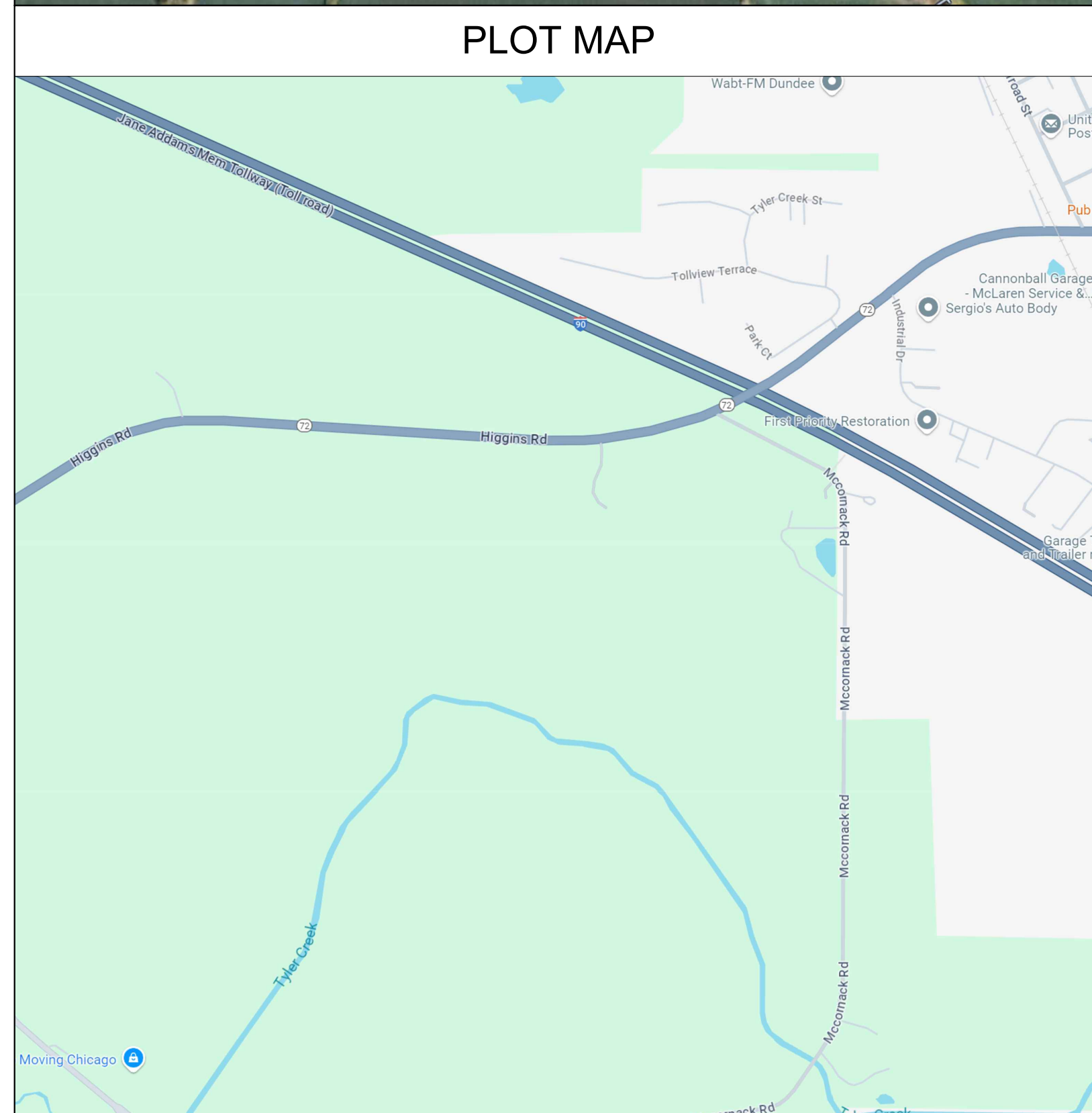
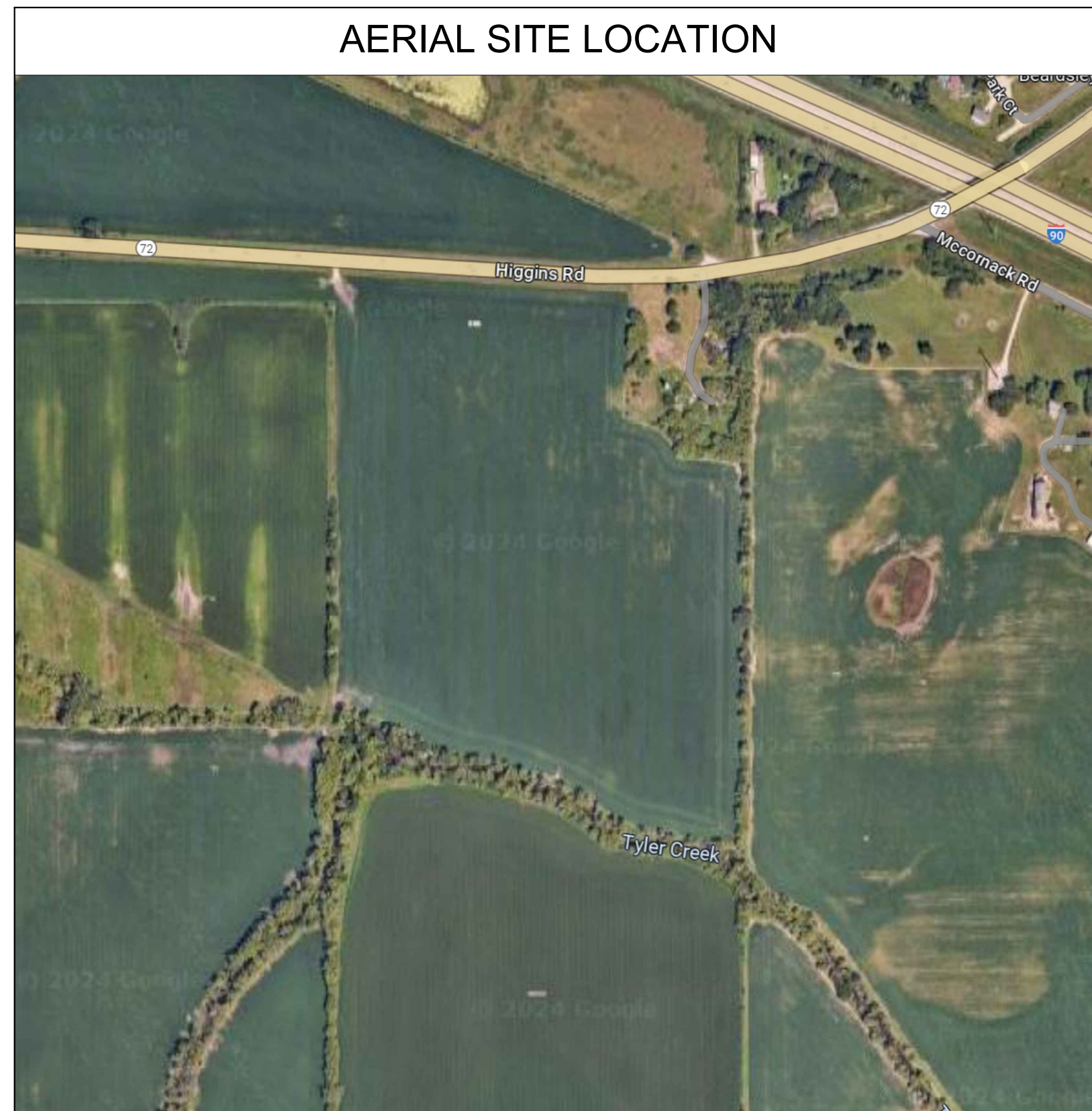
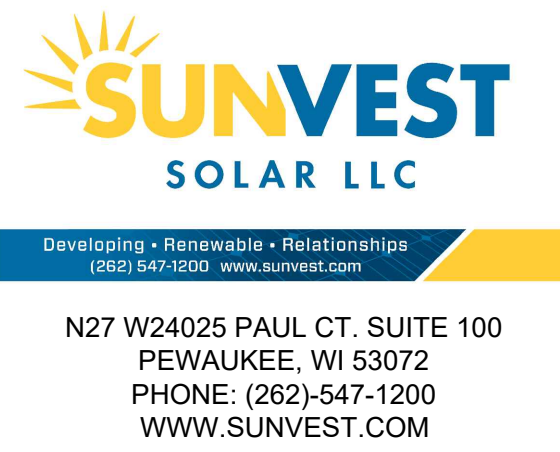


