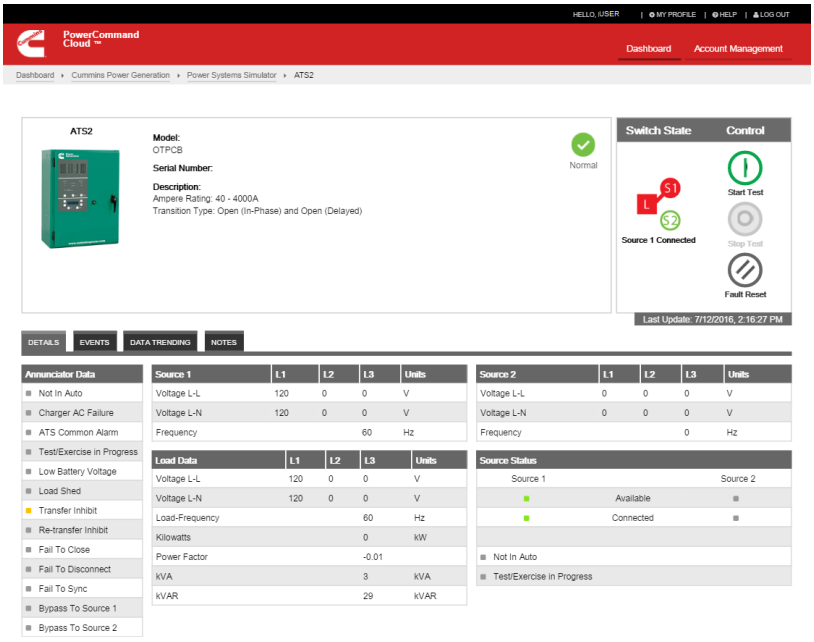
Automatic Transfer Switch (ATS) Information

ATS status and telemetry information is available on the ATS page. The user can also to create data trend graphs for a particular device by selecting a parameter and duration.





- **Asset Details:** Easy access to ATS's details such as model, serial number, and control model.
- **Annunciator Data:** This section displays the key status, warning and fault events where color coding is used (green, amber, red) depending on the event severity according to NFPA110.
- **Sources Data:** User can access vital electrical source information including status.
- **Load Data:** Load information is available in this section.
- **Data Trending:** The user can create graphs for a particular device by selecting a parameter and duration. In addition, asset data can be exported to .csv files.

Sensors

By selecting the Sensors tab the user can view all configured sensors in the inputs. In addition to device specific Inputs, the user can add an AUX 101 (8-configurable inputs) and an AUX 102 (4-non configurable discrete inputs) for additional remote monitoring capability. The Sensors Page displays configured sensors (states/values, low warnings and high warnings). Similar to the generator set and transfer switch data, the user can access specific event logs associated with all configured sensors.

Notifications

Get notified when your genset needs attention. PowerCommand Cloud™ sends notifications and gives you instant access to your equipment enabling real-time monitoring and control so you can make the right decisions, right away — thus minimizing downtime and maximizing power system performance.

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S-6344

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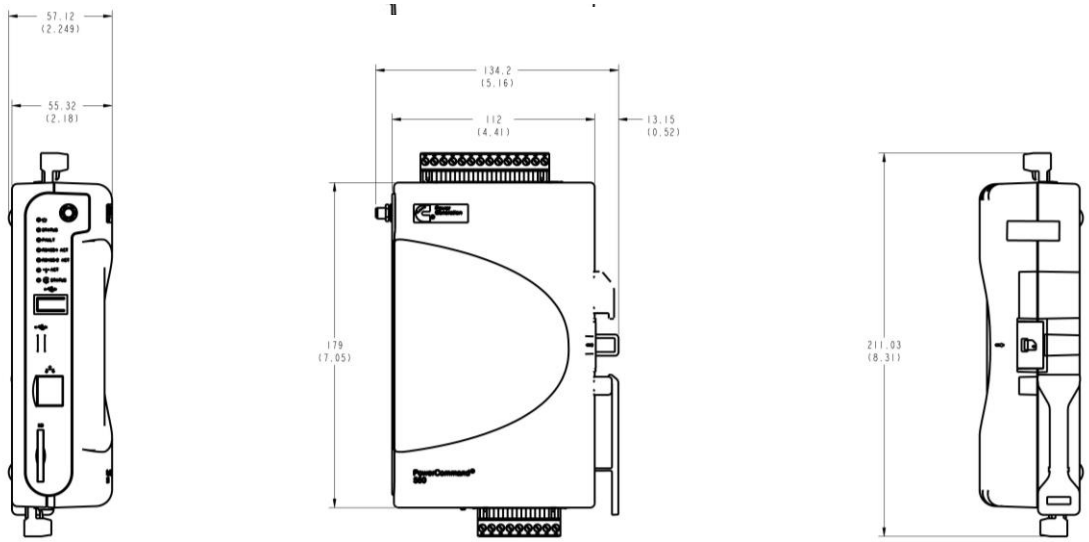
Certifications

