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PV MATERIAL SUMMARY: DISTRIBUTOR

REC400NP3 BLACK	20
IQ7PLUS-72-2-US	20
X2-IQ-AM1-240-4	1
Q-12-17-240	22
Q-SEAL-10	2
Q-TERM-10	2
XR-10-168B	10
XR10-BOSS-01-M1	8
UFO-CL-01-B1	44
UFO-STP-30MM-B1	8
XR-LUG-03-A1	2
4 IN QB1	41
MI-BHW	20
GC66803 Geocel Sealant	3
SOLADECK 0799-5B	1
TESLA POWERWALL 2	2
TESLA BACKUP GATEWAY GEN 2	1

NC SOLAR NOW

CLIENT INFO

ALEXANDER LEHMAN
130 OLD FIELD LOOP
SANFORD,NC 27332

PROJECT INFO

DC INPUT:	8.000 kW
AC EXPORT:	5.800 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy
300 Fayetteville St.
#1430
Raleigh, NC 27602
919-274-9905
ModelEnergy.com
P-1194

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
7/1/23

CODE REFERENCES

NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2018
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	116 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

SHEET INDEX

VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	7/5/2023

PV SYSTEM COVER PAGE

PV-1.1

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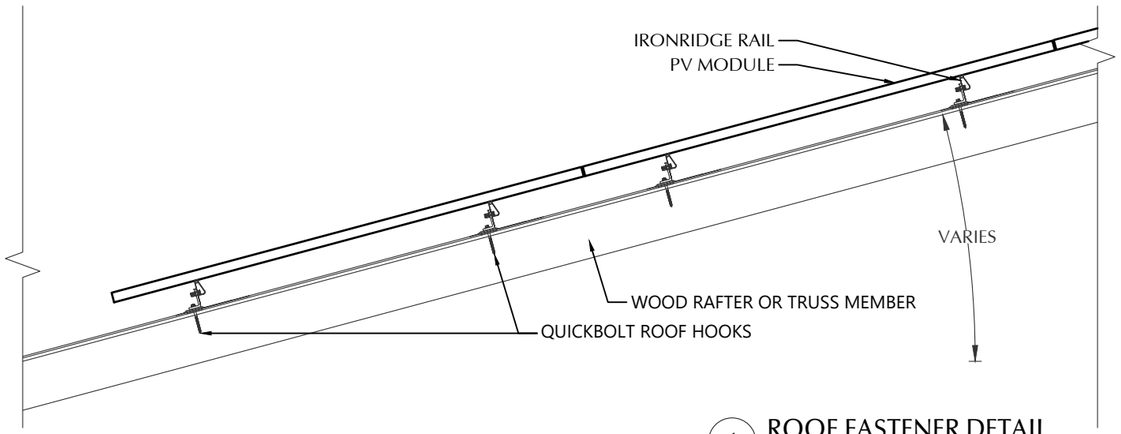
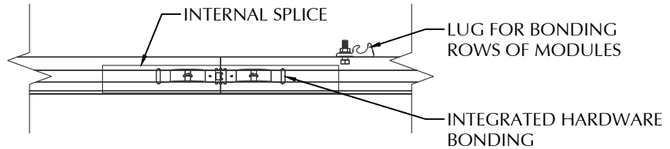


1 ROOF FASTENER DETAIL
NOT TO SCALE



STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

NAME: ANDREW W. KING, PE

SIGNED:

PV MODULES

MAKE	REC
MODEL	REC400NP3 BLACK
WIDTH	40.90 IN
LENGTH	74.80 IN
THICKNESS	30 MM
WEIGHT	47.00 LBS.
ARRAY AREA	425 SQFT.
ARRAY WEIGHT	1062 LBS.

ROOF SUMMARY

STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 4
SPACING	24 IN O.C.
ALLOWABLE SPAN	88 IN
PITCH	8/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS./SQFT.

ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	72 IN	19 IN
WIND ZONE 2	48 IN	19 IN
WIND ZONE 3	48 IN	19 IN

ROOF LOADING

GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD	20 LBS./SQFT.
DEAD LOAD	
ROOFING	3.9 LBS/SQFT.
PV ARRAY	2.5 LBS./SQFT.
TOTAL	6.4 LBS./SQFT.
WIND LOAD:	
UPLIFT ZONE 1	-24.6 LBS./SQFT.
UPLIFT ZONE 2	-29.0 LBS./SQFT.
UPLIFT ZONE 3	-29.0 LBS./SQFT.
DOWNWARD	23.0 LBS./SQFT.
FASTENER LOAD:	
UPLIFT ZONE 1	-456 LBS.
UPLIFT ZONE 2	-359 LBS.
UPLIFT ZONE 3	-359 LBS.
DOWNWARD	427 LBS.

ROOF MOUNT & FASTENER

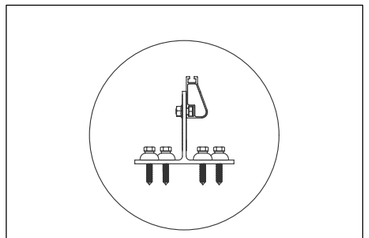
ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	4 IN QB1
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	QUICK SCREWS
MODEL	HANGER BOLT
MATERIAL	304 SS
SIZE	5/16-18 X 5-1/4"
GENERAL:	
WEIGHT	0.56 LBS.
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	960.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	480.0 LBS.

MOUNTING RAILS

MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINUM
WEIGHT	0.425 LBS/IN
SPACING	37 IN

ALTERNATIVE ATTACHMENT:

MAY BE USED WHERE STRUCTURAL MEMBERS ARE NOT ACCESSIBLE



ROOF MOUNT & FASTENER

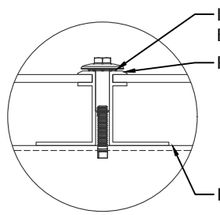
ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	QB DECK MOUNT 16317
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	QUICK SCREWS
MODEL	HEX LAG PN# 16318
MATERIAL	304 SS
SIZE	5/16" X 1-3/4"
GENERAL:	
WEIGHT	0.8819
FASTENERS PER MOUNT	4
MAX. PULL-OUT FORCE	705.0 LBS.
SAFETY FACTOR	3
DESIGN PULL-OUT FORCE	235.0 LBS.

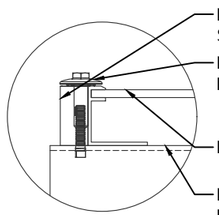
ROOF MOUNT SUMMARY

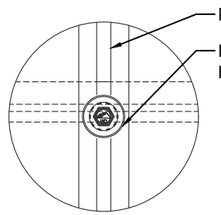
MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	37 IN	11 IN
WIND ZONE 2	28 IN	11 IN
WIND ZONE 3	26 IN	10 IN

