

S T A T E O F M I C H I G A N

BOARD OF COMMISSIONERS OF THE COUNTY OF ALLEGAN

FACILITIES MANAGEMENT - AWARD COUNTY SERVICES & HUMAN SERVICES GENERATOR BID

WHEREAS, the Allegan County Board of Commissioners (Board) appropriated \$70,000 for a 2023 capital project to replace the generator at the County Services Building (CSB) and \$160,000 to replace the generator at the Human Services Buildings (HSB); and

WHEREAS, the procurement of both generators was combined and consistent with the County's Purchasing Policy, and a request for proposal was issued to solicit competitive bids to replace both generators.

THEREFORE, BE IT RESOLVED that the Board awards the bid to replace the generators at the CSB (Project #1509-23) and at the HSB (Project #1509-23A) to Allied Electric Inc., of 2503 Waldorf Court NW, Grand Rapids, MI 49544, for an amount of \$208,800; and

BE IT FINALLY RESOLVED that the County Administrator is authorized to make the necessary budget adjustments, and any necessary documents to complete this action are authorized to be signed.

REQUEST FOR ACTION - PROCUREMENT OF GOODS AND/OR SERVICES

RFA #: 226-169 RFA Date: 5/10/2023 RFA Submitted By: Kristin VanAtter

PROJECT/SERVICE: Generator Replacements at HSB and CSB
Project/Service Description: Replace generators as part of capital project #1509-23 County Services Building and #1509-23A Human Services Building.
Project/Contract #: 1509-23 Contact Name: Carl Chapman
Department: Facilities Management Contact Info: cchapman@allegancounty.org

PROCUREMENT METHOD: Public Solicitation / RFP
10 Firms invited to bid and bidding opportunity posted to County Website. 1 Bids Received

CONTRACT AWARD: \$208,800.00
Parties - County and: Allied Electric
Contract Duration: Until scope of work completion
Evaluation Team: Valdis Kalnins and Carl Chapman
References Checked: Yes Debarred: No

BUDGETARY ACTION NEEDED: BOC - Budget Adjustment or Additional Appropriation Needed
Amount: \$ 6,000 Source: #401 CIP From Account: 401-265.263-977.000
Amount: \$ 6,000 Source: #401 CIP To Account: 401-265.270-977.000

FUNDING SOURCE: #401 - Capital Improvement Fund
\$ 230,000.00 Approved Appropriation
\$ - Additional Appropriation Requested through this RFA
\$ 230,000.00 Total Funding available if this RFA is approved
\$ - Expenditures to Date
\$ - Committed Funds
\$ 208,800.00 Award Amount

\$ 21,200.00 Funds Remaining

The project funds need to be adjusted so that each project works within its budgeted expenses.

NEW CONTRACT SUMMARY: Standard County Agreement - No modifications or additional terms



CONTRACT PACKET

Allegan County
3283 122nd Ave
Allegan, MI 49010

Human Services Building & County Services Building Generator Replacement Services Contract #1509-23

This contract packet incorporates the following documents:

Generator Replacement Services Agreement - HSB & CSB	2
Agreement and Scope of Work Clarifications.....	8
Attachment A – Scope of Work	9
Attachment B – Cost Proposal.....	17
Attachment C – Contractor’s Proposal	20

Generator Replacement Services Agreement - HSB & CSB

This Agreement (“Agreement”) is made by and between the County of Allegan, 3283 122nd Avenue, Allegan, Michigan 49010 (“County”) and

Contractor Name: Allied Electric Inc.

Contractor Address: 2503 Waldorf Ct. NW Grand Rapids, MI 49544

(“Contractor”). The parties agree as follows:

1. Contractor Services

Contractor shall provide the County with the services, products and supplies described in Attachment A subject to the terms and conditions set forth in this Agreement.

Contractor warrants to the County that the services to be provided under this Agreement shall be of the kind and quality that meet generally accepted standards and shall be performed by qualified personnel. Contractor further warrants to the County that all products and supplies used in conjunction with the services provided under this Agreement shall be new and of acceptable quality and quantity to the County.

2. Payment

The County shall pay Contractor for the services described in Attachment A based on the pricing provided by Contractor in Attachment B. Any additional work must be mutually agreed upon in writing and costs known before that work may commence. Payment shall be provided within thirty days following receipt of invoice commensurate with progress towards Scope of Work completion and satisfactory performance.

3. Term of Agreement

The term of this Agreement shall begin upon signature by both parties and end upon Scope of Work completion and expiration of all warranties and guarantees provided by the Contractor on the work performed, unless terminated earlier in accordance with Section 4 of this Agreement.

4. Termination of Agreement

The County may terminate this Agreement for any or no reason prior to the expiration date set forth in Section 3 of this Agreement by giving thirty days’ written notice to Contractor.

5. Insurance Requirements

Contractor, and any and all of its subcontractors, shall not commence any services or perform any of its other obligations under this Agreement until Contractor obtains the insurance required under this Section. Contractor shall then maintain the required insurance for the full duration of this Agreement. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan. All coverages shall be with insurance carriers acceptable to the County.

Insurance policies shall not contain endorsements or policy conditions which reduce coverage provided to the County. Contractor shall be responsible to the County for all costs resulting from both financially unsound insurance companies selected by Contractor and their inadequate insurance coverage. The specified limits of liability do not limit the liability of Contractor. All deductibles and self-insured retentions are the responsibility of Contractor.

The Contractor shall procure and maintain the following insurance coverage:

A. Worker's Compensation Insurance, including Employers' Liability Coverage either in accordance with all applicable statutes of the State of Michigan or have the State of Michigan listed under Section 3 - Other States Insurance in the Contractor's insurance policy.

B. Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability of not less than \$1,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included; (E) Explosion, Collapse, and Underground, if applicable.

C. Automobile Liability Insurance, including Michigan No-Fault Coverage, with limits of liability not less than \$1,000,000 per occurrence combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

D. Commercial General Liability and Automobile Liability required liability limits may be obtained by using an Excess/Umbrella Liability policy in addition to the primary liability policy(ies). If coverage limits are satisfied by an Excess and/or Umbrella policy, coverage must follow form of the primary liability policy(ies), including but not limited to additional insured and primary/non-contributory coverage.

E. Additional Insured: Commercial General Liability Insurance shall include an endorsement stating the following shall be Additional Insureds: "Allegan County, all elected and appointed officials, all employees and volunteers, agents, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof." It is understood and agreed that, by naming Allegan County as additional insured, coverage afforded is considered to be primary and any other insurance the County may have in effect shall be considered secondary and/or excess.

F. Professional Liability Insurance coverage is not a required for this Agreement.

G. Cancellation Notice: Policy(ies), as described above, shall be endorsed to state the following: "It is understood and agreed thirty days, ten days for non-payment of premium, Advance Written Notice of Cancellation or Non-Renewal shall be sent to the Certificate Holder: Allegan County Administrator, 3283 122nd Avenue, Allegan, MI 49010." If any required insurance expires or is canceled during the term of this Agreement, services and related payments will be suspended and the County may terminate this Agreement immediately.

H. Proof of Insurance Coverage: Upon execution of this Agreement and at least ten business days prior to commencement of services under this Agreement, Contractor shall provide the County with a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, a copy of the policy sections where coverage is provided for additional insured and cancellation notice, may be acceptable.

I. Should the need arise, the County reserves the right to request a copy of any policy mentioned above and if so requested, Contractor agrees to furnish a Certified Copy.

J. No payments shall be made to Contractor until current certificates of insurance have been received and approved by the County. If any of the above coverages expire during the term of this Agreement, Contractor shall deliver renewal certificates to the County at least ten days prior to the expiration date.

6. Reporting and Review

Contractor shall report to the County as required by this Agreement and also upon request. Contractor shall cooperate and confer with the County as necessary to ensure satisfactory work progress and performance. All documents submitted by Contractor must be dated and bear the Contractor's name. All reports made in connection with Contractor's services are subject to review and final approval by the County. The County may review and inspect Contractor's activities during the term of this Agreement. After reasonable notice to Contractor, the County may review any of Contractor's internal records, reports or insurance policies.