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(42.0969, -88.3865)

| PV SYSTEM DETAILS | |
|------------------------------|--|
| ARRAY TYPE: | SINGLE ACCESS TRACKER (SAT) |
| DC SYSTEM SIZE: | 6.7968 MW DC |
| DC SYSTEM VOLTAGE: | 1500 V |
| AC SYSTEM SIZE: | 5.000 MVA @PF=1 |
| DC/AC RATIO: | 1.35936 |
| MODULE QTY/TYPE: | (11,520) HANWHA QCELL Q.PEAK XL-G11S SERIES |
| MODULE WATTAGE: | 590 W |
| INVERTER QTY/TYPE: | (40) KACO 125 TL3 M1 WM OD (XL) 600V:120.3A |
| INVERTER AC OUTPUT : | (40) 125 KVA |
| STRING SIZE: | (24) MODULES PER STRING (480) TOTAL STRINGS |
| OPTIMIZER TYPE: | N/A |
| RACKING: | TBD |
| CLAMPS: | NA |
| AZIMUTH: | 90° |
| INTER-ROW SPACING: | 18'-0" (CENTER TO CENTER SPACING) |
| ARRAY TILT: | +/- 52° (SAT) |
| SITE INFORMATION | |
| FENCE LINEAR FEET: | 4166' L.F. |
| APPROXIMATE SITE ACREAGE: | 22.93 ACRES (INSIDE FENCE) |
| UTILITY INFORMATION | |
| UTILITY COMPANY: | COMED |
| UTILITY COMPANY CONTACT: TBD | PHONE: NA |
| UTILITY PROJECT MANAGER: TBD | PHONE: NA |
| INTERCONNECTION VOLTAGE: | 12.47 KV |

[illegible]

ELECTRICAL ENGINEER STAMP:



PROFESSIONAL ENGINEER STAMPS

ISSUANCE:

*INTERCONNECTION
PLAN SET*

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.

LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.

LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.

It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

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| DRAWN BY: A.W. | | CHECKED BY: XXX | |
| SCALE: AS NOTED | | JOB NO: | |

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
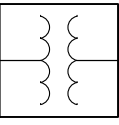

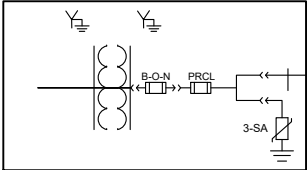

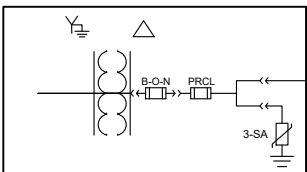

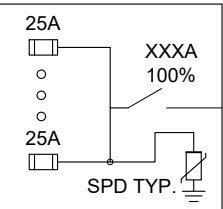


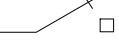




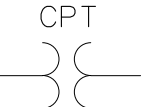

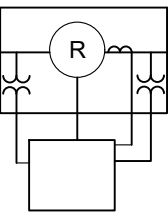
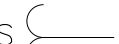
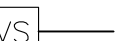
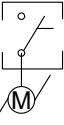


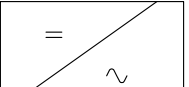

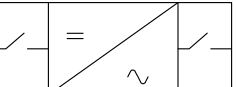

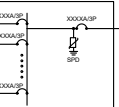

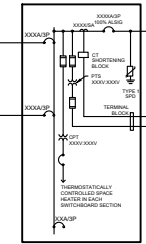
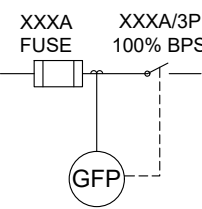
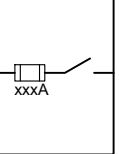
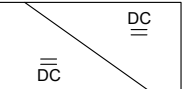
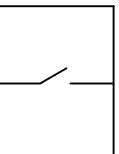

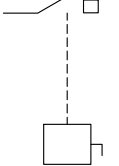
SHEET TITLE





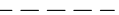








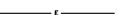







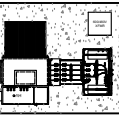
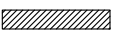
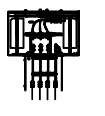
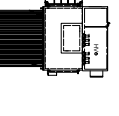

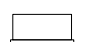





TITLE SHEET

DWG. NO.

T-1.00


SYMBOLS LEGEND:

| ELECTRIC SYMBOLS: | | | |
|---|---|---|---|
|  | FUSE |  | AUXILIARY TRANSFORMER |
|  | SURGE PROTECTION DEVICE/ SURGE ARRESTER MOV STYLE |  | WYE/WYE TRANSFORMER W/ INTERNAL FUSING AND SURGE ARRESTERS |
|  | CIRCUIT BREAKER |  | WYE/DELTA TRANSFORMER W/ INTERNAL FUSING AND SURGE ARRESTERS |
|  | GROUND |  | STRING COMBINER BOX |
|  | GROUNDING WYE | | |
|  | DELTA | | |
|  | MV DISCONNECT | | |
|  | NON-FUSED CUTOUT |  | RESISTOR |
|  | POTENTIAL TRANSFORMER (PT) |  | RECLOSER W/ VACUUM INTERRUPTER |
|  | CONTROL POWER TRANSFORMER | | |
|  | CURRENT TRANSFORMER (CT) |  | RECLOSER W/ MULTIFUNCTIONAL RELAY |
|  | CURRENT SENSOR (CS) | | |
|  | VOLTAGE SENSOR (VS) |  | TRACKER MOTOR |
|  | METER |  | PV MODULE |
|  | INVERTER |  | INDICATING LIGHT |
|  | INVERTER WITH INTEGRATED DISCONNECT |  | SPECIAL PURPOSE OUTLET CONNECTION |
|  | PANELBOARD |  | SHUNT-TRIP |
|  | MAIN DISTRIBUTION SWITCHBOARD |  | FUSED BOLTED-PRESSURE SWITCH (BPS) W/ GROUND-FAULT-PROTECTION (GFP) |
|  | FUSED DISCONNECT |  | DC/DC OPTIMIZER/CONVERTER |
|  | NON FUSED DISCONNECT |  | PRIMARY REVENUE METER POLE |
|  | AIRBREAK (GOAB) DISCONNECT SWITCH | | |