ICES-003B

Dimensions of the PC 500/550 Cloud Link



Dimensions are millimeters (inches)

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System requirements

Web App

- PC or Macintosh computer, tablet, smart phone
- Browser: Internet Explorer, version 8.0 or later, Google Chrome, Firefox, Safari.
- Minimum screen resolution, 1024 x 768

Gateway

- Browser: Internet Explorer, version 8.0 or later.
- Operating System: Microsoft Windows, Mac OS X or Linux
- Microsoft Silverlight, version 5.0 or later
- Windows Mobile Device Center
- Minimum screen resolution, 1024 x 768
- Network: 10/100 megabit Ethernet for the primary physical connection
- The cellular service provider must have a network to support 3G service

Language

The user interface and manuals are available in English.

Hardware requirements

For installation and communication the following additional hardware may be required:

- SIM card (GSM)
- Modbus cable
- Antenna extension cable
- PowerCommand Input/Output AUX 101 Module
- PowerCommand Input/Output AUX 102 Expansion Module

Modbus controls

There is no additional hardware required for Modbus controls: PS0500, PCC1301, 1302, 2300 and 3300.

LonWorks controls

Required hardware for LonWorks-based controls: PCC2100, 3100, 3200 and 3201 generator set controls and OTPC, BTPC, OHPC and CHPC transfer switch controls:

- PowerCommand Lon Gateway LonWorks to Modbus Converter
- PowerCommand Network Communications Module (NCM)
- ModLon Connection Cable

Additional hardware required for non-communicating OTEC, GTEC or third-party transfer switch controls and third-party generator set controls:

- PowerCommand Lon Gateway LonWorks to Modbus Converter
- PowerCommand Network Communication Module (CCM-G)
- PowerCommand Control Communication Module (CCM-T)
- PowerCommand Input/Output AUX 101 Module
- PowerCommand Input/Output AUX 102 Expansion Module

Modbus communications

A shielded twisted pair cable, Belden 9729 cable or equivalent, is recommended for Modbus communication between the PowerCommand 500/550 and any configured devices.

Power supply requirements

The use of a power supply, with the following specification, is recommended. It is also recommended to connect the power supply and **PowerCommand 500/550 Cloud Link** to an uninterruptible power supply (UPS).

Voltage range	12 to 24VDC
Current (12V typical)	250mA
Current (24V typical)	125mA
Power (typical)	3.0W
Power (maximum)	5.0W

Environment

Operating temperature	-20°C to 70°C (-4°F to 158°F)
Storage temperature	-40°C to 85°C (-40°F to 185°F)
Humidity	85% RH, non-condensing

Mounting and installation

PowerCommand 550/500 is DIN rail mountable and should be installed in a location suitable for telecommunications, information technology or networking equipment.

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Standard product contents

- PowerCommand 500 or 550 Cloud Link
- Antenna (GSM)
- USB On-The-Go (OTG) cable
- Ethernet cable
- Quick Start Guide
- Quick Troubleshooting Guide
- Warranty Statement
- CD containing Owner's Manual, Quick Start Guide, Quick Troubleshooting Guide and Warranty Statement in English

Accessories

- ☐ A035C381 Antenna Extension (12ft)
- ☐ 0541-1291 PowerCommand Input/Output AUX 101 Module
- ☐ 0541-0772 PowerCommand Input/Output AUX 102 Expansion Module
- ☐ A054V134 Lon Gateway - LonWorks to Modbus Converter
- ☐ 0541-0770 Network Genset Communications Module (NCM) for PCC 2100
- ☐ 0541-0813 Network Genset Communications Module (GCM) for PCC 3100
- ☐ 0541-0809 Network Genset Communications Module (NCM) for PCC 3200/3201
- ☐ 0541-0810 Controls Communications Module, generator set (CCM-G)
- ☐ 0541-0811 Controls Communications Module, transfer switch (CCM-T)
- ☐ 0541-0868 Network Communications Module (NCM) for OTPC/BTPC, >1000 A

Ordering information

Part number	Description
A059Y211	PC 500 Cloud Link N (up to 2 devices)
A059Y210	PC 550 Cloud Link N (up to 12 devices)

See your distributor for more information.

