

VILLAGE OF HAMPSHIRE ZONING BOARD OF APPEALS

Tuesday, October 23, 2018

7:00 p.m.

Hampshire Village Hall

234 South State Street

AGENDA

- A. Call to Order
- B. Pledge of Allegiance
- C. Roll Call
- D. Approval of Minutes
- E. New Business:
 - 1. Public Hearing concerning the Petition for Zoning Text Amendment filed by the Village of Hampshire to allow installation of solar energy systems in some zoning districts, and to allow as a special use only installation of solar energy systems in other zoning districts in the Village, in conjunction with the adoption of new building regulations governing the location and scope of solar energy systems to be installed in the Village, if approved by the Corporate Authorities. .
 - 2. Consideration and approval of Findings of Fact and Recommendation, or in the alternative, authorizing the Chair to sign appropriate Findings of Fact and Recommendation, to the Board of Trustees regarding the Petition for Zoning Amendment identified in Agenda Item E(1) above.
 - 3. Public Hearing concerning the Petition of Minerallac Company for a special use for a ground-mounted solar energy (Continental Electrical Construction Co.) system on its property at 100 Gast Road in the Village, pursuant to new regulations which would allow same as such a special use in the O-M Office Manufacturing Zoning District and further, in conjunction with new building regulations to be incorporated in the Village Code as §5-18-1 et seq. if approved by the Corporate Authorities.
 - 4. Consideration and approval of Findings of Fact and Recommendation, or in the alternative, authorizing the Chair to sign appropriate Findings of Fact and Recommendation, to the Board of Trustees regarding the Petition for Zoning Amendment identified in Agenda Item E(3) above.

- G. New Business
- H. Public Comment:
- I. Announcements: Next meeting date – TBA
- J. Adjournment

VILLAGE OF HAMPSHIRE ZONING BOARD OF APPEALS

MINUTES August 28, 2018

A meeting of the Hampshire Zoning Board of Appeals was called to order at 7:00 p.m. Members present: Chair C. Christensen, W. Albert, N. Collins, H. Hoffman, R. Frillman, and J. Schaul. Members absent: None. Also present were Village President J. Magnussen, and Village Attorney M. Schuster.

Mr. Schaul read the minutes of the meeting of August 14, 2018, and after corrections, submitted them for board approval.

On motion made by H. Hoffman, seconded by R. Frillman, to approve the minutes of the meeting of the Zoning Board of Appeals held on August 14, 2018, the vote was 6 aye, 0 nay. Motion passed.

The first order of business for the meeting was the Petition of Northern Builders, Inc. for Zoning Amendment, in part from F-1 Farming District, and in part from Estate Residential Zoning District upon annexation, to M-2 General Industrial District for a certain 80-acre tract located at the southeast corner of Higgins Road and Widmayer Road.

The Chair convened a public hearing in regard to the Petition for Zoning Amendment at 7:08 p.m.. A Certified Shorthand Reporter was present to make a record of the hearing. The Village Attorney made some introductory remarks, including a recitation of the notice of the public hearing, and the location and present status of the territory in question.

Mr. Matt Grusecki appeared for the Petitioner, and summarized the nature of the Petition for the members of the Board. The property in question consists of two parcels: an 18.22-acre tract immediately adjacent to the Hampshire Woods Subdivision, located in the Village; and a 61.77-acre tract west of that, fronting on Widmayer Road, located outside the Village. The entire parcel is to be re-zoned to M-2 General Industrial Zoning District for future development. The first piece to be developed would be the southernmost 14.74 ± acres, for a new 150,000 s.f. industrial building. Access to the property would be from the east, through Hampshire Woods, to Gast Road and US Highway 20. The land would be served by an extension of Village sewer and water utilities.

The new building is planned for occupation by the PetAg Company, an existing village business which would re-locate to the site. .

Questions were asked by the members of the Board, and are detailed in the transcript of the hearing on file with the Village Clerk. Areas of inquiry included traffic at Gast Road and US Highway 20, and on Higgins Road and Widmayer Road, including the intersection of Higgins Road and US Highway 20; the size of the building and scope of operations of the proposed user; and the Concept Plan displayed by the Petitioner at the hearing.

Five (5) members of the public were present to comment on the Petition. The comments and questions asked, and responses from the Petitioner, are set out in the transcript of the public hearing. Comments and questions concerned the safety of local residents, in particular concerning traffic on Widmayer Road and Higgins Road, and noting the relatively blind entrance to Felsmith Avenue from Higgins Road, west of Widmayer Road; the size and scope of operations at the proposed new building, in particular re hours of operation and noise; the proposed access road and internal drive as shown on the Concept Plan, in particular as the Plan depicts a connection to Higgins Road; and the capacity of the Village's wastewater treatment plant to service the proposed development.

The public hearing was closed at 8:12 p.m.

On motion by H. Hoffman, seconded by R. Frillman to recommend approval of the Petition for Zoning Amendment, in part from E-3 Estate Residential Zoning District, and in part from F-1 Farming Zoning District, to M-2 General Industrial District, for the 80-acre parcel identified in the Petition, the vote was 6 aye – 0 nay. Motion passed.

On motion by H. Hoffman, seconded by W. Albert, to authorize the Chairman to execute and deliver on behalf of the Zoning Board of Appeals a written Findings of Fact and Recommendation to the Board of Trustees, the vote was 6 aye – 0 nay. Motion passed.

On motion duly made and seconded, the meeting was adjourned at 8:25 p.m.

Respectfully submitted,

Joseph Schaul Jr.

Joseph Schaul Jr.
Secretary

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that a Petition for Special Use has been filed with the Clerk of the Village of Hampshire, requesting a special use in the O-M Office Manufacturing Zoning District to allow for installation of a solar energy facility on the following legally described property: That part of the East half of the Northwest Quarter of Section 11, Township 42 North, Range 6 East of the Third Principal Meridian, described as follows: commencing at the intersection of the South line of said Northwest Quarter and the East line of Gost Road as dedicated per Document No. 98K005800; thence North 00 Degrees, 08 Minutes, 39 Seconds West along said West line, 452.60 feet to the point of beginning; thence South 44 Degrees, 51 Minutes, 21 Seconds West, 28.28 feet; thence South 89 Degrees 51 Minutes, 21 Seconds West, 355.00 feet to a point of curvature; thence 427.26 feet along a curve concave to the Northeast, having a radius of 272.00 feet to a point of tangency; thence North 00 Degrees, 08 Minutes, 39 Seconds West, 867.80 feet to a point of curvature; thence 99.38 feet along a curve, concave to the West, having a radius of 338.00 feet and a chord bearing of North 08 Degrees, 34 Minutes, 24 Seconds West; thence North 48 Degrees, 56 Minutes, 59 Seconds East, 441.42 feet to a point on the Southwesterly line of U.S. Route 20, per permanent roadway easement recorded as Document No. 833173; thence South 41 Degrees, 3 Minutes, 1 second East along said South Westerly line, 359.63 feet to a point on a non-tangent curve; thence 197.14 feet along said Southwesterly line, being a curve concave to the Northeast, having a radius of 3879.80 feet and a chord bearing of South 42 Degrees, 30 Minutes, 19 Seconds East to a point of reverse curvature, said point being on said West line of Gost Road; thence 48.33 feet along said West line, being a curve, concave to the West, having a radius of 35.00 feet to a point of reverse curvature; thence 144.86 feet along said West line, being a curve, concave to the East, having a radius of 233.00 feet to a point of tangency; thence South 00 Degrees, 08 Minutes, 39 Seconds, East along said West line, 909.10 feet to said point of beginning, in Kane County, Illinois.

Common Address: 100 Gost Road, Hampshire, Illinois
A Public Hearing on the Petition for Special Use will be held by the Village of Hampshire Zoning Board of Appeals on Tuesday, October 23, 2018, starting at 7:00 p.m. at the Village Hall, 234 South State Street, Hampshire, Illinois. A copy of each Petition is available for review at the Village Hall during regular business hours. All persons present at the public hearing will be given an opportunity to be heard.
Linda Vasquez, Village Clerk
Published in Daily Herald October 8, 2018 (4510731)

CERTIFICATE OF PUBLICATION

Paddock Publications, Inc.

**Fox Valley
Daily Herald**

Corporation organized and existing under and by virtue of the laws of the State of Illinois, DOES HEREBY CERTIFY that it is the publisher of the **Fox Valley DAILY HERALD**. That said **Fox Valley DAILY HERALD** is a secular newspaper, published in Elgin and has been circulated daily in the Village(s) of:

- Aurora, Batavia, Burlington, Carpentersville, East Dundee, Elgin,
- Elburn, Geneva, Gilberts, Hampshire, Montgomery, North Aurora,
- Sleepy Hollow, Saint Charles, South Elgin, Sugar Grove, Wayne,
- West Dundee

County(ies) of Kane
and State of Illinois, continuously for more than one year prior to the date of the first publication of the notice hereinafter referred to and is of general circulation throughout said Village(s), County(ies) and State.

I further certify that the Fox Valley DAILY HERALD is a newspaper as defined in "an Act to revise the law in relation to notices" as amended in 1992 Illinois Compiled Statutes, Chapter 715, Act 5, Section 1 and 5. That a notice of which the annexed printed slip is a true copy, was published October 8, 2018 in said Fox Valley DAILY HERALD.

IN WITNESS WHEREOF, the undersigned, the said PADDOCK PUBLICATIONS, Inc., has caused this certificate to be signed by, this authorized agent, at Arlington Heights, Illinois.

PADDOCK PUBLICATIONS, INC.
DAILY HERALD NEWSPAPERS

BY *Daula Baetz*
Designee of the Publisher and Officer of the Daily Herald

Control # 4510731

PUBLIC NOTICE
NOTICE IS HEREBY GIVEN that a Petition for Amendment to the text of the Village Zoning Regulations has/have been filed with the Village Clerk of the Village of Hampshire, to amend the Village Zoning Regulations by describing and establishing certain regulations governing the location and permitting of solar energy systems in the Village.
A Public Hearing on this Petition will be conducted by the Village of Hampshire Zoning Board of Appeals at its regularly scheduled meeting on Tuesday, October 23, 2018, starting at 7:00 p.m. at the Hampshire Village Hall, 234 South State Street, Hampshire, Illinois. All interested persons are invited to attend the public hearing and will be given an opportunity to be heard. The text of the proposed amendment to the regulations is on file with the Village Clerk, and may be examined at Village Hall during regular business hours, 9:00 a.m. to 4:30 p.m. daily. All interested persons are invited to attend the public hearing and will be given an opportunity to be heard.
Linda Vasquez
Zoning Administrator
Published in Daily Herald
October 5, 2018 (4510653)

CERTIFICATE OF PUBLICATION
Paddock Publications, Inc.

Daily Herald

Corporation organized and existing under and by virtue of the laws of the State of Illinois, DOES HEREBY CERTIFY that it is the publisher of the **DAILY HERALD**. That said **DAILY HERALD** is a secular newspaper and has been circulated daily in the Village(s) of Algonquin, Antioch, Arlington Heights, Aurora, North Aurora, Bannockburn, Barrington, Barrington Hills, Lake Barrington, North Barrington, South Barrington, Bartlett, Batavia, Buffalo Grove, Burlington, Campton Hills, Carpentersville, Cary, Crystal Lake, Deerfield, Deer Park, Des Plaines, Elburn, East Dundee, Elgin, South Elgin, Elk Grove Village, Fox Lake, Fox River Grove, Franklin Park, Geneva, Gilberts, Glenview, Grayslake, Green Oaks, Gurnee, Hainesville, Hampshire, Hanover Park, Hawthorn Woods, Highland Park, Highwood, Hoffman Estates, Huntley, Inverness, Island Lake, Kildeer, Lake Bluff, Lake Forest, Lake in the Hills, Lake Villa, Lake Zurich, Libertyville, Lincolnshire, Lindenhurst, Long Grove, Melrose Park, Montgomery, Morton Grove, Mt. Prospect, Mundelein, Niles, Northbrook, Northfield, Northlake, Palatine, Park Ridge, Prospect Heights, River Grove, Riverwoods, Rolling Meadows, Rosemont, Round Lake, Round Lake Beach, Round Lake Heights, Round Lake Park, Schaumburg, Schiller Park, Sleepy Hollow, St. Charles, Streamwood, Sugar Grove, Third Lake, Tower Lakes, Vernon Hills, Volo, Wadsworth, Wauconda, Waukegan, West Dundee, Wheeling, Wildwood, Wilmette

County(ies) of Cook, Kane, Lake, McHenry
and State of Illinois, continuously for more than one year prior to the date of the first publication of the notice hereinafter referred to and is of general circulation throughout said Village(s), County(ies) and State.

I further certify that the DAILY HERALD is a newspaper as defined in "an Act to revise the law in relation to notices" as amended in 1992 Illinois Compiled Statutes, Chapter 715, Act 5, Section 1 and 5. That a notice of which the annexed printed slip is a true copy, was published October 5, 2018 in said DAILY HERALD.

IN WITNESS WHEREOF, the undersigned, the said PADDOCK PUBLICATIONS, Inc., has caused this certificate to be signed by, this authorized agent, at Arlington Heights, Illinois.

PADDOCK PUBLICATIONS, INC.
DAILY HERALD NEWSPAPERS

BY Daula Baltz
Authorized Agent

Control # 4510653



Corporate Office

100 Gast Road
Hampshire, IL 60140
Phone: 800-927-3293
Fax: 800-824-8942
www.minerallac.com

Regional Office

4118 B Place NW, Suite A
Auburn, WA 98001-2462
Phone: 800-927-3293
Fax: 206-789-9362
www.minerallac.com

To: Village of Hampshire IL

Re: Special Use Permit – Re Ground Mount Solar Installation at 100
Gast Rd. Hampshire IL

To whom it may concern:

We hereby authorize Continental Electrical Construction Co. to submit
a Special Use Permit application on our behalf regarding a ground
mount solar installation at 100 Gast Rd. Hampshire, IL.

Sincerely,

Stan D. Hilty
Executive Vice President Finance
Minerallac Company

Date: September 24, 2018





VILLAGE OF HAMPSHIRE

AFFIDAVIT OF NOTIFICATION - FOR SPECIAL USE PERMIT

Date: October 1, 2018

To: Village of Hampshire
234 S. State Street
Hampshire, IL 60140

From: Continental Electrical
Construction Company
815 Commerce Drive
Suite 100
Oak Brook, IL 60523

The undersigned, being sworn upon his oath, deposes and says that the list below includes the names and address of all owners of property adjacent or within two hundred-fifty feet of the property referred to in a petition for a Special Use Permit for to allow the Continental Electrical Construction Company to construct a 345kW solar photovoltaic array to be installed on the south side of the 65,000 FT² building of the property located at 100 Gast Road, Hampshire, IL 60140 and, further that all persons owning property which is to or contingent referred to in the petition for the special use permit have been notified of the intent of the Petitioner(s).

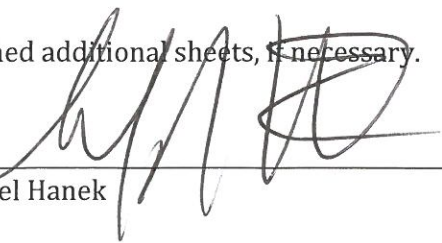
The property is located at: 100 Gast Road, Hampshire, IL 60140.

The full and complete legal description is attached hereto.

PROPERTY INDEX #	PROPERTY OWNER	ADDRESS
01-11-100-014	Wayne Hummer Trust Co	7239 West Wilson Avenue Harwood Heights, IL 60706
01-11-127-002	Wayne Hummer Trust Co	7239 West Wilson Avenue Harwood Heights, IL 60706
01-11-200-010	Wayne Hummer Trust Co	7239 West Wilson Avenue Harwood Heights, IL 60706
01-11-180-001	Hampshire Venture Two LLC	5060 River Road Schiller Park, IL 60176
01-11-127-003	Sysco Asian Foods Inc	200 Flannigan Road Hampshire, IL 60140
01-11-200-011	Vincent - Gross LLC	45W346 Big Timber Road Hampshire, IL 60140

(NOTIFY BY CERTIFIED MAIL- FILE COPIES OF MAILING RECEIPTS)

Attached additional sheets, if necessary.