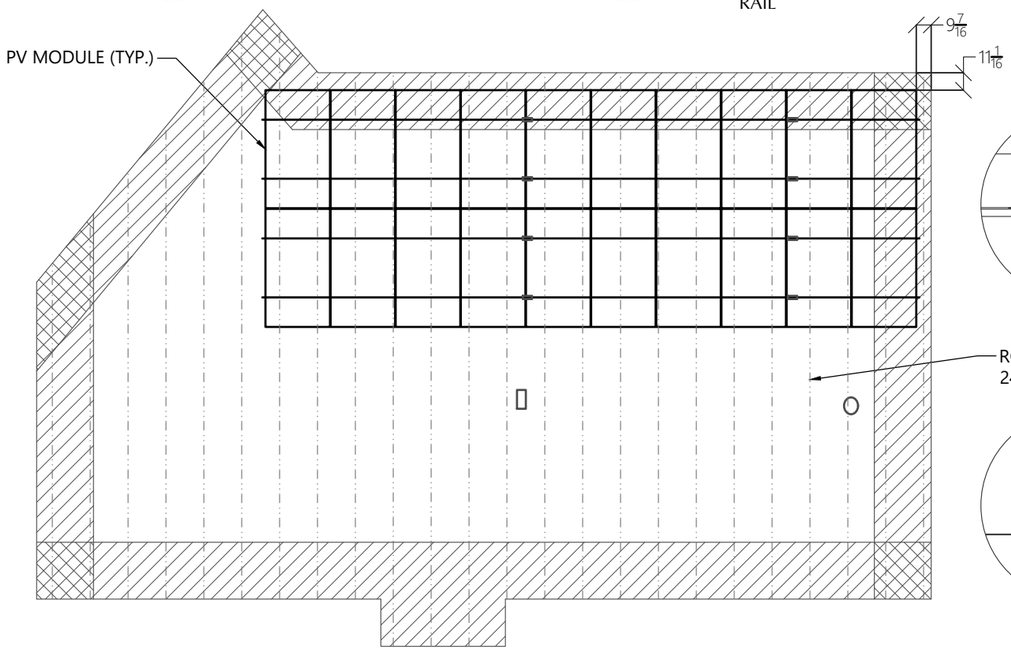
ROOF LOADING

FASTENER LOAD:	
UPLIFT ZONE 1	-234 LBS.
UPLIFT ZONE 2	-209 LBS.
UPLIFT ZONE 3	-194 LBS.
DOWNWARD	219 LBS.

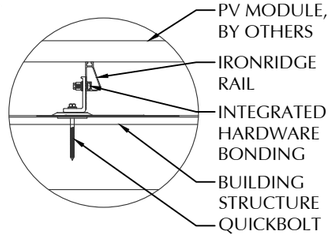


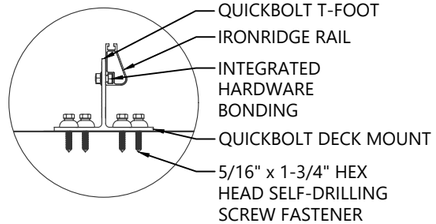






2 ROOF A ARRAY LAYOUT
1/8" = 1'-0"





NC SOLAR NOW

CLIENT INFO

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130 OLD FIELD LOOP
SANFORD,NC 27332

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WIND SPEED:	116 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