| SITE LAYOUT SYMBOLS: | |
|---|---------------------------------|
|  | PARCEL BOUNDARY |
|  | PARCEL SETBACKS |
|  | ARRAY FENCE |
|  | WETLANDS |
|  | WETLAND SETBACK |
|  | FLOODPLAIN |
|  | FLOODPLAIN SETBACK |
|  | BUILDING |
|  | BUILDING SETBACK |
|  | INVERTER STRINGING (11 STRINGS) |
|  | INVERTER STRINGING (12 STRINGS) |
|  | INVERTER STRINGING (13 STRINGS) |
|  | DC TRENCHING |
|  | AC TRENCHING |
|  | POWER UNDERGROUND |
|  | POWER OVERHEAD |
|  | ACCESS ROAD |
|  | MODULE |
|  | TORQUE TUBE |
|  | ACCESS GATE |
|  | UTILITY/CUSTOMER POLES |
|  | EQUIPMENT PAD |
|  | INVERTER RACK |
|  | MAIN SWITCHBOARD |
|  | TRANSFORMER |
|  | TRACKER MOTOR |
|  | DC COMBINER BOX |
|  | POLLINATOR |
|  | TREE (VEGETATION) |
|  | SHRUB (VEGETATION) |
|  | AUXILLARY TRANSFORMER |
|  | BESS EQUIPMENT PAD |

GENERAL NOTES/REQUIREMENTS:


- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES NOT INCLUDED IN THE B.O.M, AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
- 1.2 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK:
- 1.3 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
- 1.4 ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
- 1.5 THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
- 1.6 CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.
- 1.7 PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
- 1.8 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
- 1.9 ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
- 1.10 THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.
- 1.11 THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC.
- 1.12 ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.
- 1.13 BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY AQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- 1.14 THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
- 1.15 UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
- 1.16 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- 1.17 THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
- 1.18 EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.
- 1.19 IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER, LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.
- 1.20 THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
- 1.21 DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLIMENT ONE ANOTHER, AND WHAT IS SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.
- 1.22 ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIREMENTS.
- 1.23 ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.
- 1.24 THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 30" BELOW FINISHED GRADE.



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ELECTRICAL ENGINEER STAMP:



PROFESSIONAL ENGINEER STAMPS

ISSUANCE:

INTERCONNETION
PLAN SET

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| SCALE: AS NOTED | | JOB NO: | |

SV CSG SUN TRUST
SOLAR, LLC
(42.0969, -88.3865)

SHEET TITLE

GENERAL NOTES
AND SYMBOLS

DWG. NO.

G-1.00

GENERAL NOTES/REQUIREMENTS:

2. PROJECT COORDINATION:

- 2.1

THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
- 2.2

THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
- 2.3

THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
- 2.4

SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONE MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
- 2.5

ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
- 2.6

EXACT LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL AND MILLWORK PLANS. ALL OUTLET AND EQUIPMENT LAYOUTS SHALL BE VERIFIED AND COORDINATED WITH WORK OF OTHER TRADES.
- 2.7

PROVIDE TEMPORARY LIGHTING AND POWER IN ACCORDANCE WITH ARTICLE 305 OF THE NEC. TEMPORARY LIGHTING FIXTURES IN UNFINISHED AREAS SHALL REMAIN CONNECTED UNTIL REMOVAL IS REQUESTED BY THE CONTRACTOR.
- 2.8

THE CONTRACTOR SHALL CONTACT THE BUILDING MANAGER TO OBTAIN A COPY OF THE GENERAL REQUIREMENTS AND/OR CONDITIONS TO BE USED FOR THIS PROJECT.

3. CONNECTORS:

- 3.1

DO NOT CROSS MATE CONNECTORS ON ANY SYSTEM. ENSURE THAT CONNECTOR SELECTION MEETS THE LEGAL BASIS THE EXCLUDE CROSS-CONNECTIONS OF:

• PRODUCT NORMS ((IEC 62852 (EN62852)) AND UL 6703 PRODUCT NORM RESP. UL 1703 MODULE NORM

• INSTALLATION NORMS AND LOCAL REGULATIONS

• ASSEMBLY INSTRUCTIONS OF THE MANUFACTURER

VALID PV STANDARDS (IEC 60364-7-712:2017; E343181) STATE THAT "MALE AND CONNECTORS [...] SHALL BE OF THE SAME TYPE FROM THE SAME MANUFACTURER" AND THAT UL CERTIFICATION FOR CONNECTORS ONLY APPLIES IF PRODUCTS FROM THE SAME PRODUCT FAMILY HAVE BEEN MATED

FEMALE

4. WARRANTIES:

- 4.1

ALL MATERIALS AND EQUIPMENT SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- 4.2

WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF 5 YEARS AFTER FINAL ACCEPTANCE BY OWNER
- 4.3

OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

5. PERMITS:

- 5.1

CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

6. RACEWAYS:

- 6.1

ALL CONDUIT SHALL BE MINIMUM SIZE OF 1/2" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE PVC. ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE SCH. 40 PVC. CHANGE TO SCH. 80 PVC CONDUIT BEFORE EXITING OUT OF UNDERGROUND SECTIONS. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
- 6.2

ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
- 6.3

CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
- 6.4

ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
- 6.5

ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
- 6.6

ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
- 6.7

ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS. RACEWAY IN MECHANICAL ROOMS, BASEMENTS AND CRAWL SPACES MAY BE SURFACE MOUNTED.
- 6.8

FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1-1/4", AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.
- 6.9

THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED. FOR ALL SLAB PENETRATIONS THE METHOD, DEPTHS AND LOCATIONS SHALL BE PRE-APPROVED BY THE BUILDING ENGINEER PRIOR TO THE START OF WORK.
- 6.10

THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
- 6.11

EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.
- 6.12

ALL PENETRATIONS THROUGH FLOORS SHALL BE FIRE STOPPED AND SEALED WITH APPROVED SEALANT.
- 6.13

ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY, SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT METALLIC CONDUIT.
- 6.14

SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS IN HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS IN METAL, BEAM CLAMPS IN FRAMEWORK AND WOOD SCREWS IN WOOD. NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES.
- 6.15

DO NOT RUN RACEWAYS CLOSER THAN 6 INCHES WHEN PARALLEL TO HOT WATER OR STEAM PIPES. WHEN CROSSING WATER OR STEAM PIPES CROSS A MINIMUM OF 3 INCHES ABOVE. IF CROSSING BELOW IS UNAVOIDABLE, PROVIDE DRIP SHIELDS EXTENDING 6 INCHES BEYOND THE WATER OR STEAMPIPE. BOXES INSTALLED IN PROXIMITY TO WATER OR STEAM PIPE SHALL BE RATED NEMA 4X.

7. BOXES:

- 7.1

INTERIOR JUNCTION BOXES SHALL BE SHEET STEEL. EXTERIOR JUNCTION BOXES SHALL BE NONMETALLIC, WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS.