7. Indemnification

To the fullest extent permitted by law, Contractor shall hold harmless, defend and indemnify the County and its elected officials, agents, representatives, volunteers and employees from any and all liabilities, claims, liens, fines, demands and costs, including attorney fees, of whatsoever kind and nature, such as, but not limited to, those resulting from injury or death to any persons, including Contractor's own employees, or from loss or damage to any property, including property owned or in the care, custody or control of the County, in connection with or in any way incident to or arising out of the occupancy, use, operations or performance or non-performance of services by Contractor or its agents, representatives and employees, or any subcontractor or its agents, representatives and employees, in connection with this Agreement. The obligations of Contractor under this Section shall survive any termination of this Agreement or completion of Contractor's performance under this Agreement.

8. Independent Contractor

To the fullest extent permitted by law, the parties agree that Contractor is an independent contractor; that Contractor and its employees shall in no way be deemed, nor hold themselves out to be, an employee, agent or joint venture partner of the County for any purpose, and shall not be entitled to any fringe benefits of the County, such as, but not limited to, health and accident insurance, life insurance, paid sick or vacation leave, or longevity pay; and that Contractor shall be responsible for withholding and payment of all applicable taxes, including, but not limited to, income, social security and unemployment taxes, to the proper federal, state and local governments, and maintaining the required workers' compensation insurance, in connection with services rendered by its employees pursuant to this Agreement, and agrees to protect, defend and indemnify the County against such liability.

9. Subcontracting

Contractor shall provide all services covered by this Agreement and shall not subcontract, assign or delegate any of the services without written authorization from the County unless the intent to use subcontractors is clearly stated in the Contractor's Proposal with details provided on the names of the agencies and portion of work to be subcontracted.

Contractor assumes all risk, liability and supervisory responsibility for the actions and / or inactions and performance of all subcontractors used by Contractor in providing services under this Agreement. In choosing to use subcontractors, Contractor shall ensure that all subcontractors comply with, and perform services in manner consistent with, all the terms and conditions set forth in this Agreement. Contractor shall also verify that subcontractors have insurance coverage that matches or exceeds the coverage detailed in Section 5 and make certain that subcontractors do not operate outside the required scope of work.

This Agreement is solely between County and Contractor and County shall have no relationships or obligations to any subcontractors used by Contractor in performing work under this Agreement.

10. County Employees

Contractor shall not hire any County employee to perform any of the services covered by this Agreement without written authorization from the County.

11. Default

In the event of default by Contractor, the County may procure the products or services from other sources and hold Contractor responsible for any excess costs incurred, in addition to all other available remedies.

12. Endorsement Prohibition

Contractor shall not use in any form or medium the name of the County, or supportive documentation or photographs of County projects, facilities, equipment or employees, for public advertising or promotional purposes unless authorized in writing by the County.

13. Compliance with Laws

Contractor shall observe and comply with all applicable federal, state and local laws, ordinances, rules, and regulations including, but not limited to OSHA/MIOSHA requirements, the Elliot-Larsen Civil Rights Act and the Persons with Disabilities Civil Rights Act. Contractor agrees to protect, defend and indemnify the County against liability for loss, cost or damage resulting from actual or alleged violations of law by Contractor.

14. Nondiscrimination

Contractor shall adhere to all applicable federal, state and local laws, ordinances, rules and regulations prohibiting discrimination. Contractor, as required by law, shall not discriminate against a person to be served or any employee or applicant for employment because of race, color, religion, national origin, age, sex, disability, height, weight, marital status, or any other factor legally prohibited by applicable law.

15. Equal Opportunity Employer

In signing this Agreement, Contractor certifies that it is an Equal Opportunity Employer.

16. Confidentiality

Contractor acknowledges that during the performance of its obligations under this Agreement, it or its personnel may become aware of or receive confidential information relating to or kept by the County, and therefore Contractor agrees that all such information shall be kept confidential and shall not be disclosed without the written authorization of the County.

17. Contractor Personnel

Contractor's employees may be subject to an approved criminal background check prior to entering County property to perform work under this Agreement. Employees of Contractor must wear apparel or other means of identification while performing services under this Agreement.

18. Amendment

This Agreement shall not be modified, nor may compliance with any of its terms be waived, except by written instrument executed by a duly authorized representative from each party.

19. Binding Effect

This Agreement is binding upon and shall inure to the benefit of Contractor and the County and their respective legal representatives, successors and authorized assigns.

20. Waiver

No provision of this Agreement shall be deemed waived and no breach excused, unless such waiver or consent is in writing and signed by the party claimed to have waived or consented. Any consent by any party to, or waiver of, a breach of the other party, whether express or implied, shall not constitute consent to, waiver of, or excuse for any different or subsequent breach.

21. Counterparts

This Agreement may be executed simultaneously in one or more counterparts each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

22. Severability

If any provision of this Agreement is held to be invalid or unenforceable, it shall be considered to be deleted, and the remainder of the Agreement shall remain in full force and effect. Where the deletion of the invalid provision would result in the illegality and/or unenforceability of this Agreement, this Agreement shall be considered to have terminated as of the date on which the provision was declared invalid.

23. Section Titles

Section titles used in this Agreement are inserted for the convenience of reference only and shall be disregarded when construing or interpreting the provisions in this Agreement.

24. Choice of Law and Forum

This Agreement is governed by and interpreted according to the laws of the State of Michigan. The parties agree that the proper forum and venue for litigation arising out of this Agreement is in Allegan County, Michigan.

25. Royalties and Patents

Contractor shall pay all royalties and license fees and shall defend all suits or claims for infringement of any copyright or patent rights and shall hold and save the County and its officers, agents, servants and employees harmless from any and all loss and liability of any nature or kind whatsoever, including costs and expenses of defense, for or on account of any copyrighted, patented or unpatented invention, process, article or appliance manufactured or used in the performance of the contract, including its use by Contractor and/or Contractor's subcontractors and agents.

26. Debarment or Suspension Status

In signing this Agreement, Contractor certifies that it is not suspended, debarred or ineligible from entering into contracts with the Executive Branch of the Federal Government, or in receipt of a notice of proposed debarment from any State agency or local public body.

27. Conflicts of Interest

In signing this Agreement, Contractor certifies that it has no interest which would conflict with its performance of services under this Agreement. If a possible conflict of interest arises, Contractor shall immediately inform County regarding same.

28. Anti-Collusion Statement

In signing this Agreement, Contractor certifies that it has not divulged to, discussed or compared its bid with other contractors and has not colluded with any other bidder, with the exception of qualified subcontractors, or parties to the bid. No premiums, rebates or gratuities to employees or officials of the County are permitted either with, prior to, or after delivery of any product(s) or service(s). Any such violation will result in the termination of this Agreement, the cancellation

and/or return of any item(s), as applicable, and possible exclusion of Contractor from future bidding opportunities.

29. Performance and Payment Bonds

The following bonds or securities shall be secured by the Contractor upon full execution of this Agreement whenever the contract award exceeds \$50,000. These bonds or securities shall be included in this Agreement and become binding on the parties.

A. A performance bond satisfactory to the County, executed by a surety company authorized to do business in the State of Michigan or otherwise secured in a manner satisfactory to the County, in an amount equal to 100% of the price specified in this Agreement; and

B. A payment bond satisfactory to the County, executed by a surety company authorized to do business in the State of Michigan or otherwise secured in a manner satisfactory to the County, for the protection of all persons supplying labor and material to the Contractor or its subcontractors for the performance of the work provided for in this Agreement. The bonds shall be an amount equal to 100% of the price specified in this Agreement.

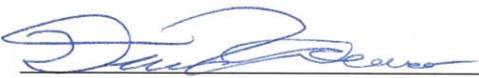
30. Entire Agreement

This Agreement, including and incorporating the documents listed below, constitutes the entire Agreement. In the event of any conflict or inconsistency in the terms and conditions between these documents, the documents shall govern in following order:

1. This Generator Replacement Services Agreement
2. Agreement and Scope of Work Clarifications
3. Attachment A – County’s Scope of Work issued with RFP on 4/11/2023
4. Attachment B – Cost Proposal Form completed and submitted with Contractor’s Proposal
5. Attachment C – Contractor’s Proposal received and opened by County on 5/5/2023

This Agreement contains all the terms and conditions agreed upon by the parties, and no other negotiations, representations, understandings or agreements, written, oral, or otherwise, regarding the subject matter of this Agreement or any part thereof shall have any validity or bind the parties in any way.