Cummins Power Generation

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Specification Sheet

Battery and Accessories

Battery Specifications

Battery Part Number	Group Size	CCA	Reserve Capacity	Battery	Voltage	Length	Width	Height	Ship Weight lbs.	Quarts Electrolyte
0416-1330	24XL	810	146	Wet	12	10.3	9.0	6.6	43	5.9
0416-1051	26	530	80	Wet	12	8.2	6.8	8.1	31	3.7
0416-0796	31	725	150	Wet	12	12.7	6.0	9.3	62	4.2
0416-0980	31	1000	185	Wet	12	13.0	6.8	9.5	59	4.2
A045P632	34	850	NA	Wet	12	10.3	6.6	8.0	NA	NA
0416-1291	34	800	100	Sealed	12	10.0	6.9	7.9	38	4.0
A030Y976	4D	1050	290	Wet	12	20.7	8.7	10.0	100	NA
0416-0439	8D	1400	430	Dry	12	20.8	10.7	9.5	110	16.0
0416-1105	8D	1400	430	Wet	12	20.8	10.8	9.5	125	16.0
A062X621	24	800	135	Wet	12	10.1	6.8	8.7	42	N/A
A062X622	34	800	120	Wet	12	10.2	6.9	7.9	38	N/A

Application – Diesel

Listed below, by set model, is the specific battery size designed to fit the skid mounted battery rack (larger batteries, if required, may not fit the standard skid mounted rack.)

Model	Current Spec	Battery Size*	Supported Part Number*	Battery CCA*	Genset Minimum CCA	Battery Voltage	Starting (Genset) Voltage	Required Battery Quantity
C10 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C15 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C20 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C25 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C30 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C35 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C40 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C50 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C50 D6C	B	34	0416-1291	810	1700	12	12	2
C60 D6	A	26 34	0416-1051 A045P632	530 850	545	12	12	1
C60 D6C	B	34	0416-1291	810	1700	12	12	2
C80 D6C	B	34	0416-1291	810	1700	12	12	2
C100 D6C	B	34	0416-1291	810	1700	12	12	2
C125 D6C	B	34	0416-1291	810	1700	12	12	2
C3000 D6	A	8D	0416-0439	1400	1400	12	24	6
C3000 D6E	A	8D	0416-0439	1400	1400	12	24	6
C3250 D6	A	8D	0416-0439	1400	1400	12	24	6
C3250 D6E	A	8D	0416-0439	1400	1400	12	24	6
C3500 D5	A	8D	0416-0439	1400	1400	12	24	6
C3500 D5E	A	8D	0416-0439	1400	1400	12	24	6
C3500 D6	A	8D	0416-0439	1400	1400	12	24	6
C3500 D6E	A	8D	0416-0439	1400	1400	12	24	6
C3750 D5	A	8D	0416-0439	1400	1400	12	24	6
C3750 D5E	A	8D	0416-0439	1400	1400	12	24	6
DFEJ	P	24 34	A062X621 A062X622	800 800	1400	12	24	4
DFEK	P	24 34	A062X621 A062X622	800 800	1400	12	24	4
DQCA	R	34	A062X622	800	1400	12	24	4
DQCB	R	34	A062X622	800	1400	12	24	4
DQCC	R	34	A062X622	800	1400	12	24	4
DQDAA	L	4D	A030Y976	1050	750	12	24	2
DQDAB	K	4D	A030Y976	1050	750	12	24	2
DQDAC	K	4D	A030Y976	1050	750	12	24	2
DQFAA	K	34	A062X622	800	1600	12	24	4
DQFAB	K	34	A062X622	800	1600	12	24	4
DQFAC	K	34	A062X622	800	1600	12	24	4
DQFAD	K	34	A062X622	800	1600	12	24	4
DQFAH	D	34	A062X622	800	1600	12	24	4
DQGAA	C	8D	0416-0439	1400	1400	12	24	4
DQGAB	C	8D	0416-0439	1400	1400	12	24	4
DQGAE	E	8D	0416-0439	1400	1800	12	24	4
DQGAF	E	8D	0416-0439	1400	1800	12	24	4
DQHAB	H	8D	0416-0439	1400	1400	12	24	4

***** First line refers to *standby* battery size and the second line refers to *cold starting* battery size for C10 D6 – C60 D6.