SHEET INDEX

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CONSTRUCTION	CRM	7/5/2023

PV SYSTEM STRUCTURAL

PV-2.1

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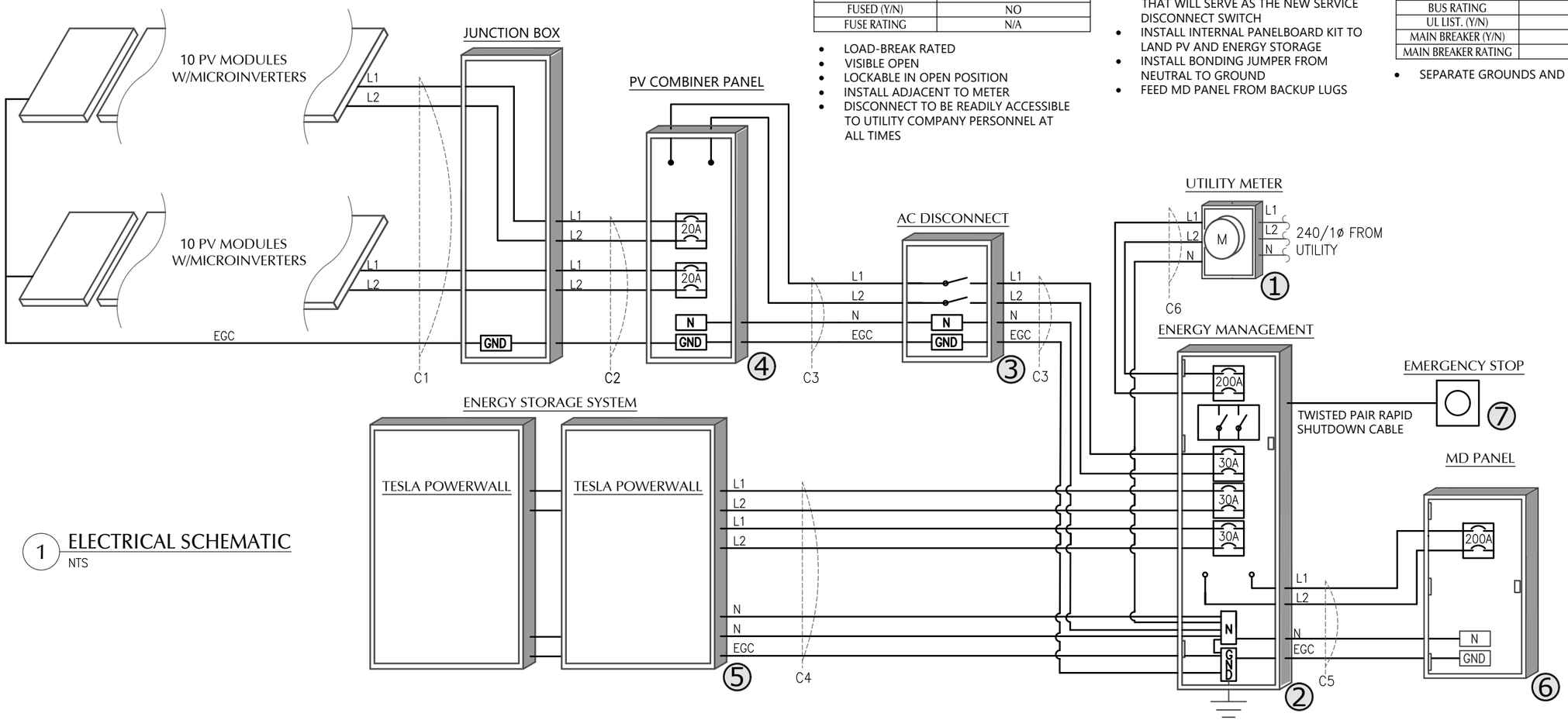
CONDUCTOR SCHEDULE

TAG	CURRENT CARRYING CONDUCTORS			GROUNDING CONDUCTORS			CONDUIT/RACEWAY			NOTES
	QTY.	SIZE	INSULATION	QTY.	SIZE	INSULATION	QTY.	SIZE	LOCATION	
C1	4	12 AWG	DG CABLE	1	6 AWG	BARE	-	-	FREE AIR	1
C2	4	10 AWG	THWN	1	10 AWG	THWN	1	3/4"	EXT/INT	2,4
C3	3	10 AWG	THWN	1	10 AWG	THWN	1	1"	EXTERIOR	2,4
C4	6	10 AWG	THWN	1	10 AWG	THWN	1	1"	EXT/INT	2,4
C5	3	4/0 AWG ALUMINUM	XHHW	1	3 AWG	THWN-2	1	2"	EXT/INT	2,4
C6	3	4/0 AWG ALUMINUM	XHHW	-	-	-	1	2"	EXT/INT	2,4
XC	-	-	-	-	-	-	-	-	-	3

NOTES:

1. MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
2. CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED.
3. EXISTING CONDUCTORS, FIELD VERIFY
4. EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
5. PLEASE REFERENCE NOTES ON PV-4.1 FOR ADDITIONAL DETAIL



1 ELECTRICAL SCHEMATIC
NTS

PV MODULE

MAKE	REC
MODEL	REC400NP3 BLACK
NOM. POWER (PNOM)	400 WATTS
NOM. VOLT. (VMPP)	37.6 VOLTS
O.C. VOLT (VOC)	45.0 VOLTS
MAX. SYS. VOLT.	1000 VOLTS
NOM. CURR. (IMPP)	10.6 AMPS
S.C. CURR. (ISC)	11.4 AMPS
TEMP. COEF. (PMPP)	-0.34 %/C
TEMP. COEF. (Voc)	-0.26 %/C
MAX SERIES FUSE	25 AMPS
UL COMPLIANT (Y/N)	YES