The Parties hereby cause this Agreement to be executed by their duly authorized representatives.

Contractor:	County:
Sign: 	Sign: _____
Name: <u>Drew Hansma</u>	Name: <u>Robert J. Sarro</u>
Title: <u>Chief Estimator</u>	Title: <u>Allegan County Administrator</u>
Date: <u>5/5/23</u>	Date: _____

Agreement and Scope of Work Clarifications

This Agreement hereby incorporates the following County decisions between Scope of Work alternatives, clarifications noticed during the open bid process, the County's acceptance of clarifications requested by Contractor in its proposal, and any additional negotiated terms, conditions or clarifications not incorporated elsewhere in this Agreement:

County clarifies that:

- a. County opts to include the replacement of the ATS at both buildings.
- b. It accepts Contractor's proposed 200KW NG Generator for the HSB site as a variance to the specification in Attachment A.

Contractor clarifies that:

- a. Generator replacement will be done during normal business hours.
- b. Any outages needed during ATS replacement would occur after 5:00 PM on weeknights (this off hours work is included in contractor's quote).
- c. The manufacturer's commissioning of the equipment is all figured to happen during normal business hours.
- d. Normal power to the building will not be interrupted.
- e. There will be no back-up generator power to the buildings while the generators and ATS are being replaced.
- f. UPS power will be available during the generator replacement.
- g. UPS power will be lost during an ATS replacement.

Attachment A – Scope of Work

1. INTRODUCTION

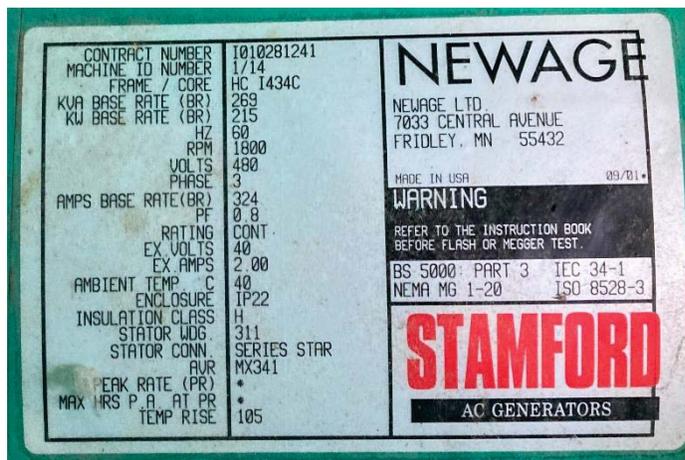
1.1 Contractor shall replace two generators that have reached the end of their reliable service life with a new Generac, Cummins, Kohler or approved equal as specified herein.

1.2 Generator #1 – Human Services Building (HSB)

1.2.1 The generator to be replaced is located at the Allegan County Human Services Building, 3255 122nd Ave, Allegan, MI 49010.

1.2.2 The existing generator to be replaced is a Cummins 215 kW natural gas generator

1.2.3 A picture of the current generator and manufacturer's specification plate is shown in the photos below:



1.2.4 If approved as an **Alternate #1** by the County, Contractor shall also replace both existing Automatic Transfer Switches (ATS) with equivalents. The

ATS is also connected to a 40kVA Liebert/Vertiv eXM Uninterrupted Power Supply (UPS) unit that was installed in 2021.

1.2.5 A picture of each ATS and its manufacturer’s specification plate is shown in the photos below:



1.2.6

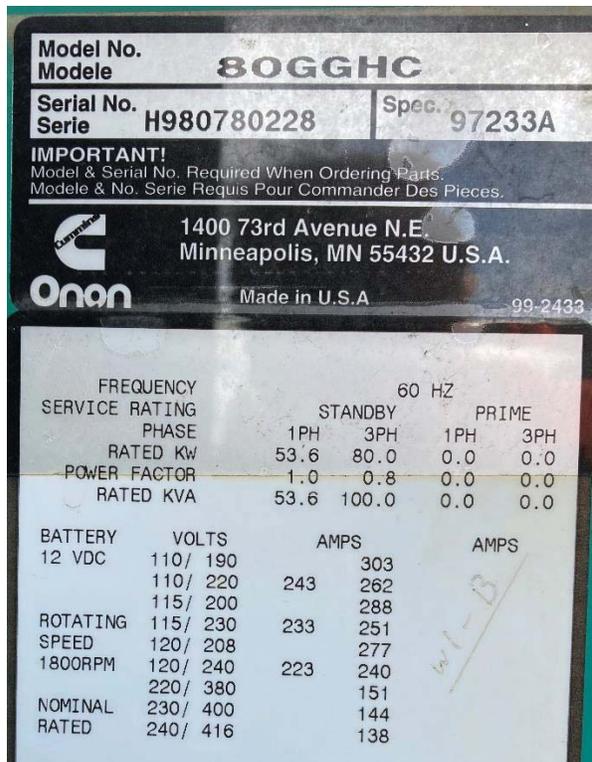
Model No. Modele	OTPCA - 5001697	
Serial No. Serie	I010285987	Spec. A
IMPORTANT! Model & Serial No. Required When Ordering Parts. Modele & No. Serie Requis Pour Commander Des Pieces. 99-2433		
CUMMINS POWER GENERATION 1400 73RD AVE. N.E. MINNEAPOLIS, MN 55432 U.S.A. MADE IN U.S.A.		
CURRENT RATING:	125	AMPS
Voltage-480		
Frequency-60		
Poles-3		
Application-	Utility To	Genset
FEATURES:	A035-7 A028-7 A042-7 A044-7 A046-7 B001-7 R026-7 SPEC-A C023-7 M017-7 M018-7 OTPC125	

Model No. Modele	OTPC - 5001698	
Serial No. Serie	I010285988	Spec. A
IMPORTANT! Model & Serial No. Required When Ordering Parts. Modele & No. Serie Requis Pour Commander Des Pieces. 99-2433		
CUMMINS POWER GENERATION 1400 73RD AVE. N.E. MINNEAPOLIS, MN 55432 U.S.A. MADE IN U.S.A.		
CURRENT RATING:	400	AMPS
Voltage-480		
Frequency-60		
Poles-3		
Application-	Utility To	Genset
FEATURES:	A035-7 A028-7 A042-7 A044-7 A046-7 B001-7 K003-7 R026-7 SPEC-A C023-7 M017-7 M018-7 OTPC400	

1.2.7

1.3 Generator #2 – County Services Building (CSB)

- 1.3.1 The generator to be replaced is located at the Allegan County Human Services Building, 3255 122nd Ave, Allegan, MI 49010.
- 1.3.2 The existing generator to be replaced is an Onan 80 kW natural gas generator
- 1.3.3 A picture of the current generator and manufacturer's specification plate is shown in the photos below:



- 1.3.4 If approved as an **Alternate #2** by the County, Contractor shall also replace the existing Automatic Transfer Switches (ATS) with an equivalent. The ATS is also connected to an UPS unit. The existing UPS is scheduled to be replaced in May, 2023 with a 40kVA Liebert/Vertiv eXM UPS.
- 1.3.5 A picture of each Onan ATS and its manufacturer's specification plate is shown in the photos on the following page:



CSB ATS #1 and #2 mounted on wall in brick enclosure outside the building.