Application – Diesel Continued

Model	Current Spec	Battery Size*	Supported Part Number*	Battery CCA*	Genset Minimum CCA	Battery Voltage	Starting (Genset) Voltage	Required Battery Quantity
DQKAA	D	8D	0416-0439	1400	1400	12	24	4
DQKAB	D	8D	0416-0439	1400	1400	12	24	4
DQKAD	F	8D	0416-0439	1400	2200	12	24	4
DQKAE	F	8D	0416-0439	1400	2200	12	24	4
DQKAF	F	8D	0416-0439	1400	2200	12	24	4
DQKAN	D	8D	0416-0439	1400	2200	12	24	4
DQLE	L	8D	0416-0439	1400	2200	12	24	6
DQLF	L	8D	0416-0439	1400	2200	12	24	6
DQPAA	D	8D	0416-0439	1400	1800	12	24	2
DQPAB	D	8D	0416-0439	1400	1800	12	24	2
DSGAB	M	24XL	0416-1330	810	1100	12	12	2
DSGAC	M	24XL	0416-1330	810	1100	12	12	2
DSGAD	E	24XL	0416-1330	810	1100	12	12	2
DSGAE	E	24XL	0416-1330	810	1100	12	12	2
DSHAD	F	24XL	0416-1330	810	1500	12	12	2

***** First line refers to *standby* battery size and the second line refers to *cold starting* battery size for C10 D6 – C360 D6.

Application – Gas

Listed below, by set model, is the specific battery size designed to fit the skid mounted battery rack (larger batteries, if required, may not fit the standard skid mounted rack.)

Model	Current Spec	Battery Size*	Supported Part Number*	Battery CCA*	Genset Minimum CCA	Battery Voltage	Starting (Genset) Voltage	Required Battery Quantity*
C20 N6	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C22 N6	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C25 N6	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C30 N6	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C30 N6H	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C36 N6	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C36 N6H	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C40 N6	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C45 N6	A	24 34	A062X621 A062X622	800 800	850	12	12	2
C40 N6H	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C45 N6H	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C50 N6	A	24 34	A062X621 A062X622	800 800	850	12	12	2
C50 N6H	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C60 N6	A	24 34	A062X621 A062X622	800 800	850	12	12	2
C60 N6H	A	26 34	0416-1051 A045P632	545 850	545	12	12	1
C70 N6	A	24 34	A062X621 A062X622	800 800	850	12	12	2
C80 N6	A	24 34	A062X621 A062X622	800 800	850	12	12	2
C100 N6	A	24 34	A062X621 A062X622	800 800	850	12	12	2

***** First line refers to *standby* battery size and the second line refers to *cold starting* battery size for C20 N6 – C40 N6.

Application – Gas Continued

Model	Current Spec	Battery Size*	Supported Part Number*	Battery CCA*	Genset Minimum CCA	Battery Voltage	Starting (Genset) Voltage	Required Battery Quantity*
C125 N6	A	34	A045P632 A045P632	850 850	850	12	12	1 2
C150 N6	A	34	A045P632 A045P632	850 850	850	12	12	1 2
GGHG	N	30H-31	0416-0796 0416-0980	725 725 1000	600	12	12	1
GGHH	N	30H-31	0416-0796 0416-0980	725 725 1000	600	12	12	1
GGHJ	A	30H-31	0416-0796 0416-0980	725 725 1000	600	12	12	1

***** First line refers to *standby* battery size and the second line refers to *cold starting* battery size for C20 N6 – C150 N6. Reference for battery size supported part number, battery cold cranking amps, and required battery quantity.

Battery Accessories

Battery Racks (not recommended for mounting on skids).

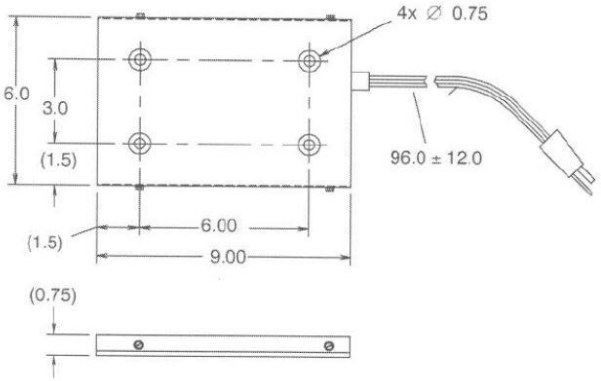
Part Number	Description
0416-0527	20.5” x 11.0” (includes how down brackets)
0416-0475	14.5” x 9.3” (loose rack, not intended for anchoring)
0541-0798	13.7” x 9.7” (includes hold down bracket
A034F027	21.8” x 14.3” (includes hold down brackets)

Battery Heater

Increases battery starting capability in lower ambient temperatures.