ENERGY STORAGE SYSTEM

MAKE	TESLA
MODEL	POWERWALL 2
USABLE ENERGY	13.5 kWh
NOM. VOLT.	240 VOLTS
REAL POWER CONT.	5000 WATTS
UL LIST. (Y/N)	YES
OCPD	30 AMPS
PROTECT RATING	NEMA 3R

AC DISCONNECT

MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	30 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES

PV COMBINER PANEL

MAKE	ENPHASE
MODEL	X2-IQ-AM1-240-4
INPUT:	
MAX BRANCH CIRCUITS	4 TOTAL
BRANCH CIRCUIT OCPD	50 AMPS
OUTPUT:	
MAX POWER	15600 WATTS
NOM. VOLTAGE	240 VOLTS
BUS RATING	125 AMPS
MAIN BREAKER Y/N	NO
ENCL. RATING	NEMA TYPE 3R
UL LIST. (Y/N)	YES

JUNCTION BOX

MAKE	SOLADECK
PROTECT. RATING	NEMA TYPE 3R
UL LIST. (Y/N)	YES

ENERGY MANAGEMENT

MAKE	TESLA
MODEL	BACKUP GATEWAY 2
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
DISCONNECT CURR.	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- TROUGH MAY BE USED IF NECESSARY
- INSTALL 200A EATON MAIN BREAKER THAT WILL SERVE AS THE NEW SERVICE DISCONNECT SWITCH
- INSTALL INTERNAL PANELBOARD KIT TO LAND PV AND ENERGY STORAGE
- INSTALL BONDING JUMPER FROM NEUTRAL TO GROUND
- FEED MD PANEL FROM BACKUP LUGS

DC / AC INVERTER

MAKE	ENPHASE
MODEL	IQ7PLUS-72-2-US
DC INPUT:	
POWER RANGE (WATTS)	235-440
MIN/MAX START VOLT.	22 / 60
OPERATING VOLT. RANGE	16-60
MAX. CURRENT	15 AMPS
MODULE COMPATIBILITY	60 & 72 CELL
AC OUTPUT:	
CEC EFFICIENCY	1 WATTS
NOM. POWER	290 WATTS
NOM. VOLT.	211-240-264
MAX. CURR.	1.21 AMPS
DC DISC. (Y/N)	NO
RAPID SHUTDOWN (Y/N)	YES
PROTECT. RATING	NEMA TYPE 6
UL LIST. (Y/N)	YES
MAX BRANCH CIRCUIT	13

EMERGENCY STOP

MAKE	EATON
MODEL	M22-PVT
ENCL. RATING	NEMA 4X
UL LIST. (Y/N)	YES

MD PANEL (EXISTING)

MAKE	SQUARE D
MODEL	QOC42UF
ENCL. RATING	NEMA 1
VOLT. RATING	240 VOLTS
BUS RATING	225 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- SEPARATE GROUNDS AND NEUTRALS

NC SOLAR NOW

CLIENT INFO

ALEXANDER LEHMAN
130 OLD FIELD LOOP
SANFORD,NC 27332

PROJECT INFO

DC INPUT:	8.000 kW
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ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	116 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

SHEET INDEX

VERSIONS

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CONSTRUCTION	CRM	7/5/2023

PV SYSTEM ELECTRICAL

PV-3.1

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⚠WARNING
PHOTOVOLTAIC SYSTEM COMBINER PANEL
DO NOT ADD LOADS

④ NEC 705.12 (C)(3)
PLACE ON PV COMBINER PANEL

⚠WARNING
POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE

② NEC 705.12 (B)(2)(3)(b)
PLACE ADJACENT TO BACK-FED BREAKER

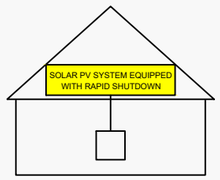
⚠WARNING⚠
THREE POWER SOURCES
SOURCES: UTILITY GRID, BATTERY AND PV SOLAR ELECTRIC SYSTEM

①②④⑥ NEC 705.12 (B)(3)
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY BOTH POWER SOURCES

⚠WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR.