2. SCOPE OF SERVICES

2.1 General Conditions, Site Protection and Safety Requirements

- 2.1.1 Permits and Inspections: Contractor shall secure, coordinate and pay for any necessary permits and inspections necessary to complete the specified scope of work.
- 2.1.2 Debris Disposal: Contractor shall remove all debris and trash generated in performing the work under this Agreement from the site. Disposal of these materials, is the Contractor's responsibility and must be done in a manner consistent with all applicable Local, State and Federal laws. Contractor shall not use County dumpsters for disposal.
- 2.1.3 Damage to County Property: Existing facilities, including but not limited to grounds, structures, vehicles, utilities, landscaping, fixtures, furnishings, equipment and surfaces and building systems in the vicinity of Contractor's work shall be protected by Contractor. Any damage to existing facilities shall be reported to the County on the day such damage occurs. Contractor shall promptly repair damage with like materials when ordered to do so by the County at Contractor's expense. All repairs of damage to existing facilities shall be made to the satisfaction of the County. Failure to repair damage shall be just cause for withholding payment for work, which becomes due.
- 2.1.4 Building Access: Contractor shall arrange for work to be done during regular business hours which are 8:00 am to 5:00 pm, Monday through Friday excluding holidays with the exception of any power shutdown to the building that may be needed during the conversion which must be arranged for in advance and completed after-hours.
- 2.1.5 Site Utilities: if work entails any digging, Contractor shall ascertain the location of all existing underground utilities, including site utilities owned by the County and accept total responsibility for shut-off and avoidance of all such utilities during construction. Contractor shall contact MISS DIG, one number utility alert (1-800-482-7171), for location of public utility service lines where digging or deep excavation operations could disturb or sever such lines. Contractor is responsible for and shall pay for all repairs, restoration and damages to utilities resulting from failure to properly fulfill such notification and location requirements.

2.2 Generator Procurement Specifications:

- 2.2.1 Upon contract award, Contractor shall procure two new Generac, Cummins, Kohler or approved equal brand generators equivalent to the existing ones to be replaced.

- 2.2.2 Generators shall:
 - 2.2.2.1 Be 215 kW rated for the HSB
 - 2.2.2.2 Be 80 kW rated for the CSB
 - 2.2.2.3 Be powered by natural gas
 - 2.2.2.4 Provide sufficient electricity to operate heating equipment, lighting, ventilation, computers, and a minimal number of outlets.
 - 2.2.2.5 Include a suitable enclosure to provide protection from the weather.
 - 2.2.2.6 Include a BACnet or Modbus connection to allow generator to be connected to the County's Building Automation System.

2.3 Generator Delivery and Installation:

- 2.3.1 Contractor shall:
 - 2.3.1.1 Bring new generator equipment to the site on the scheduled day of installation; or arrange to have generator equipment delivered on the scheduled day of installation and be present to accept delivery.
 - 2.3.1.2 Provide all necessary electrical disconnections and connections with all electrical work performed by a qualified and licensed electrician.
 - 2.3.1.3 Provide all necessary natural gas disconnections and connections.
 - 2.3.1.4 Install new generator equipment.
 - 2.3.1.5 Take ownership of and remove all replaced generator parts and equipment from site for re-use, sale or proper disposal.
 - 2.3.1.6 Provide owner training following installation.
- 2.3.2 Any building power outages must be kept to a minimum and scheduled in advance to occur outside of regular County business hours.
- 2.3.3 On scheduled days of installation, a representative from Facilities Management will meet the Contractor at a designated location to provide access to the facility if needed. The Facilities Management representative will remain available during installation as needed to provide assistance.
- 2.3.4 The existing generators are not connected to the County's Building Automation System (BAS). The County will make arrangements with its BAS contractor (Grand Valley Automation) to connect the generators to the County's BAS once the generators are installed by Contractor.

2.4 System Testing

- 2.4.1 Contractor is required to conduct a start-up test to demonstrate and confirm correct installation and proper functioning of new generators in supplying temporary power to each building. System testing shall be conducted with a Facilities Management representative present to verify proper functioning necessary for system for acceptance.

2.5 Alternate #1 – Replace Automatic Transfer Switch at HSB

- 2.5.1 If Alternate #1 is approved by the County, Contractor shall also procure a new Automatic Transfer Switch (ATS) to replace the one at the HSB and then replace the existing ATS, removing and disposing of the existing one as part of this scope of work.
- 2.5.2 If a new Automatic Transfer Switch is installed, its proper function shall be included as part of the system testing described in Section 2.4.

2.6 Alternate #2 – Replace Automatic Transfer Switch at CSB

- 2.6.1 If Alternate #2 is approved by the County, Contractor shall also procure a new Automatic Transfer Switch (ATS) to replace the one at the CSB and then replace the existing ATS, removing and disposing of the existing one as part of this scope of work.
- 2.6.2 If a new Automatic Transfer Switch is installed, its proper function shall be included as part of the system testing described in Section 2.4.

2.7 Site Restoration:

- 2.7.1 Any lawn areas disturbed by Contractor’s activities or equipment shall be backfilled and smoothed to the level of the adjoining grade with pulverized black dirt (topsoil) by Contractor.
- 2.7.2 Contractor shall supply its own topsoil for backfilling which shall be of sufficient quality to support grass cover and contain no debris (glass, sawdust, large rock etc.)
- 2.7.3 Contractor shall properly level and compact the topsoil to ensure minimum settlement of the backfill material.
- 2.7.4 Contractor shall grass seed backfilled areas and any other areas disturbed by Contractor’s activities or equipment with a seed mixture that approximates the surrounding turf.
- 2.7.5 Contractor shall cover seeded areas with a quarter (1/4) inch of topsoil.

2.8 Scheduling

- 2.8.1 All work is to be scheduled at least five business days in advance and coordinated through:

Carl Chapman
Director of Facilities Management
(269) 673-0207
cchapman@allegancounty.org

- 2.8.2 It is expected that all work is to be carried out during Contractor’s regular business hours at normal labor rates unless work will require a power outage to the building.

Attachment B – Cost Proposal

3. COST PROPOSAL

Unless otherwise noted by the Contractor and agreed to in writing by the County, all costs associated with the scope of work outlined in Attachment A are itemized in this Cost Proposal taking the following into consideration:

3.1 Taxes

The County is exempt from Federal Excise Tax and Michigan Sales Tax.

3.2 Variances

Where a variance exists or other discrepancies are noted between prices on this Cost Proposal Form and prices specified anywhere else in Contractor's proposal, the pricing shown on this Cost Proposal Form shall prevail.

3.3 Quality

All materials used for the manufacture or construction of any items to be provided under this Agreement shall be new. Pricing shall be for items in new condition representing the latest model of the best quality and highest grade of workmanship, unless the option to include supplemental proposals for pre-owned, or demonstrator equipment or materials has been specified by the County.

3.4 Delivery Provisions

All goods procured through this Agreement by the Contractor for the County shall be delivered by the Contractor under the terms Free on Board 3255 122nd Ave, Allegan Michigan for the HSB generator and 3283 122nd Ave., Allegan, Michigan for the CSB generator. Title and risk of loss to the purchased goods does not pass to the County until the items are installed and accepted as functioning by the County.

3.5 Invoices:

All invoices must reference contract #1509-23, itemize services rendered and be sent by email to projects@allegancounty.org or mailed to:

Project Management - Accounts Payable
Allegan County Information Services
3283 122nd Avenue
Allegan, MI 49010

3.6 Cost Tables

Once completed, the following cost tables shall establish the pricing to be charged unless otherwise negotiated in writing.

TABLE A – HSB Generator Costs

Natural Gas Generator Brand: Cummins Model: C200N6B	\$99,900.00
All other generator equipment and supplies	\$9,070.00
Total Installation Labor	\$7,630.00
All other costs (e.g. general conditions, coordination, freight, site restoration, permits, inspections etc.) not included elsewhere.	\$2,100.00
TOTAL COST (not to exceed)	\$118,700.00

TABLE B – CSB Generator Costs

Natural Gas Generator Brand: Cummins Model: C80N6	\$45,700.00
All other generator equipment and supplies	\$7,830.00
Total Installation Labor	\$6,170.00
All other costs (e.g. general conditions, coordination, freight, site restoration, permits, inspections etc.) not included elsewhere.	\$1,800.00
TOTAL COST (not to exceed)	\$61,500.00

TABLE C – Alternate #1 – HSB Automatic Transfer Switch – these costs would be added to the HSB Generator replacement costs if Alternate #1 is added to the scope of work at time of contract award.

