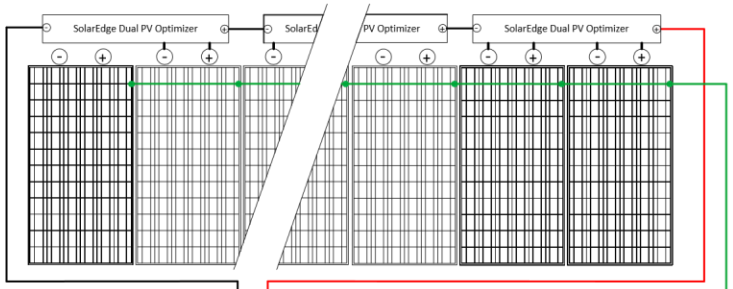
Solar Panel Array A1

(30) Heliene Solar 72M 335 MiM, 335-watt modules wired as a single series string (with SolarEdge P700 Dual Power Box PV optimizers).



Solar Module Specs:

Heliene Solar
72M-335 MiM
Power Tolerance: -0/+4.99
Pm = 335W
Voc = 46.2Vdc
Vpm = 38.7Vdc
Isc = 9.2A
Ipm = 8.73A
Series Fuse: 15A
Max Volts: 1000Vdc (IEC)
600Vdc (UL)

PV Optimizer Specs:

SolarEdge P700
Rated DC Input Watts 700w
Max DC Input Volts 125 Vdc
MPPT Window 12.5-105 Vdc
Max Output Volts 85 Vdc
Volts Output w/ Inverter off 1.0 Vdc
Max Output DC Amps 15 A
CEC Rating 98.6%

To building main AC panel & utility grid @ 480Vac 3-phase.

300A AC Panel
(minimum size)

60A 3P Breaker
At opposite end of busbar from main breaker.

Solar Array A2
(30) Heliene 335-watt modules wired in single series string, same as above

Solar Array B1
(30) Heliene 335-watt modules wired in single series string, same as above

Solar Array B2
(29) Heliene 335-watt modules wired in single series string, similar to above

NEC 690.53 Labeling
(strings of 30)

Operating Current:	8.73A
Operating Voltage:	850V
Maximum System Voltage:	980V
Short Circuit Current:	9.2A
Open Circuit Voltage:	30V

NEC 690.53 Labeling
(strings of 29)

Operating Current:	8.73A
Operating Voltage:	850V
Maximum System Voltage:	980V
Short Circuit Current:	9.2A
Open Circuit Voltage:	29V

PV Source Circuits
(strings of 29 or 30)
#10 AWG CU
PV WIRE in free air, or THWN-2 in conduit.
Isc of 9.20 x 1.25 x 1.25 = 14.4A
ampacity required.
At Optimized Vpm (850V),
Max Optimizer Output Amps (15A),
& 1.5% volt drop or less,
#10 AWG CU okay up to 342-feet.
0.5" EMT allowed, 0.75" recommended.

Locally-supplied J-boxes. For conversion from PV WIRE wire on roof to THWN-2 (or equivalent) in conduit.

60A AC Disconnect
Exterior, Unfused, Visible
Contacts, Lockable.
SqD HU362RB
or equivalent recommended.
(Optional, not required by NEC, may be required by local utility or AHJ.)

Combined AC Output Circuit
6 AWG CU wire,
L1, L2, L3, Neutral
and 8 AWG CU Ground
(under 1.5% voltage drop to 141-feet @1.25 x max output current)
1" EMT recommended.

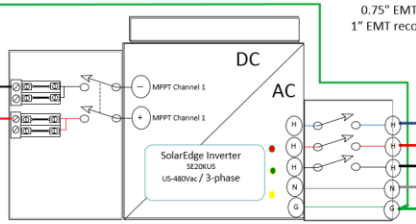
Dedicated Solar Generation Meter
(optional)

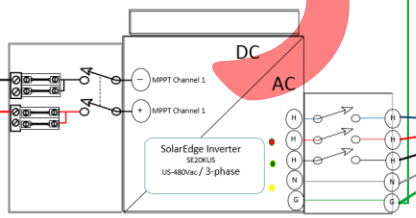
Combined PV Source Circuits
USE-2 in free air, or THHN-2/THWN-2 in conduit.
Positive & Negative w/ #8 AWG CU Ground
Sized @ Optimized Vmp (850V),
Max Inverter Input Amps (26.5A), & 1.5% VD,
#10 AWG CU okay up to 194-feet

AC Output Circuits (20kW inverter)
8 AWG CU wire,
L1, L2, L3, Neutral
and 8 AWG CU Ground
(under 1.5% voltage drop to 161-feet @1.25 x max output current)
0.75" EMT allowed,
1" EMT recommended.

AC Breaker Panel as AC Combiner.
60A capacity min.

30A 3P Breakers





☼ Recommended 2.0% max total voltage drop from PV Array to inverter.
☼ Module wiring ampacity based on conductor in free air per NEC 2014-Table 310.17.

Inverter Specs:

SolarEdge SE 20KUS (480V)
AC Volts 480Vac
Max AC Amps 24.0A x 3
MPPT Window 450-980Vdc
Max DC Volts 980Vdc
Max DC Amps 26.5A
CEC Rating 98.0%

☼ When available, the ASHRAE Extreme Annual Mean Minimum Temp and ASHRAE 2% Design Temp are used for required low and high temperature calculations.
☼ Conductor size provided includes ambient temperature adjustment only. Additional derating may be required based on actual conditions of use; conduit fill, conduit location, etc.

Project Information
(Insert Customer Name, Address)

Contractor
(Insert Dealer, Phone)

AHJ Signature & Date

Revision Schedule

No.	Date	Description
1.0	1/05/2015	As Released

DRAWING NAME:
Std-40kW-Mono-Roof-480V
119)HE335 MiM 2)SE20KUS
480v Grid-Tie

SYSTEM TYPE:
Grid-Tied MiM Solar Electric System

DRAWN BY: DP
DATE: 1/05/2015
REV. DATE:
REV. #: 1.0

SHEET TITLE
Electrical Wiring Diagram

SHEET NUMBER
E-1.0

Photovoltaic System Drawings Provided By:

simpleray
705 Raymond Ave.
Suite 220
St. Paul, MN 55114
800-952-3235

This line diagram is provided as a service and is based on our understanding of the information supplied and current requirements. Subject to revision based on actual conditions, applicable edition of the National Electrical Code, and local governmental authorities. Installing dealer has sole responsibility for the correct selection and use of all equipment and materials.