 10/01/18

Michael Hanek

Subscribed and sworn before me this

1st day of October 20 18

Loretta A. Rojewski

NOTARY PUBLIC



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CERTIFIED MAIL® RECEIPT**
Domestic Mail Only

For delivery information, visit our website at www.usps.com®

HANPSHIRE, IL 60140

Certified Mail Fee \$3.45
Extra Services & Fees (check box, add fee) \$0.00
Return Receipt (hardcopy) \$0.00
Return Receipt (electronic) \$0.00
Certified Mail Restricted Delivery \$0.00
Adult Signature Required \$0.00
Adult Signature Restricted Delivery \$0.00



Total Postage and Fees \$4.66

Sent To: SYSCO Asian Foods Inc.
Street and Apt. No., or PO Box No.
300 Elkavigan Rd.
City, State, ZIP+4®
Hannshire IL 60140-8245
PS Form 3800, April 2015 PSN 7530-02-000-9007 See Reverse for Instructions

7017 2400 0000 2281 0143

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HANPSHIRE, IL 60140

Certified Mail Fee \$3.45
Extra Services & Fees (check box, add fee) \$0.00
Return Receipt (hardcopy) \$0.00
Return Receipt (electronic) \$0.00
Certified Mail Restricted Delivery \$0.00
Adult Signature Required \$0.00
Adult Signature Restricted Delivery \$0.00



Total Postage and Fees \$4.66

Sent To: Vincent-Gross LLC
Street and Apt. No., or PO Box No.
4203 Ste Big Timber Pl
City, State, ZIP+4®
Hannshire IL 60140
PS Form 3800, April 2015 PSN 7530-02-000-9007 See Reverse for Instructions

7017 2400 0000 2281 0150

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HANPSHIRE, IL 60176

Certified Mail Fee \$3.45
Extra Services & Fees (check box, add fee) \$0.00
Return Receipt (hardcopy) \$0.00
Return Receipt (electronic) \$0.00
Certified Mail Restricted Delivery \$0.00
Adult Signature Required \$0.00
Adult Signature Restricted Delivery \$0.00



Total Postage and Fees \$4.66

Sent To: Hannshire Venture Trust LLC
Street and Apt. No., or PO Box No.
5060 Ever Road
City, State, ZIP+4®
Hanpsire Park, IL 60176-1076
PS Form 3800, April 2015 PSN 7530-02-000-9007 See Reverse for Instructions

7017 2400 0000 2281 0174

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CERTIFIED MAIL® RECEIPT**
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HANPSHIRE, IL 60176

Certified Mail Fee \$3.45
Extra Services & Fees (check box, add fee) \$0.00
Return Receipt (hardcopy) \$0.00
Return Receipt (electronic) \$0.00
Certified Mail Restricted Delivery \$0.00
Adult Signature Required \$0.00
Adult Signature Restricted Delivery \$0.00



Total Postage and Fees \$4.66

Sent To: Wayne Hammer Trust Company
Street and Apt. No., or PO Box No.
7239 W. Wilson Ave
City, State, ZIP+4®
Hanpsire Heights, IL 60706
PS Form 3800, April 2015 PSN 7530-02-000-9007 See Reverse for Instructions

7017 2400 0000 2281 0181

LAND DEVELOPMENT APPLICATION

THE UNDERSIGNED RESPECTFULLY PETITIONS THE VILLAGE OF HAMPSHIRE TO REVIEW AND CONSIDER GRANTING THE FOLLOWING APPROVAL(S) ON THE LAND HEREIN DESCRIBED (check all that apply)

- Annexation *
- Rezoning from _____ District to _____ District
- Special Use Permit
- Concept Plan Review
- Preliminary Plan Approval
- Final Plan Approval
- Site Plan Review

PART I. APPLICANT INFORMATION

APPLICANT (Please Print or Type)

Name: Minerallac - Stan Hilty

Address: 100 Gast Road
Hampshire, IL 60140

Phone: (800) 927 - 3293 Fax: (800) 927 - 3293

CONTACT PERSON (If different from Applicant)

Name: Continental Electrical Construction Company - Michael Hanek

Address: 815 Commerce Drive, Suite 100
Oak Brook, IL 60523

Phone: (630) 288 - 0200 Fax: (630) 288 - 0188

-- IS THE APPLICANT THE OWNER OF THE SUBJECT PROPERTY? YES [] NO [X]

(If the Applicant is not the owner of the subject property, a WRITTEN STATEMENT from the Owner authorizing the Applicant to file the **Land Development Application** must be attached to this application)

-- IS THE APPLICANT AND/OR OWNER A TRUSTEE OR A BENEFICIARY OF A LAND TRUST? YES [] NO X
[]

(If the Applicant and/or owner of the subject property is a Trustee of a land trust or beneficiary(ies) of a land trust, a DISCLOSURE STATEMENT identifying each beneficiary of such land trust by name and address, and defining his/her interest therein, shall be verified by the Trustee and shall be attached hereto).

* Attach an original copy of a Petition for Annexation to this Application.

PART II. PROPERTY INFORMATION

ADDRESS OF PROPERTY: 100 Gast Road, Hampshire IL 60140

PARCEL INDEX NUMBER(S): 01-11-100-015

AREA OF PARCEL (ACRES):

LEGAL DESCRIPTION: The full and complete legal description must be ATTACHED to this application.

The subject property is located in which **FIRE PROTECTION DISTRICT?** Hampshire, IL

The subject property is located in which **PARK DISTRICT?** Hampshire, IL

The subject property is located in which **SCHOOL DISTRICT?** Hampshire, IL

The subject property is located in which **LIBRARY DISTRICT?** Hampshire, IL

The subject property is located in which **TOWNSHIP ROAD DISTRICT?** Hampshire, IL

CURRENT ZONING: Business Use

PROPOSED ZONING: Business Use

RECOMMENDED LAND USE: Install Ground Mount Solar Array

(As described in the Hampshire Comprehensive Plan)

PROPOSED LAND USE: Install Ground Mount Solar Array

NAME OF PROPOSED DEVELOPMENT: Minerallac Solar Array

PART III. REQUIRED DOCUMENTATION

- Land Development Application – 2 signed copies
- Application Fee (Amount) \$ _____
- Reimbursement Escrow Account Deposit (Amount) \$ _____
- Proof of Ownership (or Option to Acquire) (1 copy)
- Legal Description of Property / Plat of Survey (1 copy)
- List of property owners within 250 feet with parcel numbers (See enclosed sample letter)
- Preliminary Plan (___ folded -- full size copies)
- Landscape Plan: Preliminary OR Final (___ folded full size copies)
- Site Plan (6 copies)
- Architectural Elevations (2 full size, ___ folded reduced size copies)
- Final Plat of Subdivision (___ folded -- full size copies)
- Final Engineering Plans (___ copies -- signed and sealed)
- Petition for Annexation (2 copies)
- Proposed Annexation Agreement (6 signed copies)
- Plat of Annexation (6 copies)
- Kane-DuPage Soil & Water Conservation District -- Land Use Opinion (1 copy)
- Fiscal Impact Study (If required by Staff -- 6 copies)
- Traffic Impact Analysis (If required by Staff -- 6 copies)
- Department of Conservation -- Endangered Species Report (1 copy)
- Army Corp. of Engineers -- Report on Wetlands (If required- 1 copy)

I, Michael Hanek, hereby apply for review and approval of this application and represent that the application and requirements thereof and supporting information have been completed in accordance with the Hampshire ordinances.

10/01/2018

Date

Signature of Applicant

CLERK'S RECEIPT

RECEIVED this _____ day of _____, 2018.

Leila Vase
Village Clerk

Rev. 1000-0088
on page 2
48581

FILED FOR RECORD
KANE COUNTY, ILL.

1999K109027

1999 NOV 15 AM 11:00

TRUSTEE'S DEED

Lynnda M. Reiser
RECORDER

THIS INDENTURE, dated October 8, 1999
between AMERICAN NATIONAL BANK AND
TRUST COMPANY OF CHICAGO, a National
Banking Association, duly authorized to accept and
execute trusts within the State of Illinois, not
personally but as Trustee under the provisions of a
deed or deeds in trust duly recorded and delivered to
said Bank in pursuance of a certain Trust Agreement
dated April 17, 1992

known as Trust Number 4762-HP party of the first
part, and

MINERALLAC COMPANY

466 Vista Ave., Addison, Illinois 60101

party/parties of the second part. WITNESSETH, that said party of the first part, in consideration of the sum of TEN (\$10.00) Dollars and other good and valuable consideration in hand paid, does hereby convey and QUIT-CLAIM unto said party/parties of the second part, the following described real estate, situated in KANE County, Illinois, to-wit:

(Reserved for Recorders Use Only)

SEE ATTACHED LEGAL DESCRIPTION

Commonly Known As GAST AND ROUTE 20, HAMPSHIRE, IL

Property Index Number 01-11-100-004.

together with the tenements and appurtenances thereunto belonging.

TO HAVE AND TO HOLD, the same unto said party of the second part, and to the proper use, benefit and behoof, forever, of said party of the second part.

This deed is executed by the party of the first part, as Trustee, as aforesaid, pursuant to and in the exercise of the power and authority granted to and vested in it by the terms of said Deed or Deeds in Trust and the provisions of said Trust Agreement above mentioned, and of every other power and authority thereunto enabling. This deed is made subject to the liens of all trust deeds and/or mortgages upon said real estate, if any, recorded or registered in said county.

IN WITNESS WHEREOF, said party of the first part has caused its corporate seal to be hereto affixed, and has caused its name to be signed to these presents by one of its officers, the day and year first above written.

AMERICAN NATIONAL BANK AND TRUST COMPANY OF CHICAGO

as Trustee, as aforesaid, and not personally,

Prepared By:

American National Bank and Trust
Company of Chicago

1201 S. Milwaukee Ave., Libertyville, Illinois 60048

By:

Maria Bora
MARIA BORA-TRUST OFFICER

STATE OF ILLINOIS

) I, the undersigned, a Notary Public in and for said County and State, do hereby certify

COUNTY OF COOK

) MARIA BORA an officer of American National Bank and Trust Company of Chicago

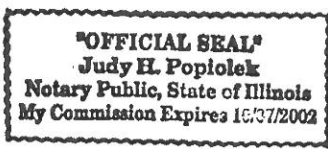
personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that said officer of said association signed and delivered this instrument as a free and voluntary act, for the uses and purposes therein set forth.

GIVEN under my hand and seal, dated 08 October 1999

Judy H. Popielek
NOTARY PUBLIC

MAIL TO:

EDWARD COPELAND, ESQ.
130 EAST RANDOLPH ST.
SUITE 3000



TICOP TITLE INSURANCE CO.
2020 DEAN ST., SUITE C
ST. CHARLES, IL 60174

County Tax Paid
\$ 500.00

RE
15.00

CHICAGO, ILLINOIS 60601

1999K109027

1995

NW 11/4/216

5

1

STATE OF ILLINOIS)
COUNTY OF Lake) SS.
McHenry

I, the undersigned, a Notary Public in and for said County, in the State aforesaid, DO HEREBY CERTIFY that MARIA BOBA TRUST OFFICER and _____ of American National Bank and Trust Company of Chicago, as Trustee under Trust Agreement dated April 17, 1992 and known as Trust No. 476 H.P., who are personally known to me to be the same such TRUST OFFICER and _____ respectively, appeared before me this day in person and acknowledged that they signed and delivered the said instrument as their own free and voluntary act and as the free and voluntary act of said Trust, as Trustee as aforesaid, for uses and purposes therein set forth, and the said TRUST OFFICER then and there acknowledged that he, she as custodian of the corporate seal of said Trust did affix the corporate seal of said Trust as his, her own free and voluntary act and as the free and voluntary act of said Trust, as Trustee as aforesaid, for the uses and purposes therein set forth.

GIVEN under my hand and Notarial Seal this 7 day of October, 1999.

OFFICIAL SEAL
Rina Czicz
Notary Public, State of Illinois
McHenry County
My Commission Expires January 20, 2003

Rina Czicz
Notary Public

My Commission Expires:

January 20, 2003

MAIL TAX BILL STOL
JIM DELBE
MINGRALLAC Company
866 VISTA AVENUE
ADDISON, ILLINOIS 60101

STATE OF ILLINOIS
REAL ESTATE TRANSFER TAX
NOV 16 1999
DEPT. OF REVENUE
500.00
KANE CO. NO. 045
002959
P.B. 10839

STATE OF ILLINOIS
REAL ESTATE TRANSFER TAX
NOV 16 1999
DEPT. OF REVENUE
500.00
KANE CO. NO. 045
002960
P.B. 10839

1999 K 109027

THAT PART OF THE EAST HALF OF THE NORTHWEST QUARTER OF SECTION 11, TOWNSHIP 42 NORTH, RANGE 6 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE SOUTH LINE OF SAID NORTHWEST QUARTER AND THE EAST LINE OF GAST ROAD AS DEDICATED PER DOCUMENT NO. 98K005800; THENCE NORTH 00 DEGREES, 08 MINUTES, 39 SECONDS WEST ALONG SAID WEST LINE, 452.60 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 44 DEGREES, 51 MINUTES, 21 SECONDS WEST, 28.28 FEET; THENCE SOUTH 89 DEGREES, 51 MINUTES, 21 SECONDS WEST, 355.00 FEET TO A POINT OF CURVATURE; THENCE 427.26 FEET ALONG A CURVE CONCAVE TO THE NORTHEAST, HAVING A RADIUS OF 272.00 FEET TO A POINT OF TANGENCY; THENCE NORTH 00 DEGREES, 08 MINUTES, 39 SECONDS WEST, 867.80 FEET TO A POINT OF CURVATURE; THENCE 99.38 FEET ALONG A CURVE, CONCAVE TO THE WEST, HAVING A RADIUS OF 338.00 FEET AND A CHORD BEARING OF NORTH 08 DEGREES, 34 MINUTES, 24 SECONDS WEST; THENCE NORTH 48 DEGREES, 56 MINUTES, 59 SECONDS EAST, 441.42 FEET TO A POINT ON THE SOUTHWESTERLY LINE OF U.S. ROUTE 20, PER PERMANENT ROADWAY EASEMENT RECORDED AS DOCUMENT NO. 833173; THENCE SOUTH 41 DEGREES, 3 MINUTES, 1 SECOND EAST ALONG SAID SOUTHWESTERLY LINE, 359.63 FEET TO A POINT ON A NON-TANGENT CURVE; THENCE 197.14 FEET ALONG SAID SOUTHWESTERLY LINE, BEING A CURVE, CONCAVE TO THE NORTHEAST, HAVING A RADIUS OF 3879.80 FEET AND A CHORD BEARING OF SOUTH 42 DEGREES, 30 MINUTES, 19 SECONDS EAST TO A POINT OF REVERSE CURVATURE, SAID POINT BEING ON SAID WEST LINE OF GAST ROAD; THENCE 48.53 FEET ALONG SAID WEST LINE, BEING A CURVE, CONCAVE TO THE WEST, HAVING A RADIUS OF 35.00 FEET TO A POINT OF REVERSE CURVATURE; THENCE 144.86 FEET ALONG SAID WEST LINE, BEING A CURVE, CONCAVE TO THE EAST, HAVING A RADIUS OF 233.00 FEET TO A POINT OF TANGENCY; THENCE SOUTH 00 DEGREES, 08 MINUTES, 39 SECONDS, EAST ALONG SAID WEST LINE, 909.10 FEET TO SAID POINT OF BEGINNING, IN KANE COUNTY, ILLINOIS.

COMMONLY KNOWN AS: SOUTHWEST CORNER OF ROUTE 20 AND GAST ROAD
KANE COUNTY, HAMPSHIRE, ILLINOIS

PIN NUMBER(S): 01-11-100-004



Lynda M. Rivers
Recorder - Kane County

PLAT ACT AFFIDAVIT

LYNDA M. RIVERS - RECORDER OF KANE COUNTY

AFFIDAVIT - PLAT ACT

STATE OF ILLINOIS)
)
COUNTY OF KANE)

J. MICHAEL WEITMAN being duly sworn on oath, state that he
resides at 2020 DEAN STREET, ST. CHARLES, ILL. 60174

That the attached deed is not in violation of 765 ILCS 205/1 of the Illinois Revised Statutes
for one of the following reasons:

1. The sale or exchange is of an entire tract of land not being a part of a larger tract of land.
2. The division or subdivision of land is into parcels or tracts of 5 acres or more in size which does not involve any new streets or easements of access.
3. The division is of lots or blocks of less than 1 acre in any recorded subdivision which does not involve any new streets or easements of access.
4. The sale or exchange of parcels of land is between owners of adjoining and contiguous land.
5. The conveyance is of parcels of land or interests therein for use as right-of-way for railroads or other public utility facilities, which does not involve any new streets or easements of access.
6. The conveyance is of land owned by a railroad or other public utility which does not involve any new streets or easements of access.
7. The conveyance is of land for highway or other public purpose or grants or conveyances relating to the dedication of land for public use or instruments relating to the vacation of land impressed with a public use.