Heater Kit	Temperature Range	Voltage AC	Watts	Instruction Sheet	Critical Component
0333-0469	Pre-set to maintain 80º F	120	200	N/A	0333-0469-01
0333-0770	65 o F on; 80º F off	120	50	G744	NA – as purchased
0541-0555	40º F / 70º F setting	120	120	C587	0333-0636
A064K302	60 º F to 80 º F	120	65	A-9597-0S	A064K303
A064W979	60 º F to 80 º F	240	65	A-9597-1S	A064K304
A064V816	60 º F to 80 º F	120	65	A-9597-0S	A064K303
A064W995	60 º F to 80 º F	240	65	A-9597-1S	A064K304

Image 1: 0333-0469



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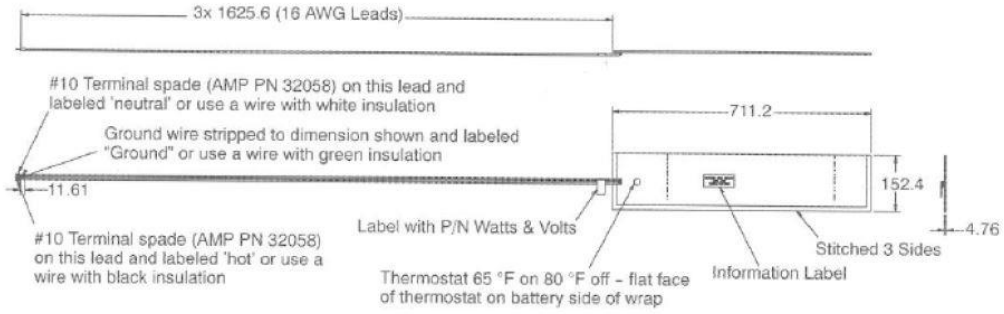

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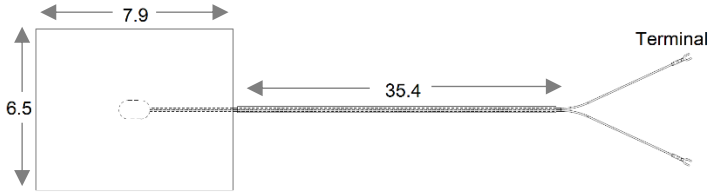

Battery Box

Battery box has approximate inside dimensions of 21.125” long x 11.75” wide x 10.5” high. Box is constructed of black plastic with 4 mounting feet and a cover held on by 2 thumb screws. The box also has 2 slots on each side to accommodate battery cables. Note: Box material will become soft and pliable around 240°F.

Image: 0416-1263

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

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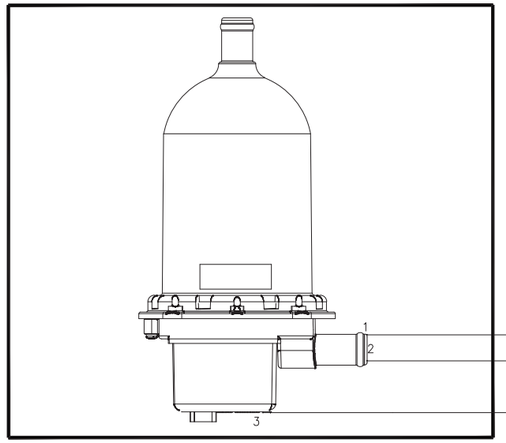
COOLANT HEATER