②④ NEC 705.12 (B)(2)(3)(c)
PLACE ON PV COMBINER PANEL.

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



② NEC 690.56 (C)(1)(a)
PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

③ NEC 690.56 (C)(3)
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN *REFLECTIVE*

PV SYSTEM DISCONNECT

③ NEC 690.13 (B)
PLACE ON PV SYSTEM DISCONNECTING MEANS.

BATTERY DISCONNECT

⑦ PLACE ON EMERGENCY STOP SWITCH

⚠WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

②

PHOTOVOLTAIC POWER SOURCE

OPERATING AC VOLTAGE	240	V
MAXIMUM OPERATING AC OUTPUT CURRENT	24.2	A

③ NEC 690.54
PLACE ON INTERCONNECTION DISCONNECTING MEANS

WARNING:
IN THE EVENT OF A UTILITY OUTAGE, THIS PANEL IS FED FROM ENERGY STORAGE SYSTEM.

④⑥ PLACE ON BACKED UP LOAD PANEL(S).

GENERATION PANEL:
IN THE EVENT OF AN EMERGENCY, TURN OFF ALL BREAKERS TO DISCONNECT BACKUP POWER SOURCE(S).

② PLACE ON BACKUP GATEWAY

SERVICE DISCONNECT LOCATED: EXTERIOR NE WALL OF RESIDENCE

BATTERY DISCONNECT LOCATED: EXTERIOR NE WALL OF RESIDENCE

PV DISCONNECT LOCATED: EXTERIOR NE WALL OF RESIDENCE

②③⑤ NEC 705.10
PLACE AT SERVICE EQUIPMENT AND PV SYSTEM DISCONNECTING MEANS.

LABEL NOTES

1. LABELS SHOWN ARE HALF THEIR ACTUAL REQUIRED SIZE.
2. LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
3. DC CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.
4. LABELS WILL BE APPLIED IN ACCORDANCE WITH THE NEC. SOME LABELS MAY NOT BE NECESSARY.

DC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER, RATED AT NOT LESS THAN 600 VOLTS FOR RESIDENTIAL CONSTRUCTION AND NOT LESS THAN 1000 VOLTS FOR COMMERCIAL CONSTRUCTION.
2. MINIMUM SIZE SHALL BE #10 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE, USE-2, OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV, SUNLIGHT, AND MOISTURE RESISTANT.
6. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT) OR RIGID POLYVINYL CHLORIDE CONDUIT(PVC). ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
7. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), OR METAL CLAD CABLE(MC).
6. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
7. MINIMUM CONDUIT SIZE TO BE 1/2".
8. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

AC WIRING NOTES

1. CONDUCTORS SHALL BE COPPER RATED AT NOT LESS THAN 600 VOLTS.
2. MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
3. EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), RIGID POLYVINYL CHLORIDE CONDUIT(PVC), LIQUID-TIGHT FLEXIBLE METAL CONDUIT(LFMC), OR LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT(LFNC) . ALTERNATIVELY, METAL CLAD CABLE(MC) CAN BE USED AS WELL WHEN RATED FOR USE IN WET LOCATIONS.
4. INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THHN AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), FLEXIBLE METAL CONDUIT(FMC), METAL CLAD CABLE(MC), OR ROMEX.
5. USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMMAGE
6. MINIMUM CONDUIT SIZE TO BE 1/2".
7. WIRING METHODS TO CONFORM TO ARTICLES 330, 334, 348, 350, 352, 356, AND 358 OF THE 2017 NEC.