POOR ORIGINAL
Recorder Not Responsible
For Reproductions

1999 K 109027

AFFIDAVIT- PLAT ACT

- 8. The conveyance is made to correct descriptions in prior conveyances.
- 9. The sale or exchange is of parcels or tracts of land following the division into no more than two parts of a particular parcel or tract of land existing on July 17, 1959, and not involving any new streets or easements of access.
- 10. The sale is of a single lot of less than 5 acres from a larger tract, the dimensions and configurations of said larger tract having been determined by the dimensions and configuration of said larger tract on October 1, 1973, and no sale prior to this sale, or any lot or lots from said larger tract having taken place since October 1, 1973, and a survey of said single lot having been made by a registered land surveyor.

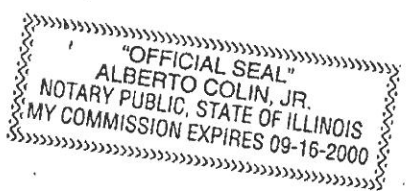
CIRCLE NUMBER ABOVE WHICH IS APPLICABLE TO ATTACHED DEED.

AFFIANT further states that he makes this affidavit for the purpose of inducing the Recorder of Kane County, Illinois, to accept the attached deed for recording, and that all local requirements applicable to the subdivision of land are met by the attached deed and the tract described therein.

UNOFFICIAL

SUBSCRIBED and SWORN to before me this 3 day of March A.D., 1999

Alberto Colin, Jr.
Notary Public



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Recorder Not Responsible
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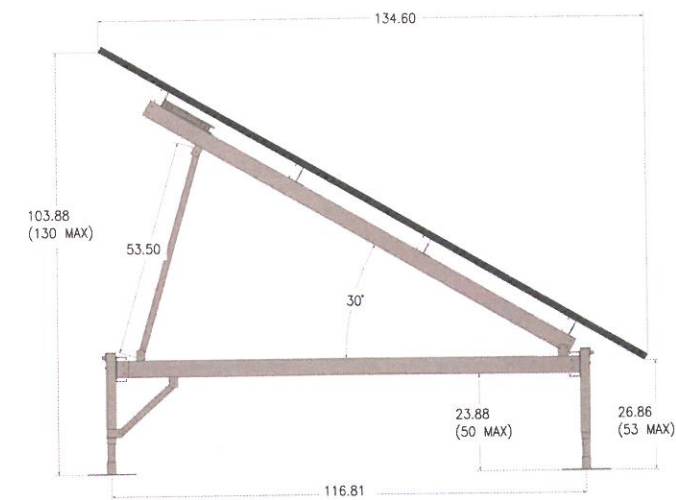
1 SITE PLAN
SCALE: N.T.S

SHEET GENERAL NOTES:

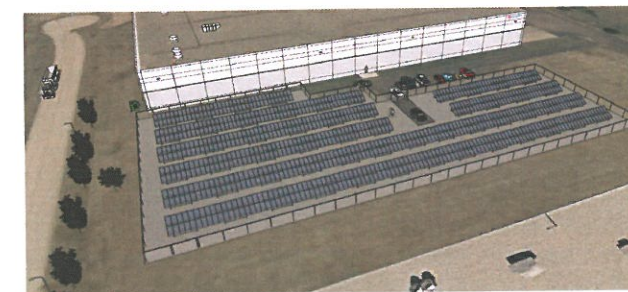
1. ALL WORK SHALL COMPLY WITH APPLICABLE RULES, REGULATIONS AND STANDARDS OF THE AUTHORITY HAVING JURISDICTION.
2. EXISTING FEATURES INCLUDING TREES AND UTILITIES ARE TO REMAIN PROTECTED DURING CONSTRUCTION. DISPOSE OF ALL CONSTRUCTION DEBRIS AND SPOILS OFF SITE IN ACCORDANCE WITH THE APPLICABLE LAWS, RULES AND REGULATIONS.
3. PROVIDE DUST CONTROL MEASURES AND PREVENT ANY MUD TRANSFER TO THE STREETS IN ACCORDANCE WITH THE APPLICABLE CODES AND ORDINANCES. UPON ANY MUD TRANSFER, SCRAPE MUD AND SWEEP STREETS AS REQUIRED.
4. MAINTAIN MINIMUM GROUND CLEARANCE OF 27" TO BOTTOM OF PV MODULES.
5. NEW FENCE IS 6' HIGH CHAIN-LINK SECURITY FENCE AROUND ENTIRE PERIMETER WITH AN 16' WIDE GATE FOR CONTINENTAL MAINTENANCE VEHICLES.
6. GROUND COVER UNDER THE ARRAY SHALL BE 4" OF GRAVEL, OVER A GEOTEXTILE TO PREVENT WEED GROWTH. THE STONE SHALL EXTEND 1' BEYOND THE PERIMETER FENCE TO CREATE A MOW STRIP FOR THE FENCE BASE.

SHEET KEY NOTES:

- ① SOLAR ARRAY
- ② INVERTER PAD
- ③ NEW FENCE, 6' HIGH
- ④ 8' SWING GATE, TYP.
- ⑤ 50' SETBACK FROM ROAD TO FENCE
- ⑥ GRAVEL TO 1' OUTSIDE OF FENCE



3 RACKING DETAIL
SCALE: N.T.S



2 SITE RENDERING
SCALE: N.T.S

NO.	DATE	REVISION	BY
1	09-26-18	ISSUE FOR PERMIT	DT

MINERALLAC
100 GAST RD
HAMPSHIRE, IL 60140

SOLAR ARRAY

PANEL LAYOUT

DATE	09-21-18	PROJECT NUMBER	XXX-XXX
SCALE	N.T.S	DRAWING NUMBER	CE-PV1.01
DRAWN BY	DT	CONTRACT DRAWING REFERENCE	XXX

CONTRACT DRAWING REFERENCE
XXX

CONTINENTAL
ELECTRICAL CONSTRUCTION COMPANY
815 COMMERCE DRIVE
SUITE 100
OAK BROOK, ILLINOIS 60523
T 630 288-0200
F 630 288-0188
WWW.CECCO.COM



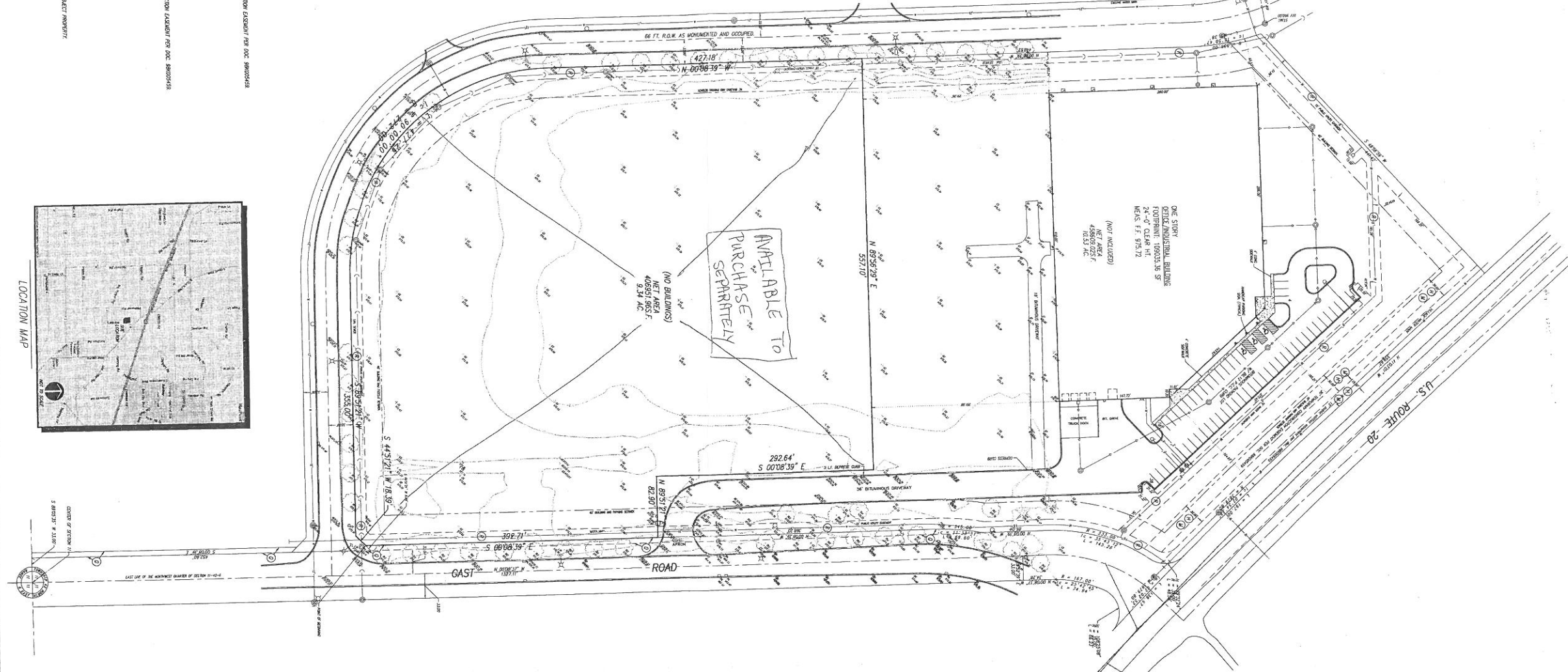
ALTA / ACSM LAND TITLE SURVEY

THIS TITLE SURVEY IS A TYPE "A" SURVEY IN ACCORDANCE WITH THE RULES OF THE BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS. IT IS A COMPLETE SURVEY OF THE ENTIRE TRACT OF LAND HEREIN DESCRIBED. THIS SURVEY HAS BEEN CONDUCTED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS. THIS SURVEY IS A COMPLETE SURVEY OF THE ENTIRE TRACT OF LAND HEREIN DESCRIBED. THIS SURVEY HAS BEEN CONDUCTED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS.



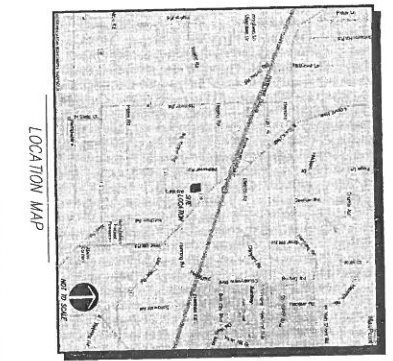
PLAN NORTH

DATE OF SURVEY: FEBRUARY 20, 2024
 TITLE: ALTA / ACSM LAND TITLE SURVEY
 THIS SURVEY IS A COMPLETE SURVEY OF THE ENTIRE TRACT OF LAND HEREIN DESCRIBED. THIS SURVEY HAS BEEN CONDUCTED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS.



AVAILABLE TO PURCHASE SEPARATELY

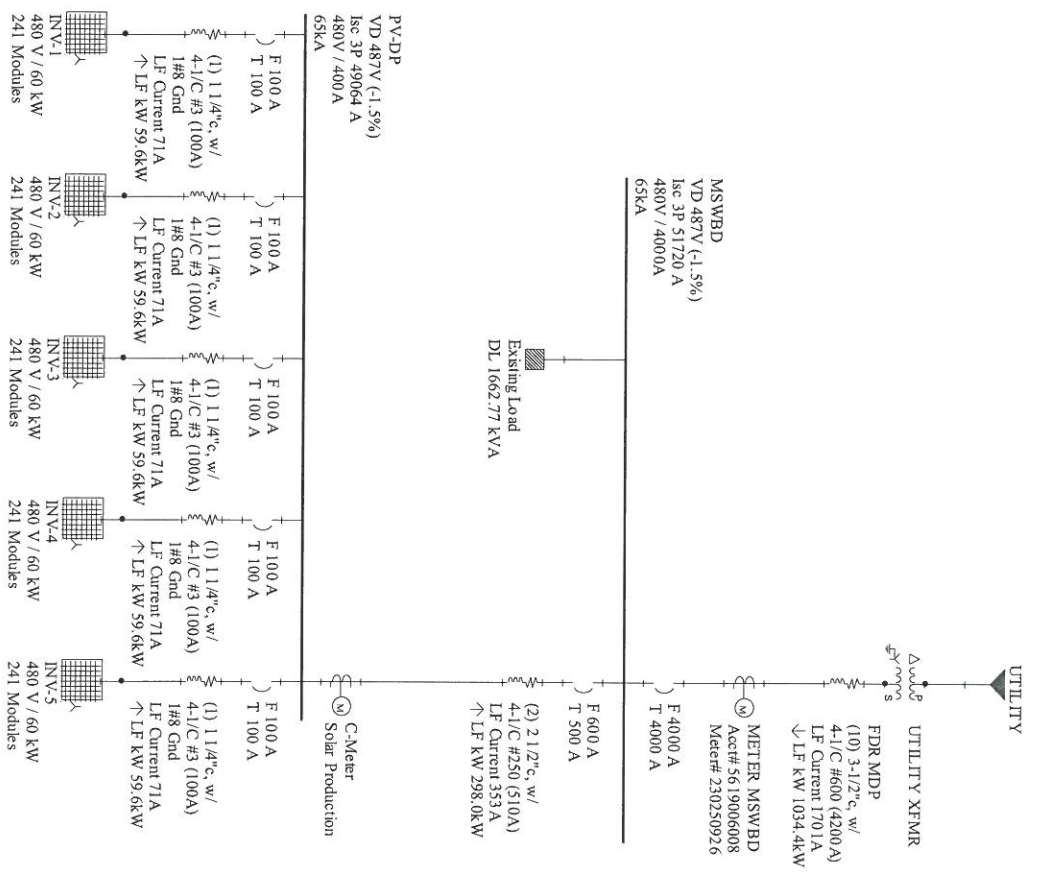
- LAND SURVEYOR'S NOTES:**
- LAND SURVEYOR'S CLERK FOR DOC. SUBMISSION AND, IF TEMPORARY CONSTRUCTION EXISTENT FOR DOC. SUBMISSION, AFFECTS THE ADVERSELY AFFECTED PROPERTY LINE ALONG US ROUTE 20.
 - WARRANTY TO DETERMINE THE LOCATION OF SAID MONUMENTS.
 - LOCATION APPEARS TO BE OFF-SITE.
 - AFFECTS EAST ROAD RIGHT OF WAY AND APPEARS TO BE OFF-SITE.
 - 12' WEDGE POLYESTER EXISTENT FOR DOC. SUBMISSION AND, IF TEMPORARY CONSTRUCTION EXISTENT FOR DOC. SUBMISSION, AFFECTS EAST ROAD RIGHT OF WAY.
 - LOCATION APPEARS TO BE OFF-SITE.
 - AFFECTS EAST ROAD RIGHT OF WAY AND APPEARS TO BE OFF-SITE.
 - TOTAL RIGHT-OF-WAY EXISTENT FOR DOC. SUBMISSION AND, IF TEMPORARY CONSTRUCTION EXISTENT FOR DOC. SUBMISSION, AFFECTS EAST ROAD RIGHT-OF-WAY.
 - AFFECTS ALL ADVERSELY AFFECTED AREAS AND FORMS OF THE ADVERSELY AFFECTED PART OF THE SUBJECT PROPERTY.