8. WIRING:

- 8.1

ALL WIRE SHALL BE MADE OF COPPER WITH INSULATION SUITABLE FOR THE APPLICABLE ENVIRONMENT AND VOLTAGE. CONTRACTOR SHALL GET APPROVAL FOR ANY OTHER WIRE TYPE.
- 8.2

UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
- 8.3

ALL ELECTRICAL TERMINAL TEMPERATURE RATINGS ASSUMED TO BE 75° C UNLESS SITE CONDITIONS REQUIRE OTHERWISE.
- 8.4

WIRE SIZES SHALL BE INCREASED WHERE NECESSARY TO LIMIT AC VOLTAGE DROP TO 1.5% TOTAL FROM INVERTER TO POINT OF COMMON COUPLING

9. GROUNDING:

- 9.1

PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250 AND 690, OF THE NEC, AND AS SPECIFIED HEREIN.
- 9.2

ALL BRANCH CIRCUITS AND FEEDERS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.

10. MECHANICAL SYSTEMS POWER:

- 10.1

DISCONNECT SWITCHES SHALL BE HEAVY DUTY, QUICK MAKE, QUICK BREAK TYPE, ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER, IN PROPER NEMA RATED ENCLOSURES. FUSED OR NON-FUSED AS REQUIRED. DISCONNECT SWITCHES SHALL BE PROVIDED BY CONTRACTOR, EXCEPT AS NOTED ON DRAWINGS.
- 10.2

THE RATING FOR DISCONNECT SWITCHES SHALL BE THE SAME AS, OR GREATER THAN, THE PROTECTIVE DEVICE SERVING THE EQUIPMENT.
- 10.3

A STRUT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.

11. PANEL BOARDS:

- 11.1

PANELBOARDS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, AND SILVER OR TIN-PLATED JOINTS. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN. HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48 IN. HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED, 5-KNUCKLE STEEL WITH NONFERROUS PINS, 180-DEG OPENING, LOCATED A MAXIMUM 26 IN. ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM GUTTER SPACES FOR LIGHTING PANELS SHALL BE 5- BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER.
- 11.2

PROVIDE A NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR EACH PANEL AFFECTED BY THIS PROJECT.
- 11.3

WHEREVER POSSIBLE, PANELBOARDS SHALL BE RECESSED IN WALL. SURFACE MOUNTED PANELBOARDS SHALL BE MOUNTED ON A PLYWOOD BACKBOARD. PLYWOOD SHALL BE MOUNTED ON TOP OF GYPSUM BOARD. PLYWOOD SHALL BE PAINTED ON ALL SIDES AND EDGES. COORDINATE WITH OWNER FOR COLOR.
- 11.4

PROVIDE LIGHTNING SURGE PROTECTION FOR MAIN SWITCHBOARD OR MAIN SERVICE PANEL BOARD. PROVIDE GROUNDING OF SURGE DEVICE PER THE NEC.
- 11.5

CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.
- 11.6

CIRCUIT SCHEDULES ARE INTENDED TO REPRESENT THE GENERAL WIRING NEEDS OF THE EQUIPMENT SERVICED FROM THE PANEL. THE EXACT CIRCUIT ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND PANELS ACTUALLY FURNISHED.

12. IDENTIFICATION:

- 12.1

REFER TO NEC LABELS DRAWING FOR LABELING REQUIREMENTS
- 12.2

INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDE STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT.
- 12.3

APPLY CABLE/CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET.

13. RECORD DRAWINGS:

- 13.1

THE CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS. THE APPROVAL OF SHOP DRAWINGS SHALL ONLY BE CONSTRUED TO APPLY TO THE GENERAL LAYOUT AND CONFORMANCE TO THE DESIGN CONCEPT OF THE PROJECT AND FOR THE COMPLIANCE WITH THE GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL RETAIN THE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- 13.2

PROVIDE SHOP DRAWINGS FOR THE LIGHTING FIXTURES, PANEL BOARDS, CIRCUIT BREAKERS, WIRING DEVICES, FIRE ALARM DEVICES AND SEALS FOR FIRE AND WATER STOPPING.
- 13.3

DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS.
- 13.4

UPON PROJECT COMPLETION, THE CONTRACTOR SHALL COMPLETE THE MARK UP OF ALL PROJECT DRAWINGS TO RECORD INSTALLED CONDITIONS.
- 13.5

REPRODUCIBLE "RECORD" DRAWINGS PREPARED IN CAD FORMAT SHALL BE PROVIDED AS INSTALLED CONDITIONS OF THE WORK. A FULL SIZE PRINT OUT OF THE "RECORD" DRAWING FILE SHALL BE PROVIDED AFTER COMPLETION OF THE INSTALLATION.
- 13.6

UPON COMPLETION AND ACCEPTANCE OF WORK, THE CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE THE PROPER OPERATIONS AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

14. PROTECTION OF WORK:

- 14.1

EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

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PEWAUKEE, WI 53072
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WWW.SUNVEST.COM

ELECTRICAL ENGINEER STAMP:



PROFESSIONAL ENGINEER STAMPS

ISSUANCE:

INTERCONNETION
PLAN SET

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set. LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set. LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set. It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

| | | | |
|-----------------|------------|-----------------|----------|
| 10 | | 21 | |
| 9 | | 20 | |
| 8 | | 19 | |
| 7 | | 18 | |
| 6 | | 17 | |
| 5 | | 16 | |
| 4 | | 15 | |
| 3 | | 14 | |
| 2 | 08/11/2025 | 13 | |
| 1 | 06/24/2025 | 12 | |
| 0 | 05/07/2025 | 11 | |
| REV | SET/DATE | REV | SET/DATE |
| DRAWN BY: A.W. | | CHECKED BY: XXX | |
| SCALE: AS NOTED | | JOB NO: | |

SV CSG SUN TRUST
SOLAR, LLC
(42.0969, -88.3865)

SHEET TITLE
GENERAL NOTES

DWG. NO.

G-2.00



ELECTRICAL ENGINEER STAMP:



PROFESSIONAL ENGINEER STAMPS

ISSUANCE:
**INTERCONNETION
PLAN SET**

SCALE: 1" = 100'

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
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| 1 | 06/24/2025 | 12 | |
| 0 | 05/07/2025 | 11 | |
| REV | SET/DATE | REV | SET/DATE |
| DRAWN BY: A.W. | | CHECKED BY: XXX | |
| SCALE: AS NOTED | | JOB NO: | |

**SV CSG SUN TRUST
SOLAR, LLC**
(42.0969, -88.3865)

SHEET TITLE
ARRAY LAYOUT

DWG. NO.

PV-1.00

| UTILITY INFORMATION | | | |
|------------------------------|-----------|--|--|
| UTILITY COMPANY: | COMED | | |
| UTILITY COMPANY CONTACT: TBD | PHONE: NA | | |
| UTILITY PROJECT MANAGER: TBD | PHONE: NA | | |
| INTERCONNECTION VOLTAGE: | 12.47 KV | | |

| PV SYSTEM DETAILS | |
|----------------------|---|
| ARRAY TYPE: | SINGLE AXIS TRACKER (SAT) |
| DC SYSTEM SIZE: | 6.7968 MW DC |
| DC SYSTEM VOLTAGE: | 1500 V |
| AC SYSTEM SIZE: | 5.000 MVA @PF=1 |
| DC/AC RATIO: | 1.35936 |
| MODULE QTY/TYPE: | (11,520) HANWHA QCELL: Q.PEAK XL-G11S SERIES |
| MODULE WATTAGE: | 590W |
| INVERTER QTY/TYPE: | (40) KACO 125 TL3 M1 WM OD (XL) 600:120.3A |
| INVERTER AC OUTPUT : | (40) 125 KVA |
| STRING SIZE: | (24) MODULES PER STRING (480) TOTAL STRINGS |
| OPTIMIZER TYPE: | N/A |