CONSTRUCTION NOTES

1. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
2. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
3. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED.
4. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.
5. FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMANN, UNLESS NOTED OTHERWISE.
6. ALL TERMINALS/LUGS SHALL BE 75° RATED. ALL TERMINALS, SPLICING CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
7. PROVIDE A PULLWIRE IN ALL EMPTY CONDUITS.
8. ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
9. ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
10. SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
11. METAL CONDUIT COUPLINGS CAN BE COMPRESSION TYPE, THREADED, OR BE SET-SCREW TYPE. PLASTIC CONDUIT COUPLINGS TO BE SOCKET GLUED TYPE.
12. A COMPLETE GROUNDING SYSTEM SHALL BE PRESENT OR PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
13. EACH ELECTRICAL APPLIANCE SHALL BE PROVIDED WITH A NAMEPLATE GIVING THE IDENTIFYING NAME AND THE RATING IN VOLTS AND AMPERES, OR VOLTS AND WATTS. IF THE APPLIANCE IS TO BE USED ON A SPECIFIC FREQUENCY OR FREQUENCIES, IT SHALL BE SO MARKED. WHERE MOTOR OVERLOAD PROTECTION EXTERNAL TO THE APPLIANCES IS REQUIRED, THE APPLIANCE SHALL BE SO MARKED.
14. WHERE APPLICABLE, GROUNDING ELECTRODE CONDUCTOR TO BE CONTINUOUS. GROUNDING CRIMPS TO BE IRREVERSIBLE.
15. PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
16. EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
17. WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT.
18. A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT MEANS.
19. A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
20. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC SECTION 690.4 (C)
21. A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
    I. THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT(PSF)
    II. THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
    III. THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
    IV. THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE

NC SOLAR NOW

CLIENT INFO

ALEXANDER LEHMAN
130 OLD FIELD LOOP
SANFORD,NC 27332

PROJECT INFO

DC INPUT:	8.000 kW
AC EXPORT:	5.800 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy
300 Fayetteville St.
#1430
Raleigh, NC 27602
919-274-9905
ModelEnergy.com
P-1194

NORTH CAROLINA PROFESSIONAL SEAL 035699 ENGINEER ANDREW W. KING
7/7/23

CODE REFERENCES

NATION ELECTRICAL CODE v. 2017
NC FIRE PROTECTION CODE v. 2018
NC BUILDING CODE v. 2018
NC RESIDENTIAL CODE v. 2018
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED:	116 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	10 PSF

SHEET INDEX

VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	7/5/2023

PV SYSTEM EQUIPMENT LABELS

PV-4.1

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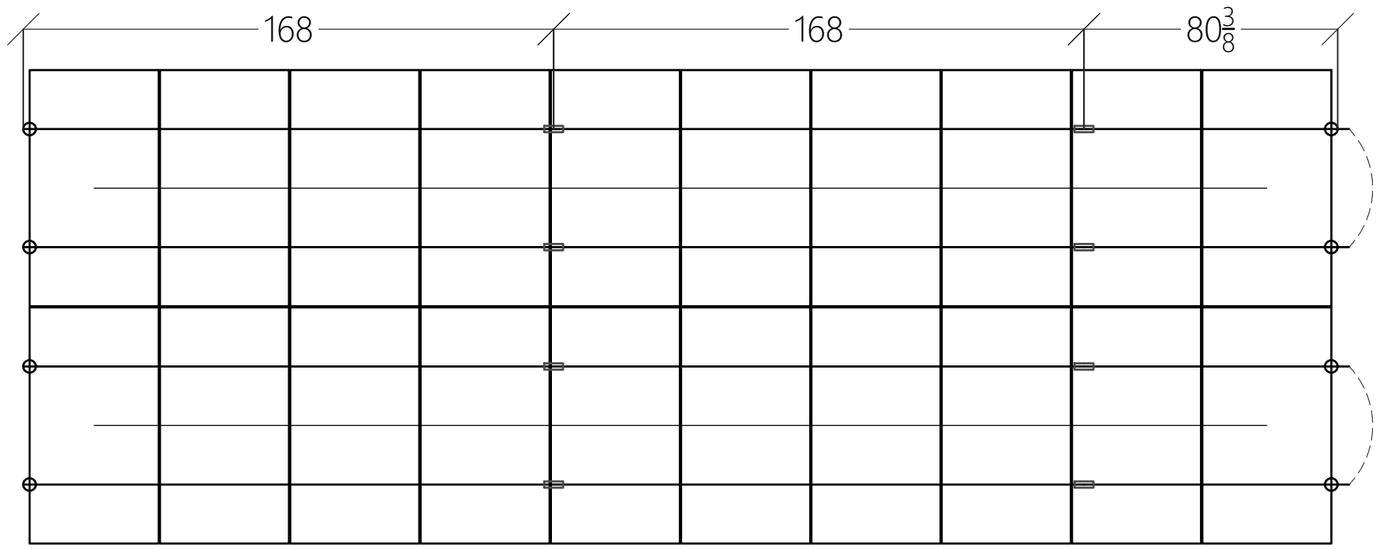