ORDER NO. 234
 DIVISION OF SURVEYING
 BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS
 4500 W. WILLOW LANE, SUITE 200
 FORT WORTH, TEXAS 76104-4102
 TEL: 817-756-2500
 FAX: 817-756-2501
 WWW: www.surveylaw.com

STATE OF TEXAS
 COUNTY OF DALLAS
 TO: THE ENGINEER, GENERAL LTD.
 THE ABOVE-ENTITLED COMPANY
 THROUGH TITLE INSURANCE COMPANY.
 THIS IS TO CERTIFY THAT THE PLAN AND THE SURVEY THEREON WERE MADE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS, AND THAT THE SURVEYOR HAS BEEN QUALIFIED BY THE BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS. THIS SURVEY IS A COMPLETE SURVEY OF THE ENTIRE TRACT OF LAND HEREIN DESCRIBED. THIS SURVEY HAS BEEN CONDUCTED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE BOARD OF SURVEYING AND MAPPING ENGINEERS OF THE STATE OF TEXAS.
 DATED THIS 20th DAY OF FEBRUARY, A.D. 2024, AT WICHITA, TEXAS.





Notes:

1. All equipment shall be UL Listed
2. All inverter wiring and grounding methods shall conform to the manufacturer's recommendations. Refer to the inverter submittals for additional information.
3. All DC disconnects shall be labeled "Warning – Electric shock Hazards – Don Not Touch Terminals" and "Terminals on both Line and Load Sides may be Energized in the Open Position" per NEC 690.17.
4. Exposed non-current carrying metal parts of module frames, equipment and enclosures shall be grounded per NEC 250.134 and 250.136(A).
5. Marking should be placed on all exterior DC conduit, raceways, enclosures, DC combiner and junction boxes. All cable assemblies, every 10 feet, at turns and above and/or below penetrations shall be marked.
6. Equipment shall be lockable and guarded against access by unqualified persons.

1-Line Diagram



Continental Electric Construction Co. LLC
815 Commerce Dr., S-100
Oak Brook, IL 60523
Tel: (630) 288-0200
Fax: (630) 288-018

CONTRACTOR:		Solar Array Mineralac 100 Gast Road Hampshire, IL 60140	CECCO Job# 00-000
MJH	08/14/2018		SK-1

Design - C - West and South (Nuance- FINAL) (352kW) Minerallac, 100 Gast Rd, Hampshire, IL 60140

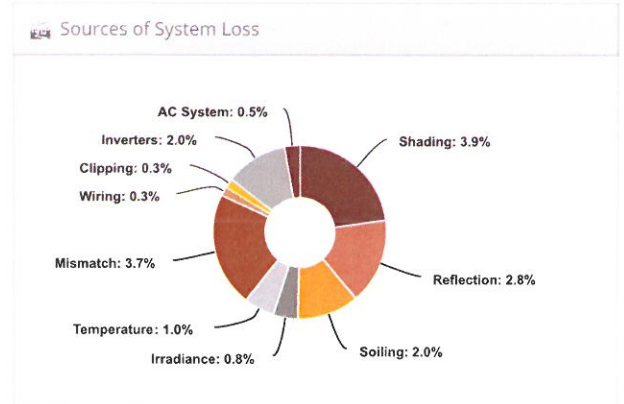
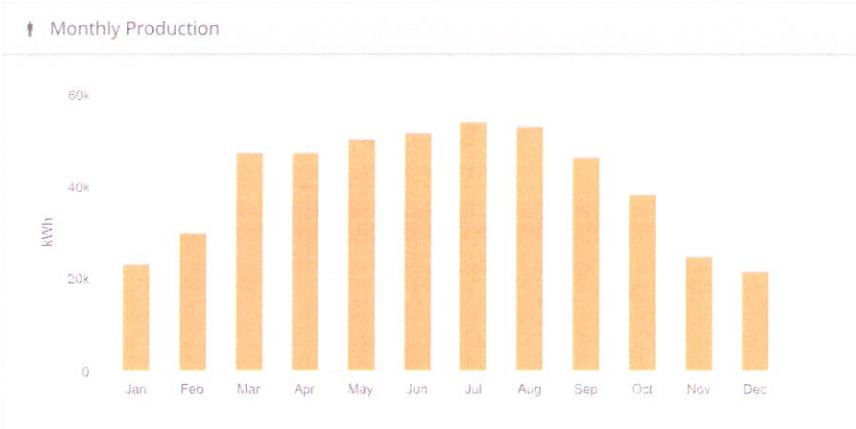
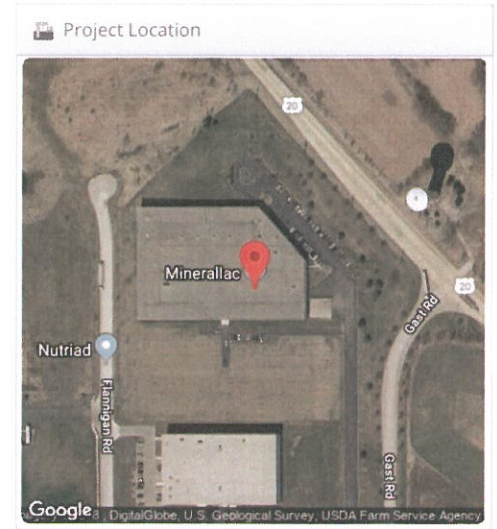
Report

Project Name: Minerallac
 Project Address: 100 Gast Rd, Hampshire, IL 60140
 Prepared By: Cesar Romo (cromo@cecco.com)



System Metrics

Design	Design - C - West and South (Nuance-FINAL) (352kW)
Module DC Nameplate	351.9 kW
Inverter AC Nameplate	300.0 kW Load Ratio: 1.17
Annual Production	489.3 MWh
Performance Ratio	83.9%
kWh/kWp	1,390.5
Weather Dataset	TMY, 10km Grid (42.15,-88.55), NREL (prospector)
Simulator Version	bb82093e0f-e15173af32-ecbaebac2d-91b54cf139



Annual Production

Description	Output	% Delta
Annual Global Horizontal Irradiance	1,426.9	
POA Irradiance	1,656.4	16.1%
Shaded Irradiance	1,591.0	-3.9%
Irradiance after Reflection	1,547.1	-2.8%
Irradiance after Soiling	1,516.1	-2.0%
Total Collector Irradiance	1,516.1	0.0%
Nameplate	533,629.2	
Output at Irradiance Levels	529,425.2	-0.8%
Output at Cell Temperature Derate	524,207.8	-1.0%
Output After Mismatch	504,839.4	-3.7%
Optimal DC Output	503,302.2	-0.3%
Constrained DC Output	501,787.8	-0.3%
Inverter Output	491,723.0	-2.0%
Energy to Grid	489,264.0	-0.5%

Temperature Metrics	
Avg. Operating Ambient Temp	11.5 °C
Avg. Operating Cell Temp	18.8 °C

Simulation Metrics	
Operating Hours	4696
Solved Hours	4696

Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid (42.15,-88.55), NREL (prospector)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module	Characterization										
	JAM72503-365/PR (JA Solar)	Spec Sheet Characterization, PAN										
Component Characterizations	Device	Characterization										
	TRIO-TM-60.0-480 (ABB)	Spec Sheet										

🏠 Components

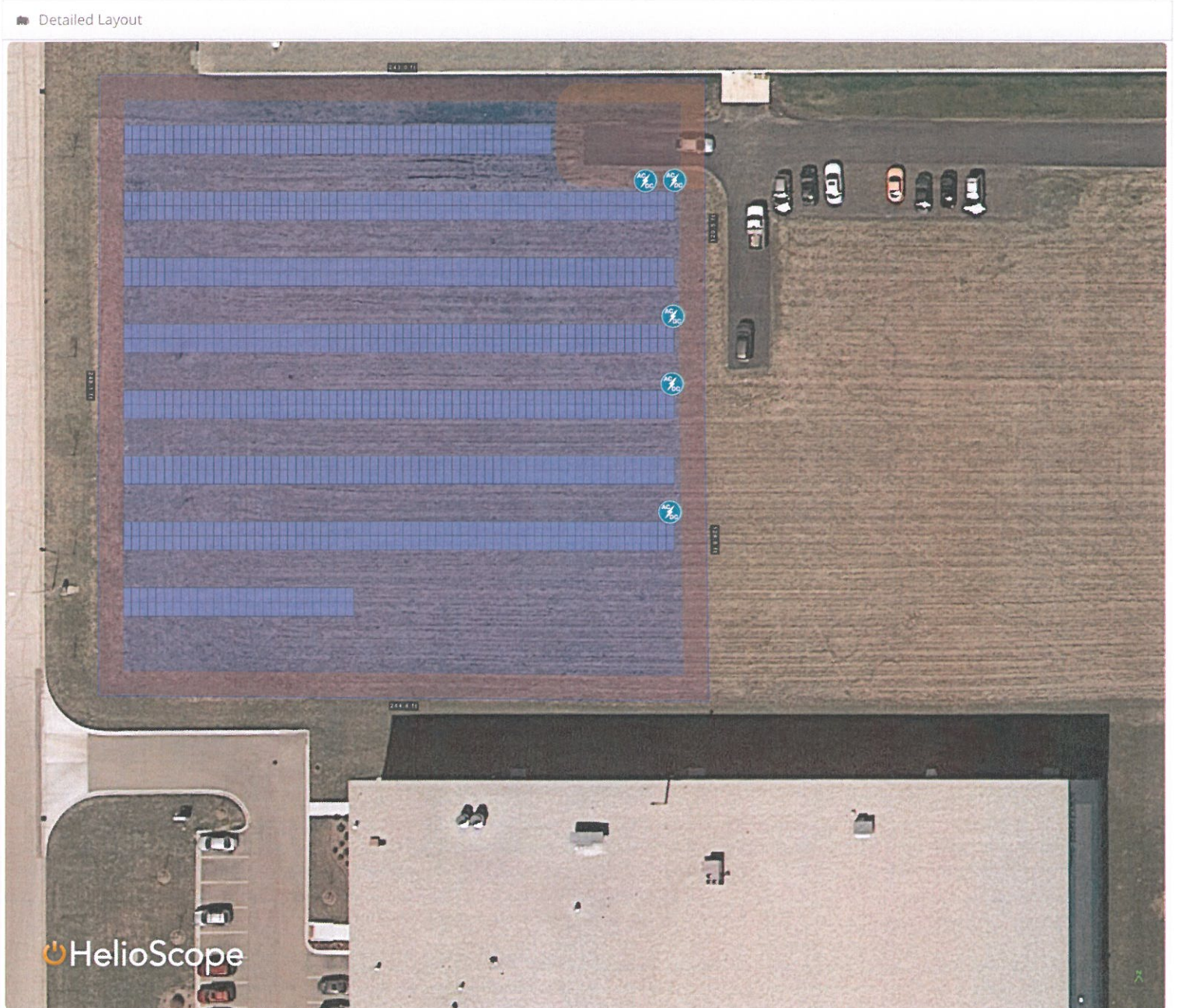
Component	Name	Count
Inverters	TRIO-TM-60.0-480 (ABB)	5 (300.0 kW)
Strings	10 AWG (Copper)	55 (14,627.8 ft)
Module	JA Solar, JAM72S03-365/PR (365W)	964 (351.9 kW)

📍 Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	16-18	Along Racking

📍 Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	30°	180°	15.0 ft	2x1	482	964	351.9 kW

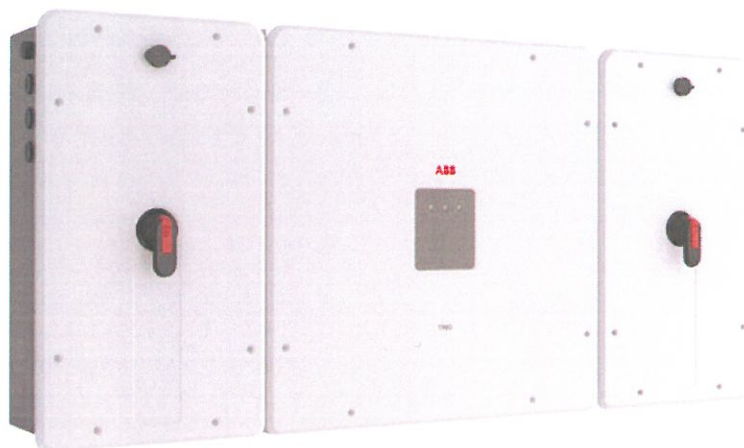


SOLAR INVERTERS

ABB string inverters

TRIO-60.0-TL-OUTD-US-480

60 kW



01

The TRIO-60.0 has been designed to maximize the ROI in large systems. It has all the advantages of a decentralized configuration for both rooftop and ground-mounted installations.

01 TRIO-60.0-TL outdoor string inverter

The TRIO-60.0 inverter is ABB's three-phase string solution for cost efficient large decentralized photovoltaic systems for both commercial and utility applications.

Modular design

TRIO-60.0 has a landscape modular design to guarantee maximum flexibility. The separate and configurable AC and DC compartments increase the ease of installation and maintenance with their ability to remain separately wired from the inverter module inside the system. The TRIO comes with the most complete wiring box configurations available including up to 16 DC inputs, AC and DC switches and monitored type II AC and DC surge arresters.

Flexibility of installation

The TRIO-60.0's forced air cooling system, designed for a simple and fast installation, enables for the maximum flexibility of installation. The option of horizontal or vertical mounting brackets enables the best use of space available beneath or behind the solar modules.

Design flexibility

The double stage conversion topology offers the advantage of a wide input voltage range for maximum flexibility of the system design.

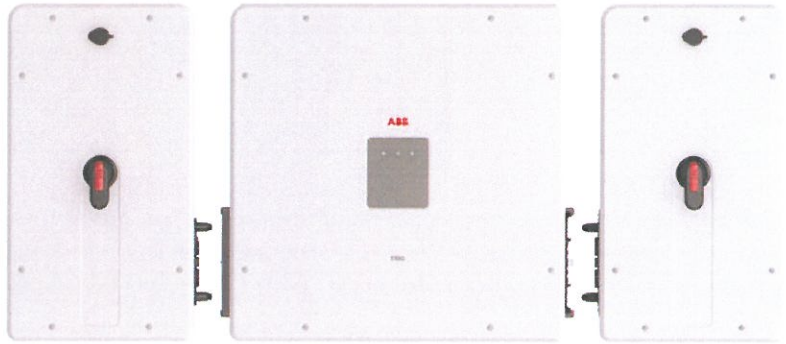
Highlights

- Modular landscape design to guarantee maximum flexibility
- Separate and configurable AC and DC compartments increase the ease of installation and maintenance
- Complete wiring box configurations; including, 12 or 16 inputs, AC and DC switches
- Forced air cooling system
- Mounting supports for both horizontal or vertical positions
- Wide input voltage range for maximum flexibility of the system design
- Transformerless topology