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ELECTRICAL ENGINEER STAMP:



PROFESSIONAL ENGINEER STAMPS

ISSUANCE:

**INTERCONNETION
PLAN SET**

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
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It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

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| REV | SET/DATE | REV | SET/DATE |
| DRAWN BY: A.W. | | CHECKED BY: XXX | |
| SCALE: AS NOTED | | JOB NO: | |

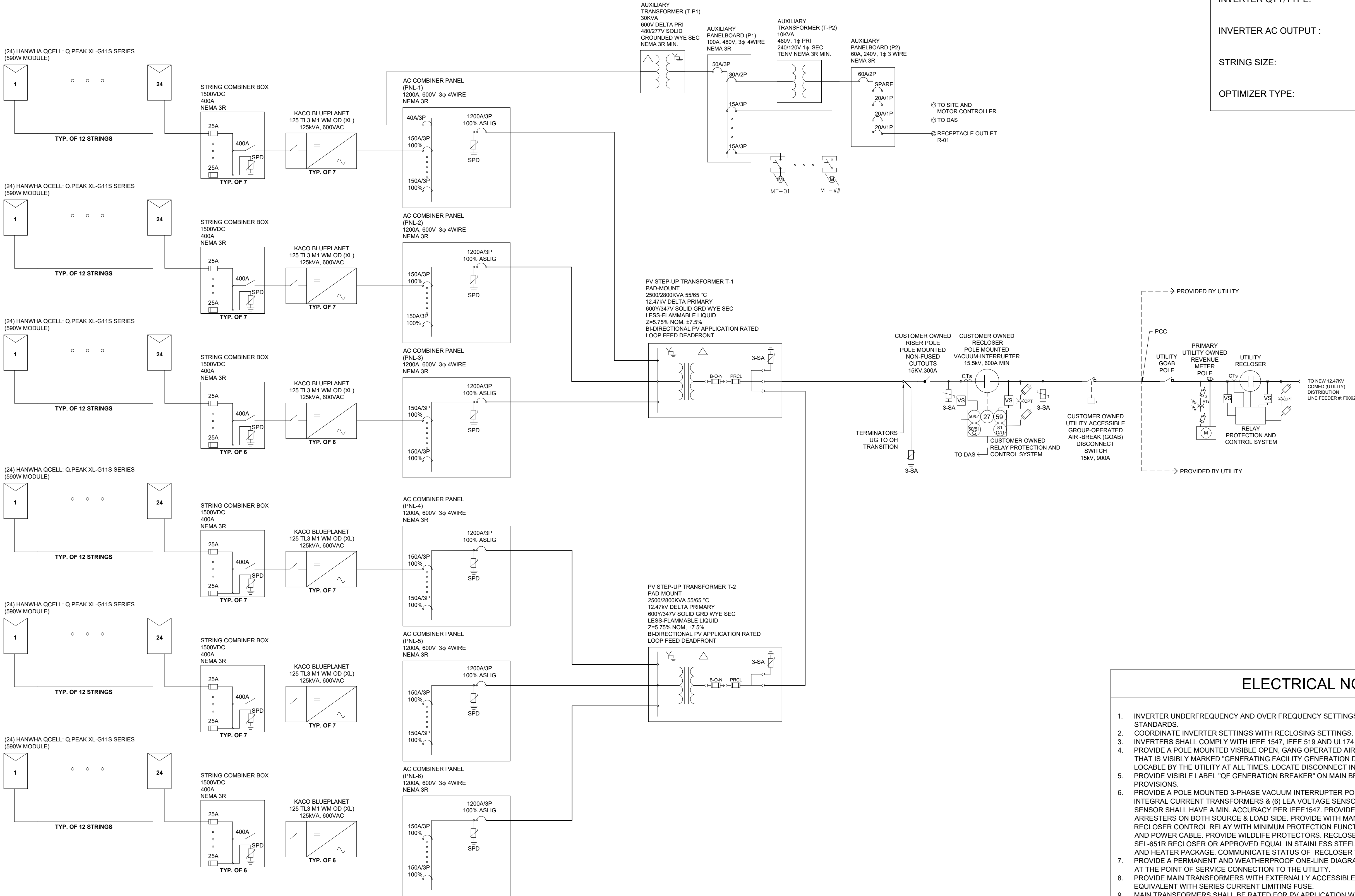
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SHEET TITLE

ONE LINE DIAGRAM

DWG. NO.

E-1.00



ELECTRICAL NOTES

1. INVERTER UNDERFREQUENCY AND OVER FREQUENCY SETTINGS SHALL BE COORDINATED WITH THE UTILITY STANDARDS.
2. COORDINATE INVERTER SETTINGS WITH RECLOSING SETTINGS.
3. INVERTERS SHALL COMPLY WITH IEEE 1547, IEEE 519 AND UL1741.
4. PROVIDE A POLE MOUNTED VISIBLE OPEN, GANG OPERATED AIR BREAK, LOAD BREAK DISCONNECT SWITCH THAT IS VISIBLY MARKED "GENERATING FACILITY GENERATION DISCONNECT" AND IS ACCESSIBLE TO AND LOCABLE BY THE UTILITY AT ALL TIMES. LOCATE DISCONNECT IN CLOSE PROXIMITY TO THE UTILITY METER. PROVIDE VISIBLE LABEL "OF GENERATION BREAKER" ON MAIN BREAKERS. BREAKERS SHALL HAVE LOTO PROVISIONS.
5. PROVIDE A POLE MOUNTED 3-PHASE VACUUM INTERRUPTER POLYMER RECLOSER, 15.5KV 600A MIN, WITH INTEGRAL CURRENT TRANSFORMERS & (6) LEA VOLTAGE SENSORS ON BOTH SIDES OF RECLOSER. VOLTAGE SENSOR SHALL HAVE A MIN. ACCURACY PER IEEE1547. PROVIDE RECLOSER WITH 120V CPT AND SURGE ARRESTERS ON BOTH SOURCE & LOAD SIDE. PROVIDE WITH MANUFACTURER FURNISHED ADVANCED RECLOSER CONTROL RELAY WITH MINIMUM PROTECTION FUNCTIONS SHOWN AND WITH CONTROL CABLE AND POWER CABLE. PROVIDE WILDLIFE PROTECTORS. RECLOSER SHALL BE TAVRIDA ELECTRIC WITH SEL-651R RECLOSER OR APPROVED EQUAL IN STAINLESS STEEL CONTROL CABINET WITH BATTERY BACKUP AND HEATER PACKAGE. COMMUNICATE STATUS OF RECLOSER TO DAS.
6. PROVIDE A PERMANENT AND WEATHERPROOF ONE-LINE DIAGRAM OF THE GENERATING FACILITY LOCATED AT THE POINT OF SERVICE CONNECTION TO THE UTILITY.
7. PROVIDE MAIN TRANSFORMERS WITH EXTERNALLY ACCESSIBLE AND REPLACEABLE BAY-O-NET FUSES OR EQUIVALENT WITH SERIES CURRENT LIMITING FUSE.
8. MAIN TRANSFORMERS SHALL BE RATED FOR PV APPLICATION WITH BI-DIRECTIONAL POWER FLOW CAPABILITY.
9. INTERRUPTING AND WITHSTAND RATINGS SHALL BE CONFIRMED DURING CONSTRUCTION DESIGN PROCESS.
10. DESIGN SHALL BE IN COMPLIANCE WITH NEC, COMED AND ALL OTHER APPLICABLE CODES AND STANDARDS.
11. OVERHEAD POLE TYPE CUTOUT RATED 15.5KV NOM. 110KV BIL. 300A, 12KA ASYM. WITHSTAND RATING. CUTOUT SHALL BE HUBBELL TYPE C SOLID BLADE OR APPROVED EQUAL.
12. PROVIDE A LOCAL DEDICATED SWITCH/DISCONNECT FOR MOTOR CONTROLLERS AND SITE CONTROLLERS