Item	Cost
Automatic Transfer Switch Equipment	\$8,750.00
All Other Equipment, Materials and Supplies	\$400.00
Total Labor Cost	\$4,450.00
All Other Costs (specify):	\$0
TOTAL ALTERNATE #1 COST (not to exceed):	\$13,600.00
Cost of performance and payment bond for Alternate #1 if base bids already exceed \$50,000 or cost of Alternate #1 will result in a total project cost exceeding \$50,000.	\$113.00

TABLE D – Alternate #2 – CSB Automatic Transfer Switch – these costs would be added to the CSB Generator replacement costs if Alternate #2 is added to the scope of work at time of contract award.

Item	Cost
Automatic Transfer Switch Equipment	\$8,650.00
All Other Equipment, Materials and Supplies	\$400.00
Total Labor Cost	\$4,250.00
All Other Costs (specify):	\$0
TOTAL ALTERNATE #2 COST (not to exceed):	\$13,300.00

TABLE E – Performance and Payment Bonds – maximum cost to be added to the project for Performance and Payment Bonds assuming both generators and all four ATS are replaced.

Maximum cost of performance and payment bonds assuming the entire scope of work is awarded.	\$1,700.00
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Attachment C - Contractor's Proposal

RFP Supplement B – Proposal Requirements

7. PROPOSAL REQUIREMENTS

7.1 General Instructions

Before submitting a proposal, Contractor should carefully examine the entire RFP Packet and have a full understanding of the contents needed for a proposal. Submission of a response constitutes Contractor's understanding of the contents of this RFP.

Any erasures or corrections to this RFP packet or the Contractor's proposal must be initialed in ink by Contractor. The Agreement and Cost Proposal Tables in Attachment B must be typed into or filled out with pen and ink and be signed in longhand, in ink, by a principal authorized to make contracts.

7.2 Proposal Organization and Length:

Contractor's proposal and all supporting documentation should be organized and formatted to ensure the County receives only the most relevant information necessary to select a contractor.

In responding to proposal content requested in Section 8 below, please reference the number and the question before each response and respond in sequence of the questions asked.

8. PROPOSAL CONTENT

8.1 Company Information:

8.1.1 State the legal name under which Contractor carries out business, the year the company was established and the approximate size of the company in terms of total employees and annual revenues.

Allied Electric Inc.

Established in 1969

150 employees

\$ 40 million annual revenue

8.1.2 Identify the location of the office from which work described here will be managed and the year that office was established if other than above.

Same as above

8.1.3 Provide the contact information (name, title, telephone number and email) for Contractor representative submitting proposal.

Rob Kraus – Estimator

616-791-1164

rkraus@alliedelectricinc.com

8.1.4 Indicate whether any disciplinary action has been taken or is pending against Contractor by state regulatory bodies, professional organizations, or through legal action in the past five years. If no, so state. If yes, detail the circumstances and current status of such action.

None

8.2 Company Experience:

8.2.1 List three commercial clients in Michigan for whom your firm has installed similar generator equipment. Name the firm, agency or organization for whom the work was performed, briefly describe the scope of work and provide the name and telephone number or email of the individual who may be contacted as a reference.

Provided generator installation for the following clients:

- 1. Granger Construction – Taylor Goldthwait
tgoldthwait@grangerconstruction.com*
- 2. Lakeshore Construction – Gary Buren
gary@lakeshoreconstruction.net*
- 3. Triangle Associates – Jack Wallen
jackw@triangle-inc.com*

8.3 Proposed Materials, Products and Equipment:

8.3.1 Describe the generator equipment your firm is proposing to install at each building including information on:

8.3.1.1 Brand and Model *Cummins C200N6B & Cummins C80NB*

8.3.1.2 Output kW *200KW & 80KW*

8.3.1.3 Manufacturer's Warranty Information

5-year comprehensive extended warranty included

8.3.1.4 Life expectancy for the system

With proper upkeep and maintenance, potential life expectancy is 20+ years

8.3.1.5 Include technical specifications sheet(s) / brochure(s)

See attachments

8.3.2 Describe the Automatic Transfer Switches your firm is proposing to install at each building including information on:

- 8.3.2.1 Brand and Model *Cummins OTEC*
- 8.3.2.2 Current Rating *125A & 400A (HSB) and 125A & 225A (CSB)*
- 8.3.2.3 Manufacturer's Warranty Information
5-year comprehensive extended warranty included
- 8.3.2.4 Life expectancy for the switch
With proper upkeep and maintenance, potential life expectancy is 20+ years
- 8.3.2.5 Include technical specifications sheet(s) / brochure(s)
See attachments

8.4 Scope of Work – Installation:

- 8.4.1 The County understands that there may currently be significant delays in procuring generator equipment. As of the time of bid, what is the expected lead time to procure the equipment (generator and transfer switch)?
Current estimated lead time for generators is 45 weeks from release date
- 8.4.2 Having inspected the Automatic Transfer Switches during the site visit, would your firm recommend:
 - ~~8.4.2.1 Re-connecting and re-using the existing ones because they are not materially deficient and should be able to continue serving their purpose for several years;~~
 - 8.4.2.2 Replacing the switch as part of this generator replacement project;
Due to the age of the transfer switches, and the fact that they are all obsolete models, our professional recommendation would be to replace the transfer switches as part of the current project. It would make more sense from a labor standpoint to replace all of the equipment at once and have a completely up to date system.
- 8.4.3 Provide the names of all firms (and office if multiple locations) that will be subcontracted to work on this project (if any) noting the type of work each will be performing and the approximate dollar amount that each will be receiving.
All State Crane and Rigging - \$2,000.00 (Removing and setting HBS Gen)
Andy Egan Mechanical - \$4,000.00 (Disconnecting and reconnecting gas lines)
- 8.4.4 Approximately how many days of on-site work are you anticipating it will take to replace the unit?
2 days for each generator
An additional 2 days for each building if new ATS's are needed
- 8.4.5 Do you expect a shutdown of power to the building will be needed during the installation of the generator or the ATS? If so, how long do you expect this shutdown to last?
Shutdown of the emergency power only.

*A couple of 4-hour shutdowns for the generator replacement
8 to 12-hour shutdowns for each ATS*

- 8.4.6 Confirm a representative from your firm will be on-site to accept delivery of the generator or will bring the generator with them on the day of installation and confirm that no special equipment or facilities are needed from the County to unload and load or move the new and existing generators.

An Allied Representative will be on site to receive and will not need any help from the county.

- 8.4.7 Confirm that you have reviewed the site logistics and accommodated those in your firm's bid paying particular note to:

8.4.7.1 The accessibility of the HSB generator which is located some distance and downhill from the nearest paved surface; and

Confirmed

8.4.7.2 The protective bollards surrounding the generator at the CSB to ensure the new generator will fit within the existing space.

Confirmed

- 8.4.8 Note any variances to the requested Scope of Work and requirements presented in Attachment A.

Please note that we have quoted a 200kw NG generator for the HSB site, in lieu of the 215kw rating that was called out. The data tag picture provided was for the alternator end, not the entire generator, and Cummins does not manufacture a 215kw node.

- 8.4.9 State your firm's labor warranty from initial system startup date (one year minimum).

One year

8.5 Contract Agreement and Costs:

- 8.5.1 Review and sign the Generator Replacement Services Agreement containing the County's standard terms and conditions.

- 8.5.2 Complete the Cost Tables in Attachment B.

- 8.5.3 Contractor may attach more detailed pricing information and additional items, services and costs for consideration.

All work is figured for normal business hours. Power shutdowns will only affect the emergency panels fed from the generators.

All existing wires from the generators to the ATS's and from the panels to ATS's are figured to remain and be extended within the piece of equipment as needed.



Spark-ignited generator set

45–100 kW Standby
EPA emissions



Description

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

Features

Gas engine - Rugged 4-cycle Cummins QSJ5.9G 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® 1.1 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. The PowerCommand 2.3 control is also optional and is UL 508 Listed and provides AmpSentry™ protection.

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. Aluminium 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 network.