ABB string inverters

TRIO-60.0-TL-OUTD-US

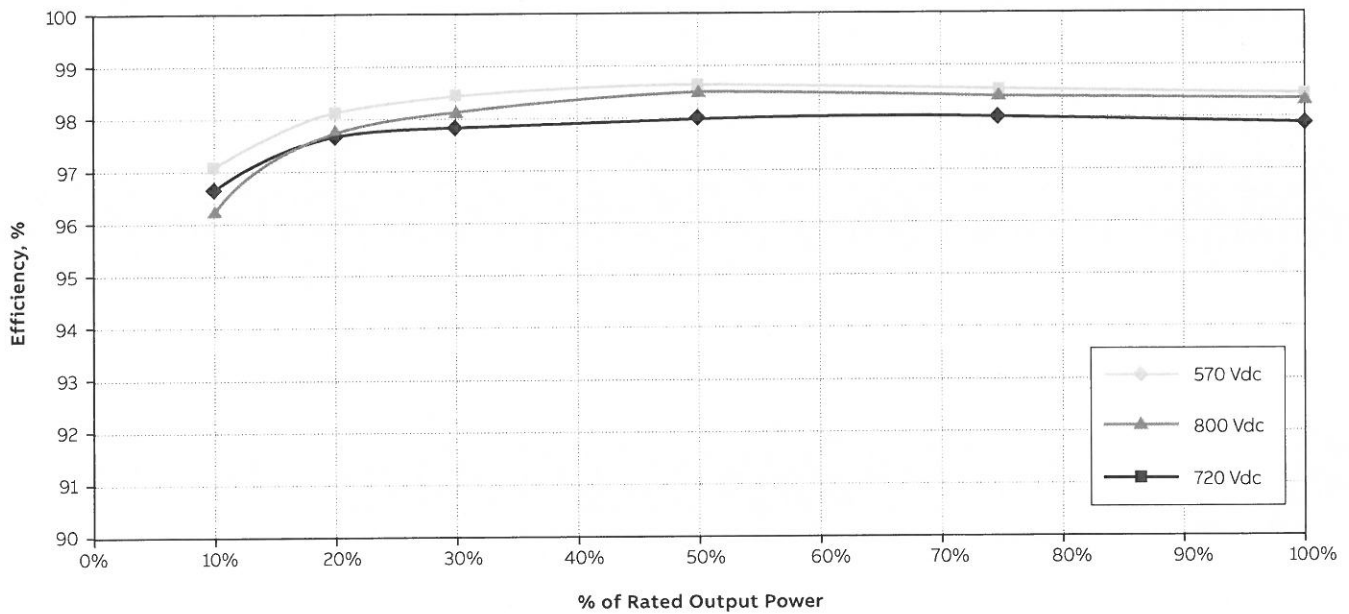
60 kW



Technical data and types

Type code	TRIO-60.0-TL-OUTD-US
Input side	
Absolute maximum DC input voltage ($V_{max,abs}$)	1000 V
Start-up DC input voltage (V_{start})	420...700 V (Default 500 V)
Operating DC input voltage range ($V_{dcrmin}...V_{dcrmax}$)	0.7xVstart ...950 V (min 360 V)
Rated DC input voltage (V_{dcr})	720 Vdc
Rated DC input power (P_{dcr})	61800 W
Number of independent MPPT	1
MPPT input DC voltage range ($V_{MPPTmin} ... V_{MPPTmax}$) at P_{dcr}	570-800 Vdc
Maximum DC input current (I_{dcrmax})	108 A
Maximum input short circuit current	170 A
Number of DC inputs pairs	12 or 16 string combiner model available / 1 pair standard model
DC connection type	Input lugs (DCWB-1), Conduit entry (DCWB-2)
Input protection	
Reverse polarity protection	Yes, from limited current source
Input over voltage protection - varistor	Yes
Input over voltage protection for each MPPT - plug in modular surge arrester	Type 2
Photovoltaic array isolation control	According to US standards
DC switch rating	200 A / 1000 V
Fuse rating (version with fuses)	15 A / 1000 V
Output side	
AC Grid connection type	Three-phase (3W+PE or 4W+PE)
Rated AC power ($P_{acr} @ \cos\theta=1$)	60000 W
Maximum AC output power ($P_{acmax} @ \cos\theta=1$)	60000 W
Maximum apparent power (S_{max})	60000 VA
Rated AC grid voltage (V_{acr})	480 V
AC voltage range	422-528 V
Maximum AC output current ($I_{acr,max}$)	77 A
Contributory fault current	92 A
Rated output frequency (f_r)	60 Hz
Output frequency range ($f_{min}...f_{max}$)	57...63 Hz
Nominal power factor and adjustable range	> 0.995, 0...± 1 with max S_{max}
Maximum AC cable section allowed	AWG 3/0 without AC switch, AWG 1/0 with AC switch (option ACWB-B)
AC connection type	Screw terminal block
Output protection	
Anti-islanding protection	According to US standards
Maximum external AC overcurrent protection	100 A
Output overvoltage protection - varistor	Yes
Operating performance	
Maximum efficiency (η_{max})	98.5%
Weighted efficiency (CEC)	98.0%
Safety	
Isolation level	Transformerless
Marking	TUV
Safety and EMC standard	UL1741, Rule 21, HECO tester per UL 1741 SA, UL1699B, IEEE1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits

CEC Efficiency = 98.0 percent



Technical data and types

Type code	TRIO-60.0-TL-OUTD-US
Communication	
Remote monitoring	VSN300 Wifi Logger Card (opt.), VSN700 Data Logger (opt.)
Wireless local monitoring	VSN300 Wifi Logger Card (opt.)
User interface	LEDs / No display
Available port	2 RS485
Environmental	
Ambient temperature range	-25...+60°C/-13...140°F with derating above 45°C/113°F
Relative humidity	4%...100% condensing
Sound pressure level, typical	75 dB(A) @1 m
Maximum operating altitude without derating	6560 ft / 2000 m
Physical	
Environmental protection rating	NEMA 4X (NEMA 3R for fan tray)
Cooling	Forced air over external heatsink
Dimension (H x W x D)	58.7 x 28.5 x 12.4 in (1491 x 725 x 315 mm)
Weight	210 lbs overall, 145 lbs electronic compartment, ≤ 33 lbs each wiring box (full optional)
Mounting system options	Wall bracket, horizontal support
Available product variants	
Inverter power module	TRIO-60.0-TL-OUTD-US-POWER MODULE
DC wiring box options	
Input lugs for use with external combiner, DC disconnect switch, conduit entry	DCWB-1-TRIO-60.0-TL-OUTD-US
Touch-safe fuse holder 12 string combiner, DC disconnect switch, AFCI, DC SPD, conduit entry	DCWB-2-TRIO-60.0-TL-OUTD-US/12 INPUTS
Touch-safe fuse holder 16 string combiner, DC disconnect switch, AFCI, DC SPD, conduit entry	DCWB-2-TRIO-60.0-TL-OUTD-US/16 INPUTS
AC wiring box options	
AC output lugs, conduit entry	ACWB-TRIO-60.0-TL-OUTD-US
AC output lugs, conduit entry and AC SPD	ACWB-A-TRIO-60.0-TL-OUTD-US
AC output lugs, conduit entry, AC SPD and AC disconnect switch	ACWB-B-TRIO-60.0-TL-OUTD-US

Remark. Features not specifically listed in the present data sheet are not included in the product

For more information please contact
your local ABB representative or visit:

www.abb.com/solarinverters
www.abb.com

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Certificate



Certificate no.

CU 72170020 01

License Holder:

Power-One Renewable Energy Solution
4050 E Cotton Center Blvd., Bldg. 3
Phoenix AZ 85040
USA

Manufacturing Plant:

Power-One Italy S.P.A.
Via San Giorgio 642
Terranuova Bracciolini
52028 (AR)
Italy

Test report no.: USA- 31682356 003

Client Reference: Robert White

Tested to: UL 1741:2010 R9.16
UL 62109-1:2014
Subject 1699B No. 2 (01-14-2013)
C22.2 NO. 107.1-01 (R2011)
CSA M-07:2013

Certified Product: Utility Interactive Inverter, DC/AC Wiring Box License Fee - Units

Model Designation:

7

- A) Inverter:
 - 1) TRIO-50.0-TL-OUTD-US-480
 - 2) TRIO-60.0-TL-OUTD-US-480
 - B) DC Wiring Box:
 - 3) DCWB-1-TRIO-50.0-TL-OUTD-US-480
 - 4) DCWB-2-TRIO-50.0-TL-OUTD-US-480/12
 - 5) DCWB-2-TRIO-50.0-TL-OUTD-US-480/16
 - 6) DCWB-1-TRIO-60.0-TL-OUTD-US-480
 - 7) DCWB-2-TRIO-60.0-TL-OUTD-US-480/12
 - 8) DCWB-2-TRIO-60.0-TL-OUTD-US-480/16
- (Trademark ABB)

7

Appendix: 3 (31 pages)

Licensed Test mark:



Date of Issue

(day/mo/yr)
03/02/2017

Certificate



Certificate no.

CU 72170020 02

License Holder:

Power-One Renewable Energy Solution
4050 E Cotton Center Blvd., Bldg. 3
Phoenix AZ 85040
USA

Manufacturing Plant:

Power-One Italy S.P.A.
Via San Giorgio 642
Terranuova Bracciolini
52028 (AR)
Italy

Test report no.: USA- 31682356 003

Client Reference: Robert White

Tested to: UL 1741:2010 R9.16
UL 62109-1:2014
Subject 1699B No. 2 (01-14-2013)
C22.2 NO. 107.1-01 (R2011)
CSA M-07:2013

Certified Product: Utility Interactive Inverter, DC/AC Wiring Box License Fee - Units

contd.

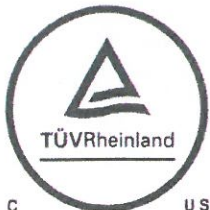
Model Designation:

- C) AC Wiring Box:
- 9) ACWB-TRIO-50.0-TL-OUTD-US-480
 - 10) ACWB-A-TRIO-50.0-TL-OUTD-US-480
 - 11) ACWB-B-TRIO-50.0-TL-OUTD-US-480
 - 12) ACWB-TRIO-60.0-TL-OUTD-US-480
 - 13) ACWB-A-TRIO-60.0-TL-OUTD-US-480
 - 14) ACWB-B-TRIO-60.0-TL-OUTD-US-480

(Trademark ABB)

contd.

Licensed Test mark:



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CU 72170020 03

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Power-One Renewable Energy Solution
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C22.2 NO. 107.1-01 (R2011)
CSA M-07:2013

Certified Product: Utility Interactive Inverter, DC/AC Wiring Box **License Fee - Units**

contd.

Rated Voltage: 1)-8) DC 1000V max.
9)-14) n/a (AC Wiring Box)

Rated Current: 1),3)-5) 100A max.
2),6)-8) 108A max.
9)-14) n/a (AC Wiring Box)

Rated Operating Ambient Temperature: -25°C to 60°C

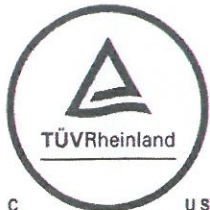
Output Ratings: 1),9)-11) 3 AC 480V, 60Hz;
66Arms max., 50kW max.

2),12)-14) 3 AC 480V, 60Hz;
77Arms max., 60kW max.

3)-8) n/a (DC Wiring Box)

contd.

Licensed Test mark:



Date of Issue

(day/mo/yr)

03/02/2017

Certificate



Certificate no.

CU 72170020 04

License Holder:

Power-One Renewable Energy Solution
4050 E Cotton Center Blvd., Bldg. 3
Phoenix AZ 85040
USA

Manufacturing Plant:

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Client Reference: Robert White

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Subject 1699B No. 2 (01-14-2013)
C22.2 NO. 107.1-01 (R2011)
CSA M-07:2013

Certified Product: Utility Interactive Inverter, DC/AC Wiring Box License Fee - Units

contd.

Also evaluated to

- UL 1741 Supplement SA for grid support functions,
dated September 7, 2016.
- IEEE 1547, IEEE 1547.1,
- California Rule 21, and
- Hawaii-HECO

for Interconnecting Distributed Resources with Electric
Power Systems.

To be installed according to the licensee's installation
instructions.

Replaces Certificate CU72161854.

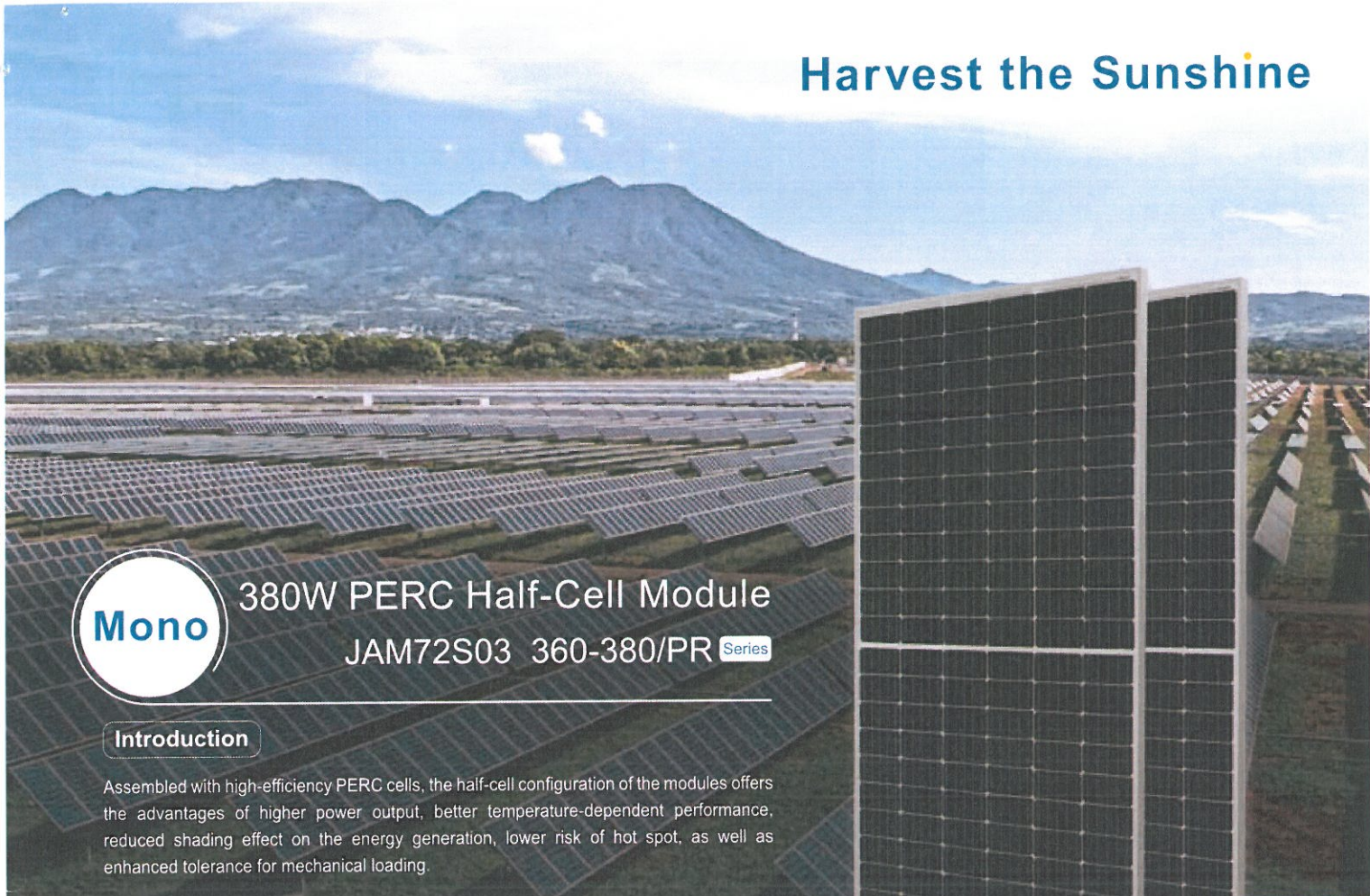
Licensed Test mark:



Date of Issue
(day/mo/yr)

03/02/2017

Harvest the Sunshine



Mono

380W PERC Half-Cell Module JAM72S03 360-380/PR Series

Introduction

Assembled with high-efficiency PERC cells, the half-cell configuration of the modules offers the advantages of higher power output, better temperature-dependent performance, reduced shading effect on the energy generation, lower risk of hot spot, as well as enhanced tolerance for mechanical loading.



Higher output power



Lower temperature coefficient



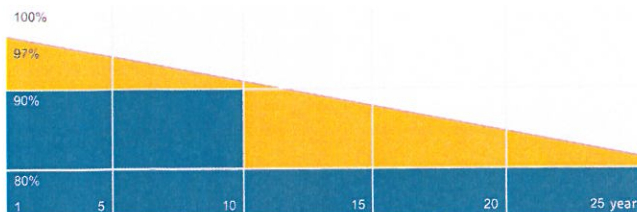
Less shading effect



Better mechanical loading tolerance

Superior Warranty

- 12-year product warranty
- 25-year linear power output warranty



■ JA Linear Power Warranty ■ Industry Warranty

Comprehensive Certificates

- IEC 61215, IEC 61730, IEC TS 62804, IEC 61701, IEC 62716, IEC 60068-2-68
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- OHSAS 18001: 2007 Occupational health and safety management systems
- IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules – Guidelines for increased confidence in PV module design qualification and type approval



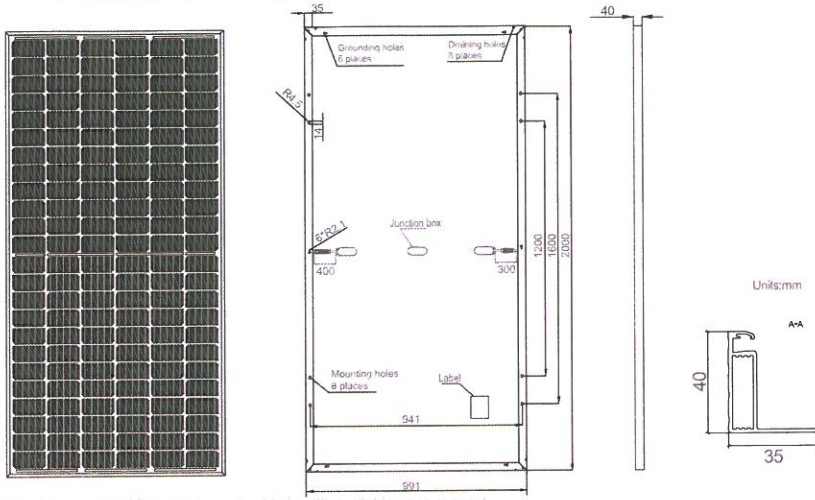
JASOLAR

www.jasolar.com

Specifications subject to technical changes and tests. JA Solar reserves the right of final interpretation.