| Design Tolerances | | | |
|---|------------|------|-------------------------------|
| Description | Value (°C) | CF | Reference |
| Extreme annual min. DB mean temp. | -24.2 | 1.2 | NEC Table 690.7(A) |
| 2% average high temperature | 32.5 | 0.96 | NEC Table 310.15(B)(1) (90°C) |
| 2021 ASHREA TEMPERATURE VALUES: CHICAGO DUPAGE, IL, USA (WMO: 725305) | | | |

| IEEE C37.24-2017 Continuous Current Rating of Equipment | | |
|---|-------|---|
| Description | Value | Reference |
| 2% average high temperature (°C) | 32.5 | 2021 ASHREA TEMPERATURE VALUES: CHICAGO DUPAGE, IL, USA (WMO: 725305) |
| Temperature rise due to solar radiation (°C) | 15 | IEEE Std. C37.24-2017 |
| Continuous current capacity factor (CCCF) | 0.925 | IEEE Std. C37.24-2017 (A.2) |
| Nominal continuous current ratings of Pnl 1-6 (Amps) | 1200 | |
| Allowable continuous current rating of Pnl 1-6 (Amps) | 1110 | |
| Actual max continuous current of Pnl 1-6 (Amps) | 842.0 | |

| Panelboard Schedule | | | | | | | | | |
|---------------------|----------------|-------------------|-----------|--------|----------|-------------|-----------|-----------|--------|
| Panel | Inverter Count | Inverter kVA (AC) | Total kVA | V (AC) | FLA (AC) | FLA x 1.25* | SG Factor | Min. OCPD | OCPD |
| 1 | 7 | 125 | 875 | 600 | 842.0 | 842.0 | 1.087 | 915.2 | 1200** |
| 2 | 7 | 125 | 875 | 600 | 842.0 | 842.0 | 1.087 | 915.2 | 1200** |
| 3 | 6 | 125 | 750 | 600 | 721.7 | 721.7 | 1.087 | 784.4 | 1200** |
| 4 | 7 | 125 | 875 | 600 | 842.0 | 842.0 | 1.087 | 915.2 | 1200** |
| 5 | 7 | 125 | 875 | 600 | 842.0 | 842.0 | 1.087 | 915.2 | 1200** |
| 6 | 6 | 125 | 750 | 600 | 721.7 | 721.7 | 1.087 | 784.4 | 1200** |
| TOTAL | 40 | - | 5000 | 600 | 4811.3 | - | - | - | - |

* Does not apply for 100% rated devices
** 100% Rated Device

| Transformer Schedule | | | | | |
|----------------------|-------------|----------------|--------------|--------------|-----------|
| Xfmr | Panel Count | Inverter Count | Inverter kVA | Min Xfmr kVA | Xfmr kVA |
| 1 | 3 | 20 | 125 | 2500 | 2500/2800 |
| 2 | 3 | 20 | 125 | 2500 | 2500/2800 |

| Maximum DC Voltage Calculation | |
|--------------------------------------|---------------------------|
| PV module | Q.PEAK DUO XL-G11S.3 590W |
| Voc | 53.6 |
| Number of PV modules per string | 24 |
| Correction factor (%/C) | -0.27 |
| System Voc | 1457.29 |
| Inverter max. DC input voltage (Vdc) | 1500 |

| Maximum DC Current Calculation | |
|---|---------------------------|
| PV module | Q.PEAK DUO XL-G11S.3 590W |
| Isc (A)_nom | 13.74 |
| Rear Side Gain* | 10% |
| Isc (A)_max | 13.74 x 1.10 = 15.11 |
| Maximum string SC current (A) - NEC-690.8(A)(1)(1) | 15.11 x 1.25 = 18.89 |
| Maximum string SC current (A) - NEC-690.8(A)(1)(2)** | 15.4 |
| Minimum String OCPD (A) | 15.4 x 1.25 = 19.25 |
| String OCPD size | 25A |
| Max Number of strings per combiner | 12 |
| Maximum combiner SC current (A) | 15.4 x 12 = 184.80 |
| Minimum combiner conductor ampacity (A) | 184.8 x 1.25 = 231.0 |
| Inverter rated max. PV SC current (A) | 300 |
| * Maximum estimated rear side gain | |
| ** Maximum estimated 3-hour current average resulting from simulated local irradiance | |

| Inverter Schedule | | | | | | | | | |
|-------------------|--------------|-------------------|-------------------|--------|----------|-------------|-----------|-----------|-------|
| Inv. | String Count | PV kW (DC)_nom*** | Inverter kVA (AC) | V (AC) | FLA (AC) | FLA x 1.25* | SG Factor | Min. OCPD | OCPD |
| INV-1 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-2 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-3 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-4 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-5 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-6 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-7 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-8 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-9 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-10 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-11 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-12 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-13 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-14 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-15 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-16 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-17 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-18 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-19 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-20 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-21 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-22 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-23 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-24 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-25 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-26 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-27 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-28 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-29 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-30 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-31 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-32 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-33 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-34 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-35 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-36 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-37 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-38 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-39 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| INV-40 | 12 | 169.92 | 125 | 600 | 120.3 | 120.3 | 1.081 | 130.0 | 150** |
| TOTAL | 480 | 6796.8 | 5000 | 600 | 4811.3 | - | - | - | - |

* Does not apply for 100% rated devices
** Device is 100% rated
***Does not include rear side gain

| Recloser Specifications | |
|--|----------------------------|
| Feeder ID | SV CSG SUN TRUST SOLAR LLC |
| PV System AC Size (MW) | 5 |
| System Voltage (kV) | 12.47 |
| PV Xfmr Rating (kVA) | 2500 |
| No. of Xfmrs per Feeder | 2 |
| PV MV Feeder FLA (A) | 231.50 |
| Estimated Inrush Current (A at 6 cycles) | 2777.9 |
| Recloser Relay | SEL-651R |
| Recloser CT Ratio | 600:1 |
| CT Rated Secondary Current | 1A |
| CT Accuracy Class | C50 |
| Voltage Sensor Type | LEA |
| Voltage Sensor Ratio Range | 0.108 - 0.123 V/kV |
| Voltage Sensor Ratio Error | 1% |



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N27 W24025 PAUL CT. SUITE 100
PEWAUKEE, WI 53072
PHONE: (262)-547-1200
WWW.SUNVEST.COM

ELECTRICAL ENGINEER STAMP:



PROFESSIONAL ENGINEER STAMPS

ISSUANCE:

**INTERCONNETION
PLAN SET**

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
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| 6 | | 17 | |
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| 3 | | 14 | |
| 2 | 08/11/2025 | 13 | |
| 1 | 06/24/2025 | 12 | |
| 0 | 05/07/2025 | 11 | |
| REV | SET/DATE | REV | SET/DATE |
| DRAWN BY: A.W. | CHECKED BY: XXX | | |
| SCALE: AS NOTED | JOB NO: | | |

**SV CSG SUN TRUST
SOLAR, LLC**
(42.0969, -88.3865)

SHEET TITLE

PRELIMINARY ELECTRICAL
CALCULATIONS

DWG. NO.