Model	Natural gas		Propane		Data sheets
	Standby		Standby		
	kW	kVA	kW	kVA	
C45 N6	45	56	45	56	NAD-6093-EN
C50 N6	50	63	50	63	NAD-6094-EN
C60 N6	60	75	60	75	NAD-6095-EN
C70 N6	70	88	70	88	NAD-6096-EN
C80 N6	80	100	80	100	NAD-6097-EN
C100 N6	100	125	100	125	NAD-6098-EN

power.commins.com

Generator set specifications

Governor regulation class	ISO8528 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	Meets requirements of most industrial and commercial applications

Engine specifications

Design	Naturally aspirated or turbocharged (varies by generator set model)
Bore	102.1 mm (4.02 in.)
Stroke	119.9 mm (4.72 in.)
Displacement	5.9 liters (359 in ³)
Cylinder block	Cast iron, in-line 6 cylinder
Battery capacity	850 amps at ambient temperature of 0 °F to 32 °F (-18 °C to 0 °C)
Battery charging alternator	52 amps
Starting voltage	12 volt, negative ground
Lube oil filter type(s)	Spin-on with relief valve
Standard cooling system	50 °C (122 °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 °C (248 °F) Standby
Exciter type	Torque match (shunt) with PMG as option
Alternator cooling	Direct drive centrifugal blower
AC waveform Total Harmonic Distortion (THDV)	< 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

- Single fuel - natural gas or propane vapor, field selectable
- Dual fuel – natural gas and propane vapor auto changeover
- Low fuel gas pressure warning

Engine

- Engine air cleaner
- Shut down – low oil pressure
- Extension – oil drain
- Engine oil heater

Alternator

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

Control

- AC output analog meters
- Stop switch – emergency
- Auxiliary output relays (2)
- Auxiliary configurable signal inputs (8) and relay outputs (8)

Electrical

- One, two or three circuit breaker configurations
- 80% rated circuit breakers
- 100% rated LSI circuit breakers
- Battery charger

Enclosure

- Sound Level 1 or Level 2 enclosure, sandstone or green color
- Weather protective enclosure with muffler installed, green color
- Winter protective enclosure, green color

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, standard battery
- Battery rack, larger 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 – 1000 W/1500 W
- Battery rack, standard/larger 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, 12 V
- 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 1.1



PowerCommand control is an integrated generator set control system providing voltage regulation, engine protection, operator interface and isochronous governing (optional). Major features include:

- Battery monitoring and testing features and smart starting control system.
- Standard PCCNet interface to devices such as remote annunciator for NFPA 110 applications.
- Control boards potted for environmental protection.
- Control suitable for operation in ambient temperatures from -40 °C to +70 °C (-40 °F to +158 °F) and altitudes to 5000 meters (13,000 feet).
- Prototype tested; UL, CSA, and CE compliant.
- InPower™ PC-based service tool available for detailed diagnostics.

Operator/display panel

- Manual off switch
- Alpha-numeric display with pushbutton access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating generator set running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -40 °C to +70 °C
- Bargraph display (optional)

AC protection

- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload

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

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
- PowerCommand 2.3 control with AmpSentry protection

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):

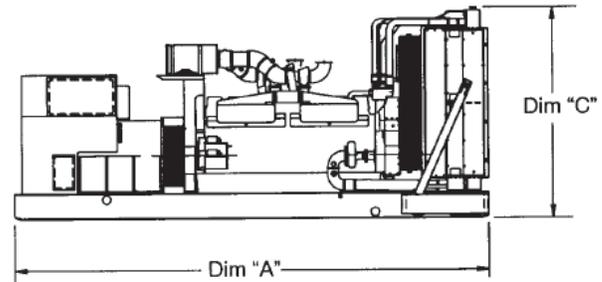
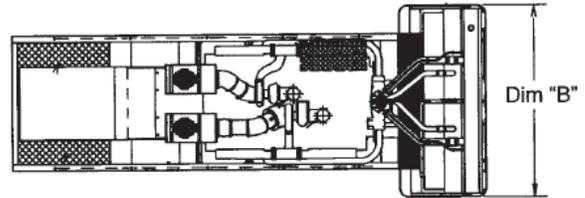
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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) is 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* kg (lbs.)
Open set				
C45 N6	2489 (98)	1016 (40)	1473 (58)	989 (2180)
C50 N6	2489 (98)	1016 (40)	1473 (58)	989 (2180)
C60 N6	2489 (98)	1016 (40)	1473 (58)	1103 (2431)
C70 N6	2489 (98)	1016 (40)	1473 (58)	1111 (2449)
C80 N6	2489 (98)	1016 (40)	1473 (58)	1173 (2587)
C100 N6	2489 (98)	1016 (40)	1473 (58)	1233 (2719)
Weather protective enclosure				
C45 N6	2489 (98)	1016 (40)	1473 (58)	1070 (2359)
C50 N6	2489 (98)	1016 (40)	1473 (58)	1070 (2359)
C60 N6	2489 (98)	1016 (40)	1473 (58)	1184 (2610)
C70 N6	2489 (98)	1016 (40)	1473 (58)	1192 (2628)
C80 N6	2489 (98)	1016 (40)	1473 (58)	1255 (2766)
C100 N6	2489 (98)	1016 (40)	1473 (58)	1315 (2898)
Sound attenuated enclosure Level 1				
C45 N6	3023 (119)	1016 (40)	1473 (58)	1114 (2455)
C50 N6	3023 (119)	1016 (40)	1473 (58)	1114 (2455)
C60 N6	3023 (119)	1016 (40)	1473 (58)	1227 (2706)
C70 N6	3023 (119)	1016 (40)	1473 (58)	1236 (2724)
C80 N6	3023 (119)	1016 (40)	1473 (58)	1298 (2862)
C100 N6	3023 (119)	1016 (40)	1473 (58)	1358 (2994)
Sound attenuated enclosure Level 2				
C45 N6	3454 (136)	1016 (40)	1473 (58)	1127 (2485)
C50 N6	3454 (136)	1016 (40)	1473 (58)	1127 (2485)
C60 N6	3454 (136)	1016 (40)	1473 (58)	1241 (2736)
C70 N6	3454 (136)	1016 (40)	1473 (58)	1249 (2754)
C80 N6	3454 (136)	1016 (40)	1473 (58)	1312 (2892)
C100 N6	3454 (136)	1016 (40)	1473 (58)	1372 (3024)
Winter protective enclosure				
C45 N6	3701 (146)	1016 (40)	1473 (58)	1152 (2535)
C50 N6	3701 (146)	1016 (40)	1473 (58)	1152 (2535)
C60 N6	3701 (146)	1016 (40)	1473 (58)	1266 (2786)
C70 N6	3701 (146)	1016 (40)	1473 (58)	1275 (2804)
C80 N6	3701 (146)	1016 (40)	1473 (58)	1337 (2942)
C100 N6	3701 (146)	1016 (40)	1473 (58)	1397 (3074)

* 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.

	<p>The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.</p>		<p>The generator set is available Listed to UL 2200, Stationary Engine Generator Assemblies.</p>
<p>International Building Code</p>	<p>The generator set is certified to International Building Code (IBC) 2012.</p>		<p>All low voltage models are CSA certified to product class 4215-01.</p>
	<p>This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.</p>	<p>U.S. EPA</p>	<p>Engine certified to U.S. EPA SI Stationary Emission Regulation 40 CFR, Part 60.</p>

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.

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

"Our energy working for you."



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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-cylinder 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.

Model	Natural Gas		Data sheets
	Standby (60 Hz)		
	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 °C (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
• 277/480	• 347/600
• 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):

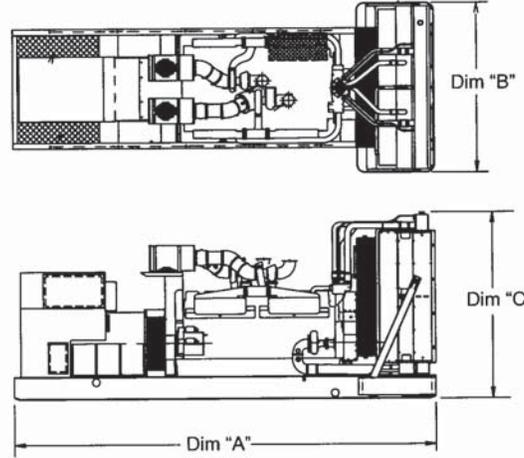
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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.

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

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.