MECHANICAL DIAGRAMS



Remark: customized frame color and cable length available upon request.

SPECIFICATIONS

Cell	Mono
Weight	22.5kg±3%
Dimensions	2000mm×991mm×40mm
Cable Cross Section Size	4mm ²
No. of cells	144 (6×24)
Junction Box	IP68, 3 diodes
Connector	MC4 Compatible(1000V) QC 4.10-35(1500V)
Packaging Configuration	27 Per Pallet

ELECTRICAL PARAMETERS AT STC

TYPE	JAM72S03 -360/PR	JAM72S03 -365/PR	JAM72S03 -370/PR	JAM72S03 -375/PR	JAM72S03 -380/PR
Rated Maximum Power(Pmax) [W]	360	365	370	375	380
Open Circuit Voltage(Voc) [V]	46.98	47.30	47.56	47.78	48.05
Maximum Power Voltage(Vmp) [V]	38.73	39.05	39.36	39.58	39.80
Short Circuit Current(Isc) [A]	9.87	9.92	9.97	10.03	10.09
Maximum Power Current(Imp) [A]	9.30	9.35	9.41	9.48	9.55
Module Efficiency [%]	18.2	18.4	18.7	18.9	19.2
Power Tolerance			0~+5W		
Temperature Coefficient of Isc(α_Isc)			+0.051%/°C		
Temperature Coefficient of Voc(β_Voc)			-0.289%/°C		
Temperature Coefficient of Pmax(γ_Pmp)			-0.360%/°C		
STC	Irradiance 1000W/m ² , cell temperature 25°C, AM1.5G				

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer. They only serve for comparison among different module types.

ELECTRICAL PARAMETERS AT NOCT

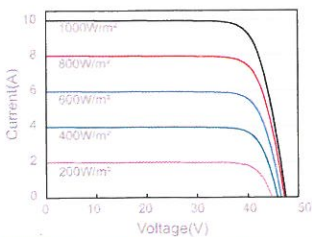
TYPE	JAM72S03 -360/PR	JAM72S03 -365/PR	JAM72S03 -370/PR	JAM72S03 -375/PR	JAM72S03 -380/PR
Rated Max Power(Pmax) [W]	266	270	274	278	281
Open Circuit Voltage(Voc) [V]	43.48	43.80	44.06	44.28	44.51
Max Power Voltage(Vmp) [V]	35.81	36.11	36.37	36.59	36.81
Short Circuit Current(Isc) [A]	7.90	7.94	7.98	8.02	8.08
Max Power Current(Imp) [A]	7.44	7.48	7.53	7.58	7.64
NOCT	Irradiance 800W/m ² , ambient temperature 20°C, wind speed 1m/s, AM1.5G				

OPERATING CONDITIONS

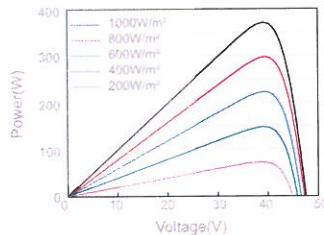
Maximum System Voltage	1000V/1500V DC(IEC)
Operating Temperature	-40°C~+85°C
Maximum Series Fuse	30A
Maximum Static Load,Front	5400Pa
Maximum Static Load,Back	2400Pa
NOCT	45±2°C
Application Class	Class A

CHARACTERISTICS

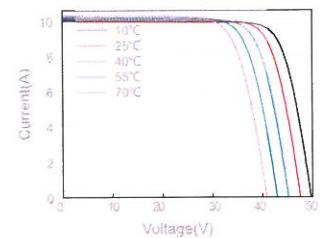
Current-Voltage Curve JAM72S03-370/PR

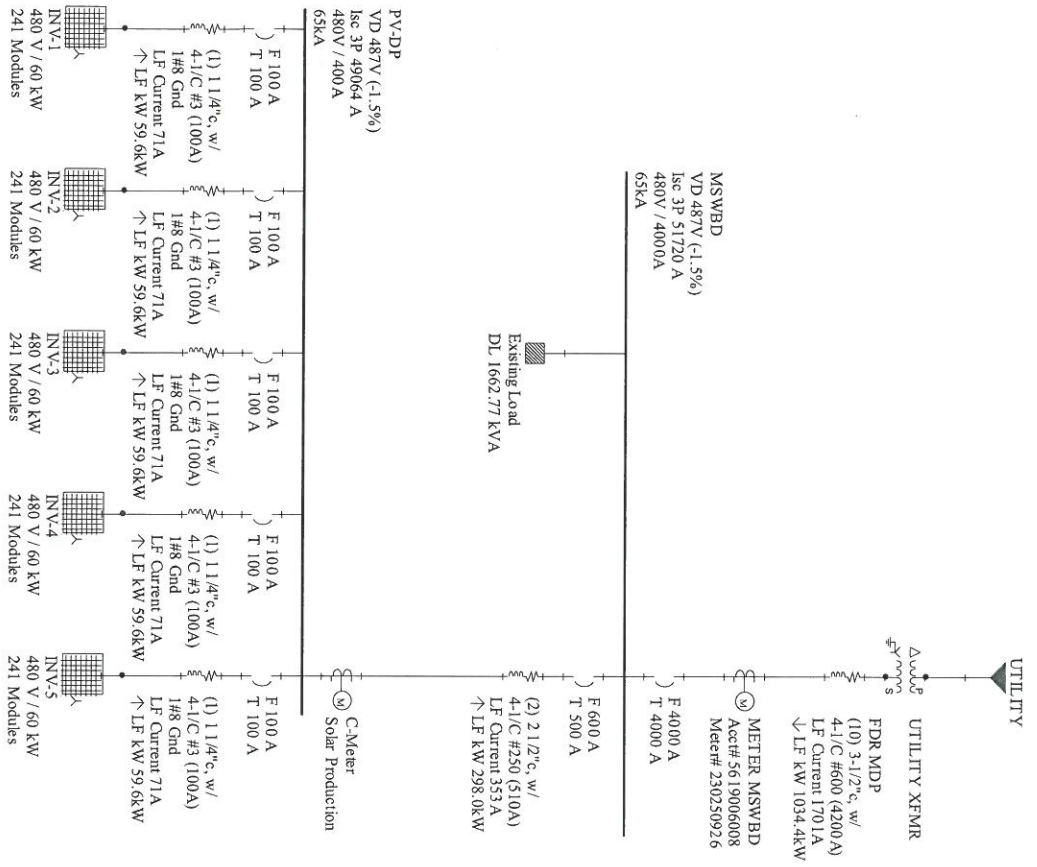


Power-Voltage Curve JAM72S03-370/PR



Current-Voltage Curve JAM72S03-370/PR






1-Line Diagram

Notes:

1. All equipment shall be UL Listed
2. All inverter wiring and grounding methods shall conform to the manufacturer's recommendations. Refer to the inverter submittals for additional information.
3. All DC disconnects shall be labeled "Warning – Electric shock Hazards – Don Not Touch Terminals" and "Terminals on both Line and Load Sides may be Energized in the Open Position" per NEC 690.17.
4. Exposed non-current carrying metal parts of module frames, equipment and enclosures shall be grounded per NEC 250.134 and 250.136(A).
5. Marking should be placed on all exterior DC conduit, raceways, enclosures, DC combiner and junction boxes. All cable assemblies, every 10 feet, at turns and above and/or below penetrations shall be marked.
6. Equipment shall be lockable and guarded against access by unqualified persons.

 <p>Continental Electric Construction Co. LLC 815 Commerce Dr., S-100 Oak Brook, IL 60523 Tel: (630) 288-0200 Fax: (630) 288-018</p>		<p>Solar Array Minerallac 100 Gaet Road Hampshire, IL 60140</p>	
<p>CONTRACTOR: MJH</p>		<p>CECCO Job# 00-000 SK-1</p>	

Design - C - West and South (Nuance- FINAL) (352kW) Minerallac, 100 Gast Rd, Hampshire, IL 60140

Report

Project Name: Minerallac
 Project Address: 100 Gast Rd, Hampshire, IL 60140
 Prepared By: Cesar Romo
 cromo@cecco.com



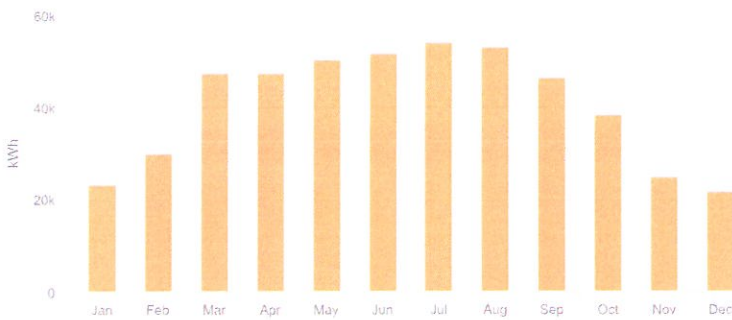
System Metrics

Design	Design - C - West and South (Nuance-FINAL) (352kW)
Module DC Nameplate	351.9 kW
Inverter AC Nameplate	300.0 kW Load Ratio: 1.17
Annual Production	489.3 MWh
Performance Ratio	83.9%
kWh/kWp	1,390.5
Weather Dataset	TMY, 10km Grid (42.15,-88.55), NREL (prospector)
Simulator Version	bb82093e0f-e15173af32-ecbaebac2d-91b54cf139

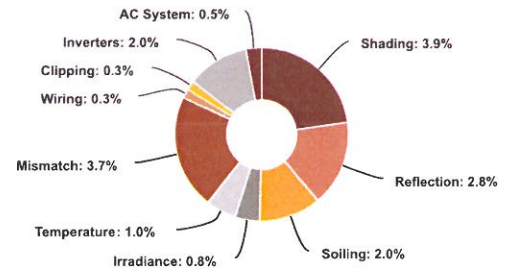
Project Location



Monthly Production



Sources of System Loss



Annual Production

Description	Output	% Delta
Annual Global Horizontal Irradiance	1,426.9	
POA Irradiance	1,656.4	16.1%
Shaded Irradiance	1,591.0	-3.9%
Irradiance after Reflection	1,547.1	-2.8%
Irradiance after Soiling	1,516.1	-2.0%
Total Collector Irradiance	1,516.1	0.0%
Nameplate	533,629.2	
Output at Irradiance Levels	529,425.2	-0.8%
Output at Cell Temperature Derate	524,207.8	-1.0%
Output After Mismatch	504,839.4	-3.7%
Optimal DC Output	503,302.2	-0.3%
Constrained DC Output	501,787.8	-0.3%
Inverter Output	491,723.0	-2.0%
Energy to Grid	489,264.0	-0.5%
Temperature Metrics		
Avg. Operating Ambient Temp		11.5 °C
Avg. Operating Cell Temp		18.8 °C
Simulation Metrics		
Operating Hours	4696	
Solved Hours	4696	

Condition Set

Description	Condition Set 1											
Weather Dataset	TMY, 10km Grid (42.15,-88.55), NREL (prospector)											
Solar Angle Location	Meteo Lat/Lng											
Transposition Model	Perez Model											
Temperature Model	Sandia Model											
Temperature Model Parameters	Rack Type	a	b	Temperature Delta								
	Fixed Tilt	-3.56	-0.075	3°C								
	Flush Mount	-2.81	-0.0455	0°C								
Soiling (%)	J	F	M	A	M	J	J	A	S	O	N	D
	2	2	2	2	2	2	2	2	2	2	2	2
Irradiation Variance	5%											
Cell Temperature Spread	4° C											
Module Binning Range	-2.5% to 2.5%											
AC System Derate	0.50%											
Module Characterizations	Module	Characterization										
	JAM72S03-365/PR (JA Solar)	Spec Sheet Characterization, PAN										
Component Characterizations	Device	Characterization										
	TRIO-TM-60.0-480 (ABB)	Spec Sheet										

Components

Component	Name	Count
Inverters	TRIO-TM-60.0-480 (ABB)	5 (300.0 kW)
Strings	10 AWG (Copper)	55 (14,627.8 ft)
Module	JA Solar, JAM72503-365/PR (365W)	964 (351.9 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	12	16-18	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Portrait (Vertical)	30°	180°	15.0 ft	2x1	482	964	351.9 kW

Detailed Layout

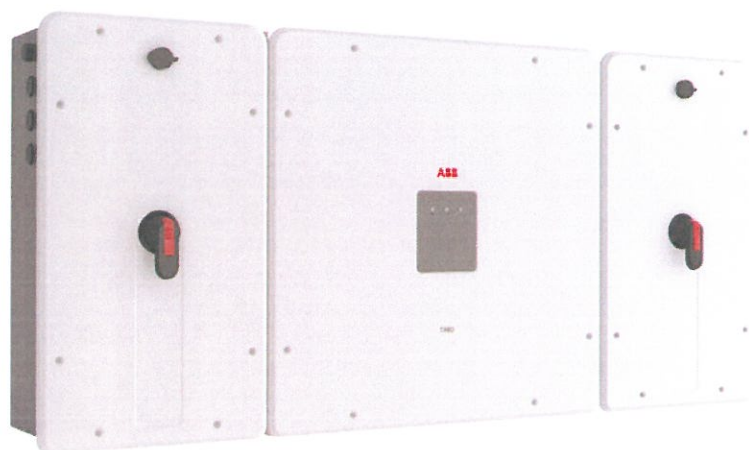


SOLAR INVERTERS

ABB string inverters

TRIO-60.0-TL-OUTD-US-480

60 kW



01

The TRIO-60.0 has been designed to maximize the ROI in large systems. It has all the advantages of a decentralized configuration for both rooftop and ground-mounted installations.

01 TRIO-60.0-TL
outdoor string inverter

The TRIO-60.0 inverter is ABB's three-phase string solution for cost efficient large decentralized photovoltaic systems for both commercial and utility applications.

Modular design

TRIO-60.0 has a landscape modular design to guarantee maximum flexibility. The separate and configurable AC and DC compartments increase the ease of installation and maintenance with their ability to remain separately wired from the inverter module inside the system. The TRIO comes with the most complete wiring box configurations available including up to 16 DC inputs, AC and DC switches and monitored type II AC and DC surge arresters.

Flexibility of installation

The TRIO-60.0's forced air cooling system, designed for a simple and fast installation, enables for the maximum flexibility of installation. The option of horizontal or vertical mounting brackets enables the best use of space available beneath or behind the solar modules.

Design flexibility

The double stage conversion topology offers the advantage of a wide input voltage range for maximum flexibility of the system design.