E-1.01

Q.PEAK DUO XL-G11S SERIES



590 - 605 Wp | 156 Cells
21.7% Maximum Module Efficiency

MODEL Q.PEAK DUO XL-G11S.3/BFG



Bifacial energy yield gain of up to 21%
Bifacial QANTUM solar cells make efficient use of light shining on the module rear-side for radically improved LCOE.

Low electricity generation costs
QANTUM DUO technology with optimized module layout to boost module power and improve LCOE.

A reliable investment
Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty.*

Enduring high performance
Long-term yield security with Anti-LID and Anti-PID Technology¹, Hot-Spot Protect.

Frame for versatile mounting options
High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (3400 Pa) and wind loads (3750 Pa²).

Innovative all-weather technology
Optimal yields, whatever the weather with excellent low-light and temperature behavior.

¹ See data sheet on rear for further information.
² APT test conditions according to IEC/TS 62304-1:2015 method B (1500 V, 16H) including post-treatment according to IEC 60079-11:05, 2.0 (D2)
³ See Installation Manual for instructions

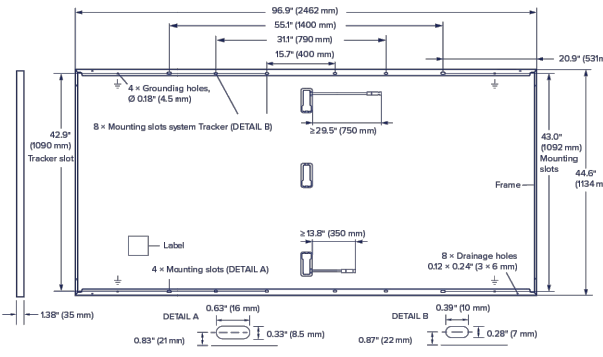
The ideal solution for:
Ground-mounted solar power plants



Q.PEAK DUO XL-G11S SERIES

Mechanical Specification

| | |
|--------------|--|
| Format | 96.9 in × 44.6 in × 1.38 in (including frame) (2462 mm × 1134 mm × 35 mm) |
| Weight | 76.9 lbs (34.9 kg) |
| Front Cover | 0.08 in (2.0 mm) thermally pre-stressed glass with anti-reflection technology |
| Back Cover | 0.08 in (2.0 mm) semi-tempered glass |
| Frame | Anodized aluminum |
| Cell | 6 × 26 monocrystalline QANTUM solar half cells |
| Junction box | 2.09-3.98 × 1.26-2.36 × 0.59-0.71 in (53.10 mm × 32.60 mm × 18.18 mm), Protection class IP67, with bypass diodes |
| Cable | 4 mm ² Solar cable (V) ≥ 225.5 in (750 mm), (V) ≥ 13.8 in (350 mm) |
| Connector | Shübi MCA, Shübi MCA-Evo2 - IP68 |



Electrical Characteristics

| POWER CLASS | | 590 | | 595 | | 600 | | 605 | |
|--|------------------------------------|------------------|-----|--------|--------|--------|--------|--------|--------|
| MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC (POWER TOLERANCE +5W/-0W) | | | | | | | | | |
| Minimum | Power at MPP ¹ | P _{MPP} | [W] | 590 | 595 | 600 | 605 | 605 | 605 |
| | Short Circuit Current ¹ | I _{sc} | [A] | 13.74 | 15.04 | 13.77 | 15.07 | 13.80 | 15.10 |
| | Open Circuit Voltage ¹ | V _{oc} | [V] | 53.60 | 53.79 | 53.63 | 53.82 | 53.66 | 53.85 |
| | Current at MPP | I _{MPP} | [A] | 13.12 | 14.36 | 13.17 | 14.41 | 13.25 | 14.50 |
| | Voltage at MPP | V _{MPP} | [V] | 44.96 | 44.95 | 45.18 | 45.17 | 45.30 | 45.27 |
| | Efficiency ¹ | η | [%] | ≥ 21.1 | ≥ 21.3 | ≥ 21.3 | ≥ 21.5 | ≥ 21.5 | ≥ 21.7 |

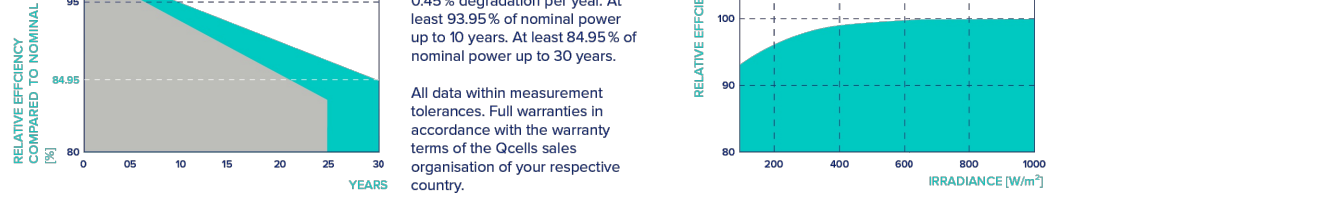
Bifaciality of P_{MPP} and I_{sc} 70% ± 5% • Bifaciality given for rear side irradiation on top of STC (front side) • According to IEC 60904-1-2
¹ Measurement tolerances P_{MPP} ± 3%, I_{sc} ± 5%, V_{oc} ± 5% at STC: 1000 W/m², ϕ = 15° W/m², ϕ = 70°, 25 ± 2°C, AM 1.5 according to IEC 60904-3

MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMO² W

| | | | | | |
|-----------------------|----------------------|-------|-------|-------|-------|
| Power at MPP | P _{MPP} [W] | 444.2 | 448.0 | 451.8 | 455.5 |
| Short Circuit Current | I _{sc} [A] | 11.07 | 11.09 | 11.11 | 11.20 |
| Open Circuit Voltage | V _{oc} [V] | 50.69 | 50.72 | 50.75 | 50.78 |
| Current at MPP | I _{MPP} [A] | 10.34 | 10.38 | 10.45 | 10.51 |
| Voltage at MPP | V _{MPP} [V] | 42.97 | 43.35 | 43.24 | 43.33 |

² Measurement tolerances P_{MPP} ± 3%, I_{sc} ± 5%, V_{oc} ± 5% at STC: 1000 W/m², 25 ± 2°C, AM 1.5 according to IEC 60904-3 • NMO² spectrum AM 1.5

Qcells PERFORMANCE WARRANTY



*Standard terms of guarantee for the Q PV compare with the highest protection capacity in 2020 (February 2020)

| TEMPERATURE COEFFICIENTS | | | | | | |
|--------------------------------------|----------|-------|-------|--------------------------------------|---------|---------------------------|
| Temperature Coefficient of I_{sc} | α | [%/K] | +0.04 | Temperature Coefficient of V_{oc} | β | [%/K] -0.27 |
| Temperature Coefficient of P_{MPP} | γ | [%/K] | -0.34 | Nominal Module Operating Temperature | NMOT | [°F] 108 ± 5.4 (42 ± 3°C) |

Properties for System Design

| | | | | |
|---|------------------------|------------------------------|---|---|
| Maximum System Voltage | V _{max} [V] | 1500 | PV module classification | Class II |
| Maximum Series Fuse Rating | [ADC] | 25 | Fire Rating based on ANSI/UL 61730 | TYPE 29 ³ |
| Max. Push Load ⁴ Test/Design | [lbs/ft ²] | 103 (5400 Pa) / 75 (3600 Pa) | Permitted Module Temperature on Continuous Duty | -40 °F up to +105 °F (-40 °C up to +185 °C) |
| Max. Pull Load ⁴ Test/Design | [lbs/ft ²] | 78 (3750 Pa) / 52 (2500 Pa) | | |

³ See Installation Manual for instructions
⁴ New Type is similar to Type 3 but with metallic frame

Qualifications and Certificates



* Contact your Qcells Sales Representative for details regarding the module's eligibility to be Buy American Act (BAA) compliant.