POWERCOMMAND®

OTEC TRANSFER SWITCH

POWERCOMMAND® 40 CONTROL | OPEN TRANSITION | 40 A-1200 A

AUTOMATIC TRANSFER SWITCH

DESCRIPTION

The OTEC series transfer switch provides the basic features typically required for primary source and generator set monitoring, generator set starting and IS-1271 load transfer functions for emergency standby power applications. They are suitable for use in emergency, legally required, and optional standby circuits in commercial and light industrial applications. The OTEC transfer switch features the new PowerCommand® 40 control with a comprehensive feature list to suit a wide variety of ATS applications.

FEATURES

PowerCommand® 40-01 control – A fully featured microprocessor-based control with LCD digital display and tactile-feel soft-switches for easy operation and screen navigation. Control highlights include Modbus communication, front panel PC software configuration. Advanced features include, three phase sensing on both sources, manual restore to S1, synch check, and event logging capability. Please see the S-6560 PowerCommand® 40-01 control specification sheet for the full description, benefits and features.

Programmed transition – Open transition timing can be adjusted to completely disconnect the load from both sources for a programmed time period, as recommended by NEMA MG-1 for transfer of inductive loads.

Advanced transfer switch mechanism – Unique bi-directional linear actuator provides virtually frictionless constant force, straight-line transfer switch action during automatic operation.

Positive interlocking – Mechanical and electrical interlocking prevent source-to-source connection through the power or control wiring.

Main contacts – Heavy-duty silver alloy contacts used with multi-leaf arc chutes are rated for motor loads or total system load transfer. They require no routine contact maintenance. Continuous load current not to exceed 100% of switch rating and tungsten loads not to exceed 30% of switch rating.

Ease of service and access – Single-plug harness connection and compatible terminal markings simplify servicing. Access space is ample. Door-mounted controls are field-programmable; no special tools are required.

Complete product line – Cummins is a single source supplier with a wide range of equipment, accessories and services to suit virtually any backup power application.

Warranty and service – Products are backed by a comprehensive warranty and a worldwide network of distributors with factory-trained service technicians.



TRANSFER SWITCH MECHANISM

- Transfer switch mechanism is electrically operated and mechanically held in the Source 1 and Source 2 positions. The transfer switch incorporates electrical and mechanical interlocks to prevent inadvertent interconnection of the sources.
- Independent break-before-make action is used for both 3-pole and 4-pole simultaneously switched neutral. This design allows use of sync check operation when required, or control of the operating speed of the transfer switch for proper transfer of motor and rectifier-based loads (programmed transition feature).
- True 4-pole switching allows for proper ground (earth) fault sensing and consistent, reliable operation for the life of the transfer switch. The neutral poles of the transfer switch have the same ratings as the phase poles and are operated by a common crossbar mechanism, eliminating the possibility of incorrect neutral operation at any point in the operating cycle, or due to failure of a neutral operator.
- Electrical interlocks prevent simultaneous closing signals to normal and emergency contacts and interconnection of normal and emergency sources through the control wiring.
- High pressure silver alloy contacts resist burning and pitting. Separate arcing surfaces further protect the main contacts. Contact wear is reduced by multiple leaf arc chutes that cool and quench the arcs. Barriers separate the phases to prevent interphase flashover. A transparent protective cover allows visual inspection while inhibiting inadvertent contact with energized components.
- Switch mechanism, including contact assemblies, is UL 1008 certified to verify suitability for applications requiring high endurance switching capability for the life of the transfer switch. Withstand and closing ratings are validated using the same set of contacts, further demonstrating the robust nature of the design.



SPECIFICATIONS

Voltage rating	Up to 600 V AC, 50 or 60 Hz.
Arc interruption	Multiple leaf arc chutes provide dependable arc interruption.
Neutral bar	A full current-rated neutral bar with lugs is standard on enclosed 3-pole transfer switches.
Auxiliary contacts	Two isolated contacts (one for each source) indicating switch position are provided for customer use. Contacts are normally open, and close to indicate connection to the source. Wired to terminal block for easy access. Rated at 10 A Continuous and 250 V AC maximum.
Operating temperature	-22 °F (-30 °C) to 140 °F (60 °C)
Storage temperature	-40 °F (-40 °C) to 140 °F (60 °C)
Humidity	Up to 95 % relative, non-condensing
Altitude	Up to 10,000 ft (3,000 m) without derating
Surge withstand ratings	Voltage surge performance and testing in compliance with the requirements of IEEE C62.41 (Category B3) and IEEE C62.45.
Total transfer time (source-to-source)	Will not exceed 6 cycles at 60 Hz with normal voltage applied to the actuator and without programmed transition enabled.
Manual operation*	Transfer switch mechanisms are equipped with means to manually transfer. All sources must be de-energized before manual operation is attempted.

*See Operator Manual for further details.

TRANSITION MODES

Open delayed transition – In this transition mode the time required for the transfer switch to transfer between sources is adjustable so that the load-generated voltages decay to a safe level before connecting to an energized source. Recommended by NEMA MG-1 to prevent nuisance tripping breakers and load damage. Adjustable 0.5 secs-10 minutes, and default 0.5 seconds.

Open in-phase translation – Initiates open transition transfer when in-phase monitor senses both sources are in phase (voltage, phase and frequency). Operates in a break-before-make sequence. Includes ability to enable programmed transition as a backup. The module waits indefinitely for synchronization unless the ‘Return to programmed transition’ function is active in which case after 2 minutes it performs a programmed delayed transfer.

UL 1008 WITHSTAND AND CLOSING RATINGS (WCR)

The transfer switches listed below must be protected by circuit breakers or fuses. Referenced drawings include detailed listings of specific breakers or fuse types that must be used with the respective transfer switches. Consult with your distributor/dealer to obtain the necessary drawings. Withstand and Closing Ratings (WCR) are stated in symmetrical RMS amperes.

BREAKER PROTECTION								
		MOLDED CASE CIRCUIT BREAKER (MCCB) PROTECTION				SPECIAL CIRCUIT BREAKER PROTECTION		
Frame	Amperage rating (A)	With specific manufacturers MCCB (kA at 480V)	With specific manufacturers MCCB (kA at 600V)	Max MCCB ratings (A)	Drawing reference	With specific Current limiting breakers (kA at 600V)	Max. Current limiting breakers CLB rating (A)	Drawing reference
A	40, 70, 125 (3-pole only)	14	14	225	A050J441	200	225	A048J566
	40, 70, 125 (4-pole only)	30	30	400	A048E949	200	400	A051D533
B	150, 225, 260	30	30	400	A048E949	200	400	A051D533
C	300, 400, 600	65	65	1200	A056M829	200	1200	A048J564
D	800, 1000	65	50	1400	A056M821	200	1400	A048J562
E	1200	85	65	1600	A056M825	200	1600	A048P186

FUSE PROTECTION

Frame	Amperage rating (A)	WCR with current limiting fuses (kA)	Fuse size and type	Drawing reference
A	40, 70, 125 (3 and 4-pole)	200	200 A, Class: J, RK1, RK5, T	A050J441
B	150, 225, 260	200	1200 A Class L or T, or 600A class J, RK1, RK5	A048E949
C	300, 400, 600	200	1200 A Class L or T, or 600A class J, RK1, RK5	A056M829
D	800, 1000	200	2000 A Class L or 1200 A Class T or 600 A Class J, RK1, RK5	A056M821
E	1200	200	2000 A Class L or 1200 A Class T or 600 A Class J, RK1, RK5	A056M825

*All WCR values are at 600 V

TIME BASED RATINGS: 0.05S (3-CYCLES AT 60 HZ)

Frame	Amperage rating (A)	WCR (kA at Vmax and below)	Max. MCCB rating (A)	Drawing reference
C	300, 400, 600	25 at 600 V	1200	A056M829
D	800, 1000	35 at 600 V	1400	A056M821
E	1200	42 at 600 V	1600	A056M825

TRANSFER SWITCH LUG CAPACITIES

Frame	Amperage rating (A)	Cables per phase	Size
A	40, 70, 125 3-pole	1	#12 AWG-2/0
	40 4-pole	1	#12 AWG-2/0
	70, 125 4-pole	1	#6 AWG – 300MCM
B	150, 225	1	#6 AWG – 300MCM
	260	1	#6 AWG – 400MCM
C	300, 400	2	1 cable of 3/0 to 600MCM OR 2 cables 3/0 to 250MCM
	600	2	250 – 500 MCM
D	800, 1000	4	250 – 500 MCM
E	1200	4	#2 AWG to 600 MCM standard (feature N045) 1/0 to 750 MCM optional (feature N066) Compression Lug Adapter optional (feature N032)

*All lugs 90°C rated and accept copper or aluminum wire unless indicated otherwise.
Refer to the latest NFPA 70 Article 310 - Conductors for general wiring for the ampacity calculations.