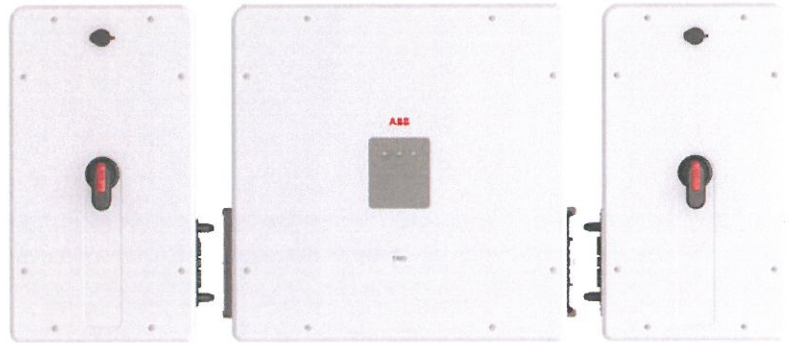
Highlights

- Modular landscape design to guarantee maximum flexibility
- Separate and configurable AC and DC compartments increase the ease of installation and maintenance
- Complete wiring box configurations; including, 12 or 16 inputs, AC and DC switches
- Forced air cooling system
- Mounting supports for both horizontal or vertical positions
- Wide input voltage range for maximum flexibility of the system design
- Transformerless topology

ABB string inverters

TRIO-60.0-TL-OUTD-US

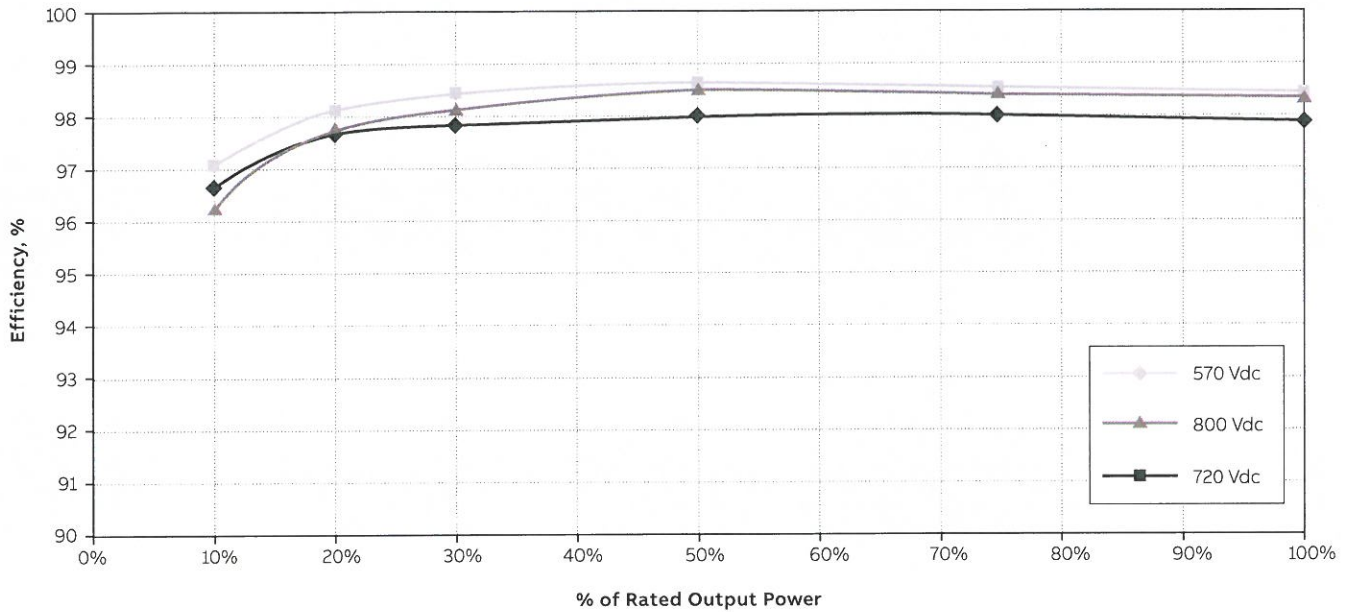
60 kW



Technical data and types

Type code	TRIO-60.0-TL-OUTD-US
Input side	
Absolute maximum DC input voltage ($V_{max,abs}$)	1000 V
Start-up DC input voltage (V_{start})	420...700 V (Default 500 V)
Operating DC input voltage range ($V_{dcmin}...V_{dcmax}$)	0.7xVstart ...950 V (min 360 V)
Rated DC input voltage ($V_{dc,r}$)	720 Vdc
Rated DC input power ($P_{dc,r}$)	61800 W
Number of independent MPPT	1
MPPT input DC voltage range ($V_{MPPTmin}...V_{MPPTmax}$) at $P_{dc,r}$	570-800 Vdc
Maximum DC input current ($I_{dc,max}$)	108 A
Maximum input short circuit current	170 A
Number of DC inputs pairs	12 or 16 string combiner model available / 1 pair standard model
DC connection type	Input lugs (DCWB-1), Conduit entry (DCWB-2)
Input protection	
Reverse polarity protection	Yes, from limited current source
Input over voltage protection - varistor	Yes
Input over voltage protection for each MPPT - plug in modular surge arrester	Type 2
Photovoltaic array isolation control	According to US standards
DC switch rating	200 A / 1000 V
Fuse rating (version with fuses)	15 A / 1000 V
Output side	
AC Grid connection type	Three-phase (3W+PE or 4W+PE)
Rated AC power ($P_{ac,r} @ \cos\phi=1$)	60000 W
Maximum AC output power ($P_{ac,max} @ \cos\phi=1$)	60000 W
Maximum apparent power (S_{max})	60000 VA
Rated AC grid voltage ($V_{ac,r}$)	480 V
AC voltage range	422-528 V
Maximum AC output current ($I_{ac,max}$)	77 A
Contributory fault current	92 A
Rated output frequency (f_r)	60 Hz
Output frequency range ($f_{min}...f_{max}$)	57...63 Hz
Nominal power factor and adjustable range	> 0.995, 0...± 1 with max S_{max}
Maximum AC cable section allowed	AWG 3/0 without AC switch, AWG 1/0 with AC switch (option ACWB-B)
AC connection type	Screw terminal block
Output protection	
Anti-islanding protection	According to US standards
Maximum external AC overcurrent protection	100 A
Output overvoltage protection - varistor	Yes
Operating performance	
Maximum efficiency (η_{max})	98.5%
Weighted efficiency (CEC)	98.0%
Safety	
Isolation level	Transformerless
Marking	TUV
Safety and EMC standard	UL1741, Rule 21, HECO tester per UL 1741 SA, UL1699B, IEEE1547, IEEE1547.1, CSA C22.2 107.1-01-2001, FCC Part 15 Sub-part B Class B Limits

CEC Efficiency = 98.0 percent



Technical data and types

Type code	TRIO-60.0-TL-OUTD-US
Communication	
Remote monitoring	VSN300 Wifi Logger Card (opt.), VSN700 Data Logger (opt.)
Wireless local monitoring	VSN300 Wifi Logger Card (opt.)
User interface	LEDs / No display
Available port	2 RS485
Environmental	
Ambient temperature range	-25...+60°C/-13...140°F with derating above 45°C/113°F
Relative humidity	4%...100% condensing
Sound pressure level, typical	75 dB(A) @1 m
Maximum operating altitude without derating	6560 ft / 2000 m
Physical	
Environmental protection rating	NEMA 4X (NEMA 3R for fan tray)
Cooling	Forced air over external heatsink
Dimension (H x W x D)	58.7 x 28.5 x 12.4 in (1491 x 725 x 315 mm)
Weight	210 lbs overall, 145 lbs electronic compartment, ≤ 33 lbs lbs each wiring box (full optional)
Mounting system options	Wall bracket, horizontal support
Available product variants	
Inverter power module TRIO-60.0-TL-OUTD-US-POWER MODULE	
DC wiring box options	
Input lugs for use with external combiner, DC disconnect switch, conduit entry	DCWB-1-TRIO-60.0-TL-OUTD-US
Touch-safe fuse holder 12 string combiner, DC disconnect switch, AFCI, DC SPD, conduit entry	DCWB-2-TRIO-60.0-TL-OUTD-US/12 INPUTS
Touch-safe fuse holder 16 string combiner, DC disconnect switch, AFCI, DC SPD, conduit entry	DCWB-2-TRIO-60.0-TL-OUTD-US/16 INPUTS
AC wiring box options	
AC output lugs, conduit entry	ACWB-TRIO-60.0-TL-OUTD-US
AC output lugs, conduit entry and AC SPD	ACWB-A-TRIO-60.0-TL-OUTD-US
AC output lugs, conduit entry, AC SPD and AC disconnect switch	ACWB-B-TRIO-60.0-TL-OUTD-US

Remark. Features not specifically listed in the present data sheet are not included in the product

For more information please contact
your local ABB representative or visit:

www.abb.com/solarinverters
www.abb.com

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Certificate



Certificate no.

CU 72170020 01

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Model Designation:

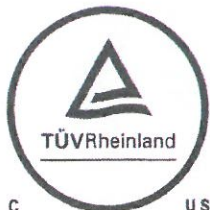
7

- A) Inverter:
 - 1) TRIO-50.0-TL-OUTD-US-480
 - 2) TRIO-60.0-TL-OUTD-US-480
 - B) DC Wiring Box:
 - 3) DCWB-1-TRIO-50.0-TL-OUTD-US-480
 - 4) DCWB-2-TRIO-50.0-TL-OUTD-US-480/12
 - 5) DCWB-2-TRIO-50.0-TL-OUTD-US-480/16
 - 6) DCWB-1-TRIO-60.0-TL-OUTD-US-480
 - 7) DCWB-2-TRIO-60.0-TL-OUTD-US-480/12
 - 8) DCWB-2-TRIO-60.0-TL-OUTD-US-480/16
- (Trademark ABB)

7

Appendix: 3 (31 pages)

Licensed Test mark:



Date of Issue

(day/mo/yr)

03/02/2017

Certificate



Certificate no.

CU 72170020 02

License Holder:

Power-One Renewable Energy Solution
4050 E Cotton Center Blvd., Bldg. 3
Phoenix AZ 85040
USA

Manufacturing Plant:

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contd.

Model Designation:

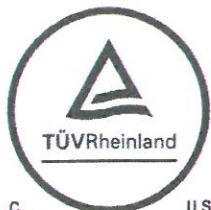
C) AC Wiring Box:

- 9) ACWB-TRIO-50.0-TL-OUTD-US-480
- 10) ACWB-A-TRIO-50.0-TL-OUTD-US-480
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- 14) ACWB-B-TRIO-60.0-TL-OUTD-US-480

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contd.

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CU 72170020 03

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Power-One Renewable Energy Solution
4050 E Cotton Center Blvd., Bldg. 3
Phoenix AZ 85040
USA

Manufacturing Plant:

Power-One Italy S.P.A.
Via San Giorgio 642
Terranuova Bracciolini
52028 (AR)
Italy

Test report no.: USA- 31682356 003

Client Reference: Robert White

Tested to: UL 1741:2010 R9.16
UL 62109-1:2014
Subject 1699B No. 2 (01-14-2013)
C22.2 NO. 107.1-01 (R2011)
CSA M-07:2013

Certified Product: Utility Interactive Inverter, DC/AC Wiring Box License Fee - Units

contd.

Rated Voltage: 1)-8) DC 1000V max.
9)-14) n/a (AC Wiring Box)

Rated Current: 1),3)-5) 100A max.
2),6)-8) 108A max.
9)-14) n/a (AC Wiring Box)

Rated Operating Ambient Temperature: -25°C to 60°C

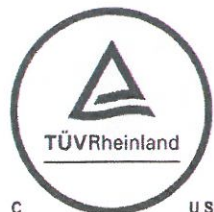
Output Ratings: 1),9)-11) 3 AC 480V, 60Hz;
66Arms max., 50kW max.

2),12)-14) 3 AC 480V, 60Hz;
77Arms max., 60kW max.

3)-8) n/a (DC Wiring Box)

contd.

Licensed Test mark:



Date of Issue

(day/mo/yr)

03/02/2017

Certificate



Certificate no.

CU 72170020 04

License Holder:

Power-One Renewable Energy Solution
4050 E Cotton Center Blvd., Bldg. 3
Phoenix AZ 85040
USA

Manufacturing Plant:

Power-One Italy S.P.A.
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Certified Product: Utility Interactive Inverter, DC/AC Wiring Box License Fee - Units

contd.

Also evaluated to

- UL 1741 Supplement SA for grid support functions, dated September 7, 2016.
- IEEE 1547, IEEE 1547.1,
- California Rule 21, and
- Hawaii-HECO

for Interconnecting Distributed Resources with Electric Power Systems.

To be installed according to the licensee's installation instructions.

Replaces Certificate CU72161854.

Licensed Test mark:



Date of Issue

(day/mo/yr)

03/02/2017

Harvest the Sunshine

Mono

380W PERC Half-Cell Module

JAM72S03 360-380/PR Series

Introduction

Assembled with high-efficiency PERC cells, the half-cell configuration of the modules offers the advantages of higher power output, better temperature-dependent performance, reduced shading effect on the energy generation, lower risk of hot spot, as well as enhanced tolerance for mechanical loading.



Higher output power



Lower temperature coefficient



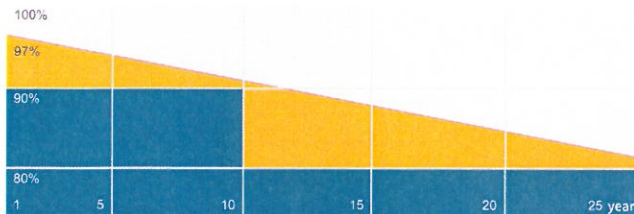
Less shading effect



Better mechanical loading tolerance

Superior Warranty

- 12-year product warranty
- 25-year linear power output warranty



■ JA Linear Power Warranty ■ Industry Warranty

Comprehensive Certificates

- IEC 61215, IEC 61730, IEC TS 62804, IEC 61701, IEC 62716, IEC 60068-2-68
- ISO 9001: 2015 Quality management systems
- ISO 14001: 2015 Environmental management systems
- OHSAS 18001: 2007 Occupational health and safety management systems
- IEC TS 62941: 2016 Terrestrial photovoltaic (PV) modules – Guidelines for increased confidence in PV module design qualification and type approval



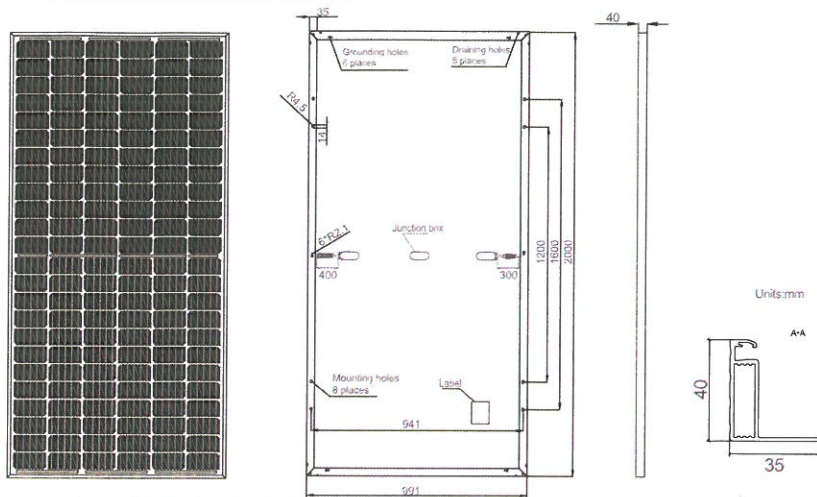
JASOLAR

www.jasolar.com

Specifications subject to technical changes and tests.
JA Solar reserves the right of final interpretation.



MECHANICAL DIAGRAMS



Remark: customized frame color and cable length available upon request

SPECIFICATIONS

Cell	Mono
Weight	22.5kg±3%
Dimensions	2000mm×991mm×40mm
Cable Cross Section Size	4mm ²
No. of cells	144 (6×24)
Junction Box	IP68, 3 diodes
Connector	MC4 Compatible(1000V) QC 4.10-35(1500V)
Packaging Configuration	27 Per Pallet

ELECTRICAL PARAMETERS AT STC

TYPE	JAM72S03 -360/PR	JAM72S03 -365/PR	JAM72S03 -370/PR	JAM72S03 -375/PR	JAM72S03 -380/PR
Rated Maximum Power(Pmax) [W]	360	365	370	375	380
Open Circuit Voltage(Voc) [V]	46.98	47.30	47.56	47.78	48.05
Maximum Power Voltage(Vmp) [V]	38.73	39.05	39.36	39.58	39.80
Short Circuit Current(Isc) [A]	9.87	9.92	9.97	10.03	10.09
Maximum Power Current(Imp) [A]	9.30	9.35	9.41	9.48	9.55
Module Efficiency [%]	18.2	18.4	18.7	18.9	19.2
Power Tolerance			0~+5W		
Temperature Coefficient of Isc(α _{Isc})			+0.051%/°C		
Temperature Coefficient of Voc(β _{Voc})			-0.289%/°C		
Temperature Coefficient of Pmax(γ _{Pmp})			-0.360%/°C		

STC Irradiance 1000W/m², cell temperature 25°C, AM1.5G

Remark: Electrical data in this catalog do not refer to a single module and they are not part of the offer.They only serve for comparison among different module types.