Qcells pursues minimizing paper output in consideration of the global environment.
Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.
Herman: Q-CELLS America Inc. 300 Executive Center Drive, Suite 500, Irvine, CA 92618, USA | Tel: +1 (888) 286 7700 | Email: us.support@qcells.com | www.qcells.com



American-made photovoltaic string inverters

The trendsetter among inverters

| | | |
|----------|--|---|
| | | |
| Features | 125 TL3 <ul style="list-style-type: none">Optimized for solar power plants with 1500 volt modulesExtensive grid management functionsSpecial properties for extreme climatic conditionsFarsighted technical features for future requirementsLean commissioning and maintenance via remote services5 year standard warranty; optional 10 year warranty available | 155 TL3 <ul style="list-style-type: none">Optimized for solar power plants with 1500 volt modulesExtensive grid management functionsFarsighted technical features for future requirementsLean commissioning and maintenance via remote services5 year standard warranty; optional 10 year warranty available |

Technical Data

| | | |
|--|--|--|
| DC input data | 125 TL3 | 155 TL3 |
| MPP range | 875 – 1300 V | 875 – 1300 V |
| Operating range | 875 – 1450 V | 875 – 1450 V |
| Rated DC voltage / start voltage | 900 V / 1000 V | 900 V / 1000 V |
| Max. no-load voltage | 1500 V | 1500 V |
| Max. input current | 160 A | 183 A |
| Max. short circuit current I _{sc max} | 300 A | 300 A |
| Number of MPP tracker | 1 | 1 |
| Connection per tracker | 1 - 2 | 1 - 2 |
| AC output data | 125 TL3 | 155 TL3 |
| Rated output | 125 000 VA | 155 000 VA |
| Max. power | 137 500 VA | 155 000 VA |
| Line voltage | 600 V (3P+PE) | 600 V (3P+PE) |
| Voltage range (Ph-Ph) | 480 – 760 V | 480 – 690 V |
| Rated frequency (range) | 50 Hz / 60 Hz (45 – 65 Hz) | 50 Hz / 60 Hz (45 – 65 Hz) |
| Rated current | 3 x 120.3 A | 3 x 149.5 A |
| Max. current | 3 x 132.3 A | 3 x 152.0 A |
| Reactive power / cos phi | 0 – 100 % S _{om} / 0.3 ind. – 0.30 cap. | 0 – 100 % S _{nom} / 0.30 ind. – 0.30 cap. |
| Max. total harmonic distortion (THD) | ≤ 3 % | ≤ 3 % |
| Number of grid phases | 3 | 3 |

2

American-made photovoltaic string inverters

Technical Data (continued)

| | | |
|---|---|--|
| General data | 125 TL3 | 155 TL3 |
| Max. efficiency | 99.2 % | 99.1 % |
| Europ. efficiency | 99.1 % | 98.9 % |
| CEC efficiency | 99.0 % | 98.9 % |
| Standby consumption | < 10 W | 7 W |
| Circuitry topology | transformerless | transformerless |
| Mechanical data | 125 TL3 | 155 TL3 |
| Display | LEDs | LEDs |
| Control units | webserver, supports mobile devices | webserver, supports mobile devices |
| Interfaces | Ethernet (Modbus TCP, Sunspec), RS485 (Modbus RTU, Sunspec, KACCO-protocol), USB, optional: 4-DI, WiFi | Ethernet (Modbus TCP, Sunspec), RS485 (KACCO-protocol), USB, optional: 4-DI, WiFi |
| Fault signalling relay | potential-free NOC max. 30 V / 1 A | potential-free NOC max. 30 V / 1 A |
| DC connection | cable lug, max. two pairs of 240 mm ² (500 MCM) Cu or Al conductors or one pair of 300 mm ² (600 MCM) Cu or Al conductors | cable lug, max. two pairs of 240 mm ² (500 MCM) Cu or Al conductors or one pair of 300 mm ² (600 MCM) Cu or Al conductors |
| AC connection | cable lug, max of 240 mm ² (500 MCM) per phase Cu or Al conductors | cable lug, max of 240 mm ² (500 MCM) per phase Cu or Al conductors |
| Ambient temperature | -13 °F – +140 °F / -25 °C – +60 °C ^① | -13 °F – +140 °F / -25 °C – +60 °C ^① |
| Humidity | 0 – 100 % | 0 – 100 % |
| Max. installation elevation (above MSL) | 9843 ft / 3 000 m | 9843 ft / 3 000 m |
| Min. distance from coast | 1640 ft / 500 m | 1640 ft / 500 m |
| Cooling | temperature controlled fan | temperature controlled fan |
| Protection class | IP66 / NEMA 4X | IP66 / NEMA 4X |
| Noise emission | 59.2 db (A) | 59.2 db (A) |
| H x W x D | 28.3 x 27.5 x 17.7 in / 719 x 699 x 450 mm | 28.3 x 27.5 x 18.1 in / 719 x 699 x 460 mm |
| Weight | 172.4 lb / 78.2 kg | 172.4 lb / 78.2 kg |
| Certifications | 125 TL3 | 155 TL3 |
| Safety | UL62109-1, UL1741 SA, UL1741 SB (pending), CSA-C22.2 No. 62109-1, CSA-C22.2 No. 62109-2, CSA-C22.2 No. 107.1, IEC 62109-1/-2, EN 61000-6-1/-2/-3, EN 61000-3-1/-1/-12 | IEC 62109-1/-2, EN 61000-6-1/-2/-4, EN 61000-3-1/-1/-12, EN 55011 group 1, class A EN 62920 Emission class A / Immunity class A / IEC 62109-1, UL1741 SA, UL1741 SB (pending), CSA-C22.2 No. 107.1, CSA-C22.2 No. 62109-1, CSA-C22.2 No. 62109-2 |
| Grid connection rule | overview see homepage / download area | overview see homepage / download area |

① Power derating at high ambient temperatures

| Versions | S | XL |
|------------------------|------------|------------|
| Number of DC inputs | 1 - 2 | 1 - 2 |
| DC switch | — | ✓ |
| DC SPD | Type 1 + 2 | Type 1 + 2 |
| AC SPD | ○ | ○ |
| RS485 interface SPD | ○ | ○ |
| Ethernet interface SPD | ○ | ○ |
| PID Set | ○ | ○ |

standard = ✓ upgradeable = ○



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PROFESSIONAL ENGINEER STAMPS

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(42.0969, -88.3865)

SHEET TITLE
SPEC SHEETS

DWG. NO.

E-4.01