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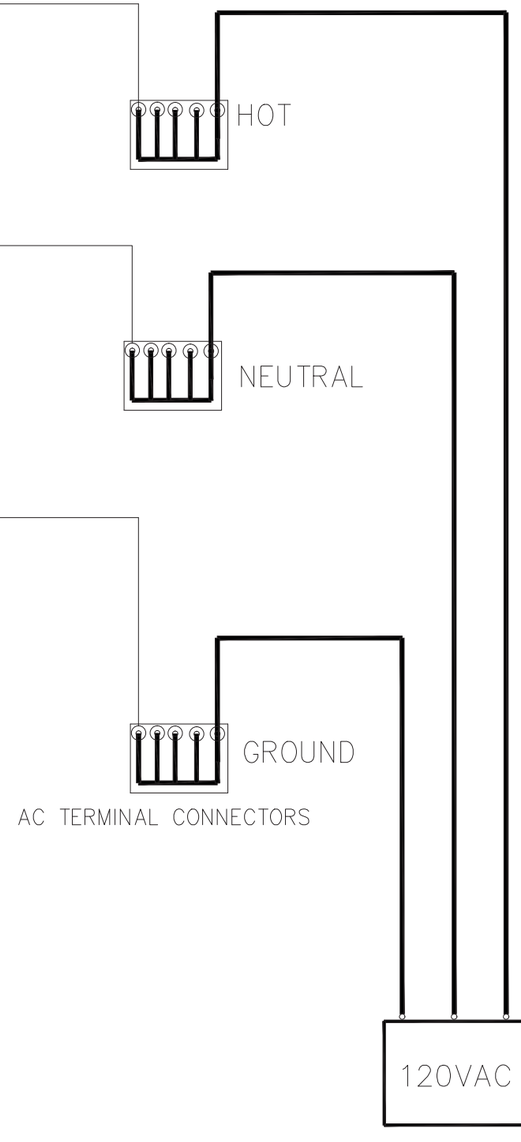

120VAC INPUT & GROUND
CUSTOMER PROVIDED CIRCUIT
BACKED FROM GENERATOR SUCH
THAT CCV HEATER IS POWERED
FROM
BOTH UTILITY & GENERATOR
SOURCES.

FOLLOW NATIONAL ELECTRICAL
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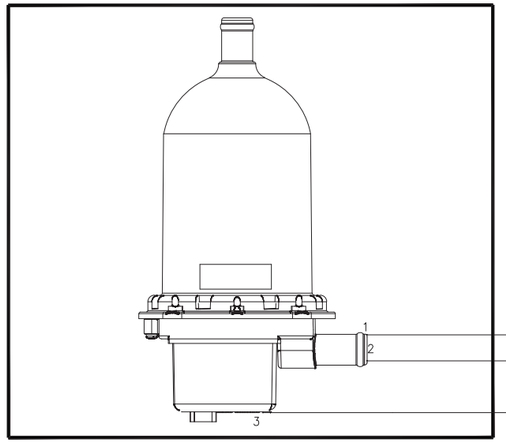
	DRAWING NAME: CONNECT SERIES BLOCK HEATER 9029	PAGE:

OPTIONAL

COOLANT HEATER



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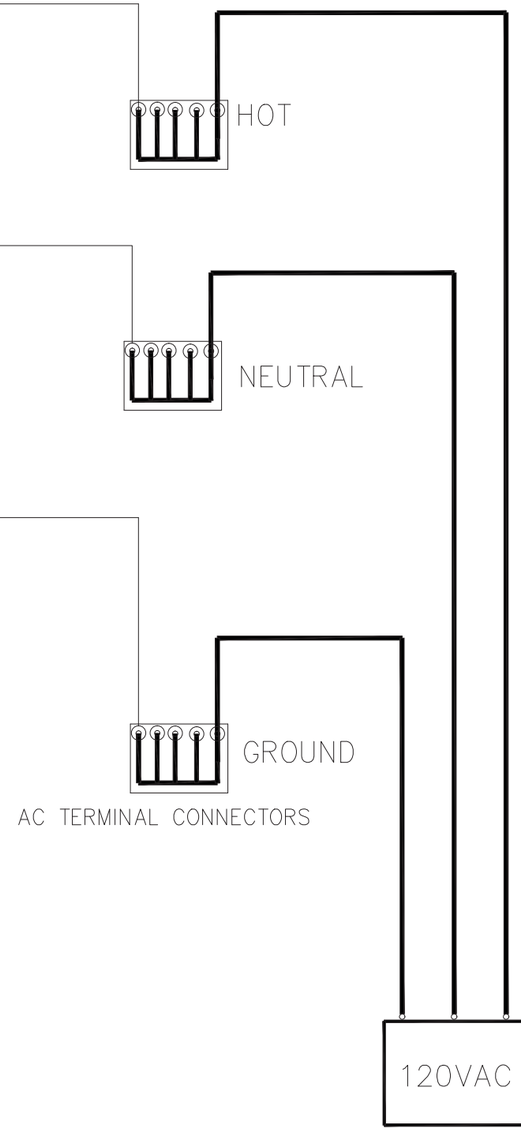

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