ELECTRICAL PARAMETERS AT NOCT

TYPE	JAM72S03 -360/PR	JAM72S03 -365/PR	JAM72S03 -370/PR	JAM72S03 -375/PR	JAM72S03 -380/PR
Rated Max Power(Pmax) [W]	266	270	274	278	281
Open Circuit Voltage(Voc) [V]	43.48	43.80	44.06	44.28	44.51
Max Power Voltage(Vmp) [V]	35.81	36.11	36.37	36.59	36.81
Short Circuit Current(Isc) [A]	7.90	7.94	7.98	8.02	8.08
Max Power Current(Imp) [A]	7.44	7.48	7.53	7.58	7.64

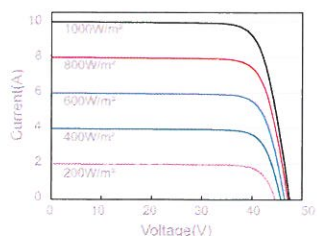
NOCT Irradiance 800W/m², ambient temperature 20°C, wind speed 1m/s, AM1.5G

OPERATING CONDITIONS

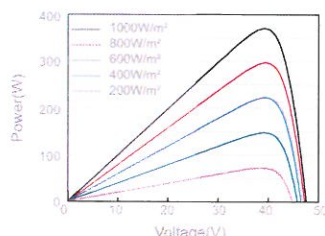
Maximum System Voltage	1000V/1500V DC(IEC)
Operating Temperature	-40°C~+85°C
Maximum Series Fuse	30A
Maximum Static Load,Front	5400Pa
Maximum Static Load,Back	2400Pa
NOCT	45±2°C
Application Class	Class A

CHARACTERISTICS

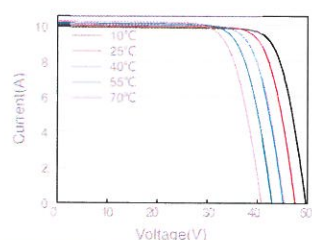
Current-Voltage Curve JAM72S03-370/PR



Power-Voltage Curve JAM72S03-370/PR



Current-Voltage Curve JAM72S03-370/PR



**VILLAGE OF HAMPSHIRE
MUNICIPAL CODE**

CHAPTER 5

BUILDING

ARTICLE-18

SOLAR ENERGY SYSTEMS

5-18-1. PURPOSE. The purpose of this Article is to:

- A. Establish reasonable and uniform regulations for the location, installation, operation, maintenance, and decommissioning of Solar Energy Systems (SES);
- B. Assure that development and production of solar-generated electricity via Solar Energy Systems in the Village is safe;
- C. Minimize any potentially adverse effects of Solar Energy Systems on adjoining properties and the general community;
- D. Promote the supply of sustainable and renewable energy resources, such as Solar Energy Systems, in support of national, state, and local goals; and
- E. Facilitate energy cost savings and economic opportunities for Village residents and businesses.

5-18-2 DEFINITIONS. When used in this Article the following terms shall have the meanings herein ascribed to them:

Abandoned SES: An SES that has not been maintained in or repaired to Operating Condition within the applicable timeframe set forth in this Article, or for which the owner has not made all submissions required pursuant to this Article.

Height: The vertical distance measured from grade to the highest point of a structure.

Operable Condition: The condition of being capable of operating at full capacity while meeting all applicable requirements set forth in this Article.

Photovoltaic Cell: A semiconductor device that converts solar energy directly into electricity.

Solar Collector: A professionally manufactured device, structure, or part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, or electrical energy.

Solar Collector Surfaces: Any part of a solar collector that absorbs solar energy for use in the collector's energy transformation process. A solar collector surface does not include frames, supports, or mounting hardware.

Solar Energy System (SES): An active or passive system for which the primary purpose is to convert solar energy into thermal, mechanical, or electrical energy for storage and use.

Solar Energy System, Building Integrated ("SES- BI"): An SES that is accessory to a principal use and that is an integral part of a principal or accessory building, rather than a separate mechanical device,

and that replaces or substitutes for an architectural or structural part of the building. SES- BI include, but are not limited to, photovoltaic or hot water systems that are contained within roofing materials, skylights, shading devices, and similar architectural components.

Solar Energy System – Building Mounted (“SES- BM”): An SES that is accessory to a principal use and professionally mounted on the roof of a principal building, or on an accessory structure if allowed by the Village’s Building Code. A SES- BM can be flush mounted or non- flush mounted.

Solar Energy System, Building Mounted – Flush Mounted: An SES- BM is deemed to be flush mounted when it is mounted to a finished roof surface where the solar collector, once installed, projects no further than six (6) inches in height beyond the roof surface.

Solar Energy System, Building Mounted – Non-Flush Mounted: A SES- BM is deemed to be non-flush mounted when it is mounted to a finished roof surface where the solar collector, once installed, projects more than six (6) inches in height beyond the roof surface.

Solar Energy System - Ground Mounted Solar Energy System (SES-GM): A free- standing SES that is accessory to a principal use and is placed on or mounted to the ground.

5-18-3 GENERAL REGULATIONS. Except as specifically provided otherwise in this Article, a Solar Energy System shall comply with the following general regulations:

- A. Applicability. Any new solar energy system, and any upgrade, modification, or change to an existing solar energy system which significantly alters the size or placement of the system, shall comply with the requirements of this Article.
- B. Location. An SES may be established in the Village only as an accessory structure and use, and only in the zoning districts and locations expressly authorized by this Article.
- C. Compliance with Laws. All SES shall comply with all applicable Village, state, and federal laws and regulations, including, without limitation, the provisions of this Article, and the Village Code, including but not limited to all Village building Codes.
- D. Compliance with Permits. All SES shall comply with all applicable SES permits issued pursuant to this Article, including, without limitation, all conditions imposed by the Village as a condition of issuance of such permits.
- E. Interference with Utilities, Roads, and Neighboring Properties. No SES shall be operated in a manner so as to interfere with any public right- of-way or any utility system in the Village, or so as to interfere, by reason of glare, bright color, protrusion onto another property, or other reason, with the reasonable use and enjoyment of any other property, private or public, in the Village.
- F. General Engineering Regulations. Each SES shall conform to all applicable industry standards, including, without limitation, the standards developed by the American National Standards Institute (ANSI).
- G. General Installation Regulations.
 - 1. SES facilities must be installed according to manufacturer specifications.
 - 2. All necessary electrical connections must be made by a licensed electrician.

3. All electrical lines connecting to an SES not installed on a primary structure shall be installed underground.

H. Signage.

1. No SES shall contain or display any advertising material, writing, picture, or signage other than warning signage or manufacturer or ownership information; provided, the area of any sign displaying the identification of or information relating to the manufacturer or owner of the SES shall be no larger than one square foot.

2. No flag, decorative sign, streamers, pennants, ribbons, spinners or waving, fluttering or revolving devices shall be attached to any portion of an SES.

I. Architectural Standards. The design, materials, and location of all proposed SES facilities shall be compatible with neighboring buildings.

J. Use and Energy Production Restrictions.

1. An SES must be an accessory use to another use on the subject property and shall not be permitted as a primary “stand- alone” use.

2. The primary purpose of the SES shall be the production of energy for consumption on the property on which the SES is located.

3. An SES shall not be constructed for the sole purpose of energy production for wholesale or retail sale purposes; provided, however, that energy produced in excess of on- site consumption may be sold back to the electric utility service provider that serves the subject property for use with the existing energy grid.

4. Where storage batteries or electrical transformers are utilized as part of an SES, such batteries or transformers shall be clearly labeled with appropriate warnings, and shall be securely enclosed or otherwise contained so as to minimize potential electrical shock, fire, or explosion.

K. Maintenance.

1. SES facilities shall be maintained in Operable Condition at all times, except for reasonable periods of maintenance or repair.

2. Should an SES become inoperable (not in Operable Condition), or should any part of the SES become damaged, or should an SES violate a permit condition, the owner of the SES shall cease operations immediately and remedy the condition within 90 days after receipt of a notice from the Village regarding the condition; provided, however, that if the condition presents an immediate threat to the public health, safety, or welfare, the owner of the SES shall promptly remedy the condition, with or without any notice from the Village.

L. Decommissioning.

1. Any SES that is not in Operable Condition for a period exceeding 30 consecutive days shall be deemed abandoned. The owner of an abandoned SES and the owner of the property on

which the SES is located shall be responsible for and shall cause the removal of any abandoned SES and all related equipment and appurtenances within 30 days after receipt of a notice of abandonment from the Village.

2. Any abandoned SES that is not removed within 30 days after receipt of notice of abandonment shall be deemed a public nuisance, which nuisance the Village shall have the right, but not the obligation, to summarily abate by removing the SES and all related equipment and appurtenances, and to charge against and collect from the owners, jointly and severally, the costs and expenses of such removal.

3. Upon removal of the SES, the subject property shall be restored to its original pre- SES construction condition.

5-18-4. ADDITIONAL REGULATIONS FOR SOLAR ENERGY SYSTEMS (SES)

A. Building Mounted Solar Energy Systems (SES- BM)

1. Permitted Locations.

a) SES- BM, when flush-mounted, shall be a permitted use in all zoning districts in the Village.

b) SES- BM, when non-flush mounted, shall be a permitted use only in the B-1, B-2, B-3 and HC Districts, and in the M-1, M-2, M-3 and O-M Districts; and an SES-BM, when non-flush mounted, may not be installed in any Residential Zoning District in the Village.

c) Except as otherwise expressly provided in this Article, all SES- BM shall comply with all applicable regulations of the zoning district in which such use and structures are located, including all regulations applicable to accessory uses and structures, and all applicable requirements of this Article.

d) An SES-BM may be mounted only on a lawfully constructed and existing principal or accessory use.

e) In any Residential Zoning District, no SES-BM shall be mounted on the front façade of any structure.

2. Installation. All SES- BM may be structurally attached to the roof of a building, if otherwise in accordance with the Village's Building Codes.

a) An SES- BM can be installed on the principal structure of a lot or on an accessory structure if allowed by Village Building Codes.

b) An SES- BM shall occupy a maximum of 80% of the roof area unless otherwise specifically allowed by the Village; and in no case shall occupy more than 100% of the total roof area.

c) An SES- BM, when non-flush mounted, may be installed only on a building with a flat roof.

d) An SES- BM shall not extend more than two (2) feet beyond the exterior perimeter of the building on which it is mounted, as measured horizontally from the façade or roof edge on which it is mounted.

3. Height.

a) In a Residential Zoning District, an SES- BM, and any portion thereof, shall extend no more than five (5) feet above the roof of the structure on which it is mounted, and in no case shall it exceed the requirement of maximum building height of the zoning district in which it is located.

b) In any Business or Industrial Zoning District, an SES-BM, and any portion thereof, shall extend no more than fifteen (15') feet above the highest point of the roof of the structure on which it is mounted.

ALTERNATIVE >

- *An SES-BM, when flush mounted, shall not extend beyond eight (8") inches above the roof surface of a pitched roof.*
- *An SES-BM, when non-flush mounted, shall not extend beyond three (3') feet measured parallel to the roof surface of a pitched roof.*
- *An SES-BM when attached to a flat roof shall not extend beyond four (4') feet measured parallel to the roof surface, unless it is completely concealed by a parapet wall.*

B. Building-Integrated Solar Energy System (SES- BI).

1. Permitted Locations. An SES- BI shall be a permitted use in all zoning districts in the Village.

2. Applicable Regulations. Except as otherwise expressly provided in this Article, any SES- BI shall comply with all applicable regulations of the zoning district in which such use and structures are located, including all regulations applicable to accessory uses and structures, and all applicable requirements of this Article.

3. Installation.

a) An SES- BI shall occupy no more than 80% of the roof area unless otherwise specifically approved by the Village.

b) An SES- BI can be installed as part of the principal structure of a lot or of an accessory structure if allowed by Village Building Codes..

C. Ground-Mounted Solar Energy Systems (SES-GM).

1. Permitted Locations. An SES-GM may be installed in the B-1, B-2, B-3 and HC Districts, and in the M-1, M-2, M-3 and O-M Districts, but only upon issuance of a special use permit; an SES-BM may not be installed in any Residential Zoning District in the Village.

2. Applicable Regulations. Except as otherwise expressly provided in this Article, any SES-GM shall comply with all applicable regulations of the zoning district in which such use and structures are located, including all regulations applicable to accessory uses and structures, and all applicable requirements of this Article.

3. Setbacks. An SES-GM shall be located within the buildable area of a zoning lot, and shall be set back not less than a distance of one times the actual height of the system, or 10 feet, whichever is less.

ALTERNATIVE >

An SES-GM shall not be located within the required front yard or any corner side yard; and shall be installed outside any easement area.

There shall be no guy-wires used with any SES-GM.

4. Lot Coverage. The total solar panel surface area of an SES-GM shall not exceed 1% of the total lot area.

5. Installation. An SES-GM shall be installed in conformance with the following standards:

- a) No SES-GM shall be located in the front yard of any property.
- b) No part of a SES-GM shall be located in or protrude into a dedicated easement.

6. Height. No portion of any SES-GM, when oriented at maximum tilt, shall exceed ten (10') feet in height.

ALTERNATIVE >

- *Height shall be subject to special use conditions imposed by the Village.*
- *The minimum clearance between the lowest point of an SES-GM and the surface of the ground to which is it mounted shall be ten (10') feet.*

7. Screening. An SES-GM shall be screened to the extent reasonably practicable through the use of architectural features, earthen berms, landscaping materials, or other screening technique which harmonizes with the character of the property on which it is located and the surrounding area.

5-18-5: APPLICATION FOR SES.

A. The applicant for installation of any SES shall submit the following:

1. Generally Applicable Requirements.

- a) Name, address and telephone number of the applicant.
- b) Name, address and telephone number of the person, firm or corporation constructing and installing the SES.

- c). A copy of the directions issued by the manufacturer of the proposed SES for the proper installation, operation, and maintenance of the SES.
- d). A certificate of compliance demonstrating the system has been tested and approved by the Underwriters Laboratories (UL) or other approved independent testing agency.
- e). Approval letter from the local electric utility company, if the system is to be connected to the energy grid.
- f). Any other information required by the Village to show full compliance with this and other applicable laws, ordinances, rules and regulations.

2. An engineering plan, which must include, without limitation, the manufacturer's engineering specifications of the solar collectors and devices including wattage capacity, dimensions of such collectors, mounting mechanisms and/or foundation details, and structural requirements.

B. The applicant for installation of any SES- BM or SES- BI shall, in addition, submit an elevation drawing and/or photographs showing the location, size and design details of the proposed SES- BM or SES- BI.

C. An applicant for installation of a SES-GM shall, in addition, submit the following:

- 1. A site plan, drawn to scale, signed and sealed by a Professional Engineer licensed in the State of Illinois, and including, without limitation, the following:
 - a) The existing and proposed contours, at a minimum of two- foot intervals;
 - b) The location, setbacks, exterior dimensions and square footage of all structures on the subject property;
 - c) The location and size of any and all existing waterways, wetlands, one hundred-year floodplains, sanitary sewers, field drain tiles, storm sewer systems, aquifers, and water distribution systems on the subject property; and
 - d) The location of any overhead or underground power lines and utility easements.

D. An applicant for any special use related to an SES shall as a condition of approval, sign and deliver to the Village Clerk an acknowledgement, on a form supplied by the Village, that said owner shall be responsible for any and all enforcement costs and costs of remediation resulting from any violation of this Article, including but not limited to costs related to maintenance and/or decommissioning as describe in this Article. Such costs shall include but not be limited to costs of removal, costs of restoration of the property after removal, and Village legal or other consultant fees incurred in relation thereto.

E. Application Fee. TBD.

5-18-6: EXEMPTIONS. Any SES used to generate electricity for stand- alone light fixtures, including streetlights or area lights, or for stand-alone regulatory signs, shall be exempt from the requirements of this Article.