ENCLOSURE

The transfer switch and control are wall-mounted in a key-locking enclosure. Wire bend space complies with 2017 NEC.

DIMENSIONS – TRANSFER SWITCH IN UL TYPE 1 ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight	
		in	mm	in	mm	in	mm	lb	kg
A	40, 70, 125 3-pole	27	686	20.5	521	12	305	82	37
	40, 70, 125 4-pole	35.5	902	26	660	16	406	165	75
B	150, 225	35.5	902	26	660	16	406	165	75
	260	43.5	1105	28.5	724	16	406	170	77
C	300, 400, 600	54	1372	25.5	648	18	457	225	102
D	800, 1000	68	1727	30	762	19.5	495	360	163
E	1200	90	2286	39	991	27	698	730	331

DIMENSIONS – TRANSFER SWITCH IN UL TYPE 3R, 4, 4X, OR 12 ENCLOSURE

Frame	Amperage rating (A)	Height		Width		Depth		Weight		Cabinet Type
		in	mm	in	mm	in	mm	lb	kg	
A	40, 70, 125 3-pole	34	864	26.5	673	12.5	318	125	57	3R, 12, 4
		46	1168	32	813	16	406	255	116	4X
	40, 70, 125 4-pole	42.5	1080	30.5	775	16	406	215	98	3R, 12, 4
		46	1168	32	813	16	406	255	116	4X
B	150, 225	42.5	1080	30.5	775	16	406	215	98	3R, 12, 4
		46	1168	32	813	16	406	255	116	4X
	260	46	1168	32	813	16	406	255	116	3R, 12, 4, 4X
C	300, 400, 600	59	1499	27.5	699	16.5	419	275	125	3R, 12, 4
		73.5	1867	32.5	826	19.5	495	410	186	4X
D	800, 1000	73.5	1867	32.5	826	19.5	495	410	186	3R, 12, 4, 4X
E	1200	90	2286	39	991	27	698	730	331	3R, 12, 4, 4X

ENCLOSURE ACCESS FOR CABLE INSTALLATION AND MAINTENANCE

All frames allow for top, side, and bottom cable entry. NEC Requires Minimum 36" Front Access. Additional front clearance is needed to remove the mechanism. Refer to the outline drawing.

OTEC DRAWING PART NUMBERS						
		Outline Drawing				
Frame	Amperage rating (A)	Type 1	Type 3R & 12	Type 4	Type 4X	Open construction
A	40, 70, 125 3-pole	0310-0544	0310-0453	0310-0445	0500-4184	A065S429
	40, 70, 125 (4-pole)	0500-4896			0500-4896	
B	150, 225	0310-0414	0310-0454	0310-0446	0500-4184	
	260	0310-0540	0310-0455	0310-0447	0500-4184	
C	300, 400, 600	0310-1307	0310-1315	0310-1316	0500-4185	
D	800, 1000	0310-0417	0310-0457	0310-0449	0500-4185	
E	1200	A065S431		A065S432		A065S430

WIRING DIAGRAM PART NUMBERS						
		Wiring Diagram				
Frame	Amperage rating (A)	Utility to Genset (120 – 480 V)	Utility to Genset (600 V)	Interconnection	Utility to Genset, Open Construction (120 – 480 V)	Utility to Genset, Open Construction (600 V)
A	40, 70, 125 3-pole	A065K034	A065H782	A065H780	A065H783	A065H784
	40, 70, 125 (4-pole)					
B	150, 225					
	260					
C	300, 400, 600					
D	800, 1000	A065H781				
E	1200					

SUBMITTAL DETAIL

Model

- 40, 70, 125 A, (3- and 4-pole)
- 150, 225, 260 A
- 300, 400, 600 A
- 800, 1000 A
- 1200 A

Poles

- A028 Poles – 3 (solid neutral)
- A029 Poles – 4 (switched neutral)

Application

- A035 Utility-to-genset

Frequency

- A044 60 Hz
- A045 50 Hz

Phase

- A041 single phase, 2-wire or 3-wire
- A042 three phase, 3-wire or 4-wire

Voltage ratings

- R020 120V
- R038 190V
- R021 208V
- R022 220V
- R023 240V
- R024 380V
- R025 416V
- R035 440 V
- R026 480 V
- R027 600 V

Enclosure

- B001 Type 1: Indoor use, provides some protection against dirt (similar to IEC type IP30)
- B002 Type 3R: Intended for outdoor use, provides some protection from dirt, rain and snow (similar to IEC type IP34)
- B003 Type 4: Indoor or outdoor use, provides some protection from wind-blown dust and water spray (similar to IEC type IP65)

- B004 open construction: no enclosure - includes automatic transfer switch and controls
- B010 Type 12: Indoor use, some protection from dust (similar to IEC type IP61).
- B025 Type 4X: Stainless steel, indoor or outdoor use, provides some protection from corrosion (similar to IEC Type IP65).

Standards

- A046 UL 1008/CSA certification
- A080 IBC seismic certification

Control voltage

- M033 12V, Genset starting voltage
- M034 24V, Genset starting voltage

Control options

- M032 Elevator signal relay
- M081 MODBUS RS485 Communication module

Auxiliary relays

- Relays are UL Listed, and factory installed. All relays provide (2) normally closed isolated contacts rated 10A @ 600 VAC. Relay terminals accept (1) 18 gauge to (2) 12-gauge wires per terminal.
- L101 24 VDC coil - installed, not wired (for customer use).
- L102 24 VDC coil - emergency position – relay energized when switch is in source 2 (emergency) position.
- L103 24 VDC coil - normal position - relay energized when switch is in source 1 (normal) position
- L201 12 VDC coil installed, not wired (for customer use)
- L202 12 VDC coil - emergency position – relay energized when switch is in source 2 (emergency) position
- L203 12 VDC coil - normal position - relay energized when switch is in source 1 (normal) position

Optional Cable Lugs

- N032 Lug adapters, compression, ½ stab (1200A only)
- N045 Cable lugs, mechanical, 600 MCM, 4 per pole (1200A only)
- N066 Cable lugs, mechanical, 750 MCM, 4 per pole (1200A only)

Miscellaneous

- C027 Cover - guard
- M003 Terminal block - 30 points (not wired)

Warranty

- G004 2-years, comprehensive
- G007 5-years, comprehensive
- G014 3-years, comprehensive
- G015 10-years, comprehensive

Shipping

- A051 Packing - export box (800 – 1000 A)

Request for quotation (RFQ)

- Z555 Nonconfigurable spec [ETO]

Accessories

- AC-170 Accessories specification sheet

CODES AND STANDARDS

	All switches are UL 1008 Listed with UL 50E Type Rated cabinets and UL Listed CU-AL terminals.	NEC®	Suitable for use in emergency, legally required and Standby and Critical Operations Power Systems (COPS) applications per NEC 700, 701, 702 and 708.
	All switches comply with NEMA ICS 10.	ISO®	All switches are designed and manufactured in facilities certified to ISO 9001.
	All switches are certified to CSA C22.2 No. 178.1 switching of electrical energy in emergency or other systems, up to 600 VAC and 4 kA.	IBC®	All switches are certified to IBC 2018.
	All switches comply with IEEE 446 Recommended Practice for Emergency and Standby Power Systems.	EMC	Display controllers meet the following Electromagnetic Compatibility (EMC) standards: <ul style="list-style-type: none"> ▪ EN 61000-6-2 Generic Immunity Standard for the Industrial Environment. ▪ EN 61000-6-4 Generic Emission Standard for the Industrial Environment.
	All switches comply with NFPA 70, 99 and 110 (Level 1).		

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

Our energy working for you.™

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