1 ARRAY LAYOUT DETAIL
NOT TO SCALE

NC SOLAR NOW

CLIENT INFO

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130 OLD FIELD LOOP
SANFORD,NC 27332

PROJECT INFO

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SHEET INDEX

VERSIONS

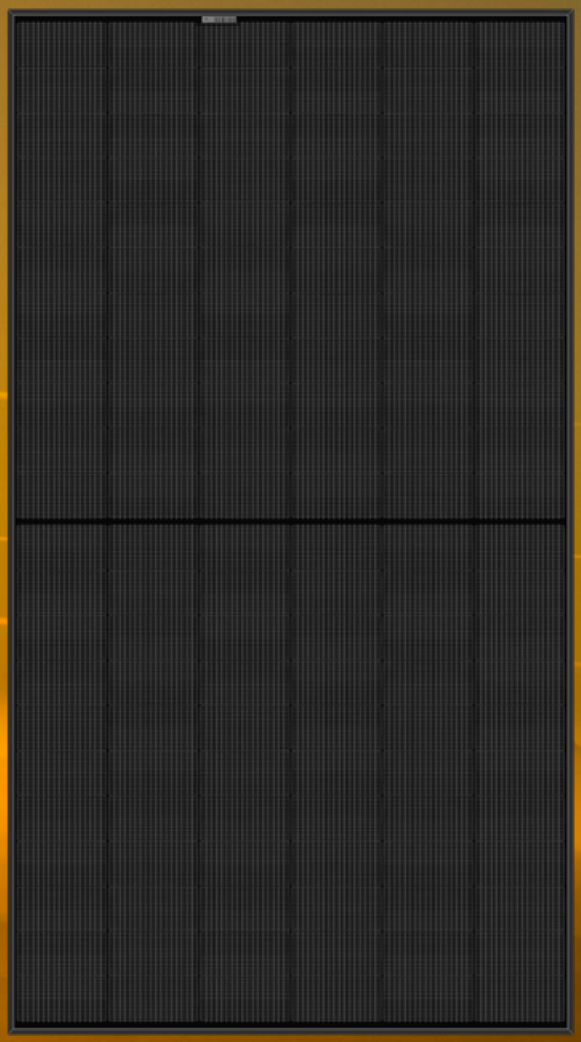
FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	7/5/2023

PV SYSTEM INSTALL GUIDE

PV-5.1

SOLAR'S MOST TRUSTED

REC



REC ALPHA® PURE BLACK SERIES

PRODUCT SPECIFICATIONS

405 WP

20.3 W/FT²

PRODUCT REC 25 YEAR ProTrust WARRANTY PERFORMANCE LABOR

ELIGIBLE

LEAD-FREE

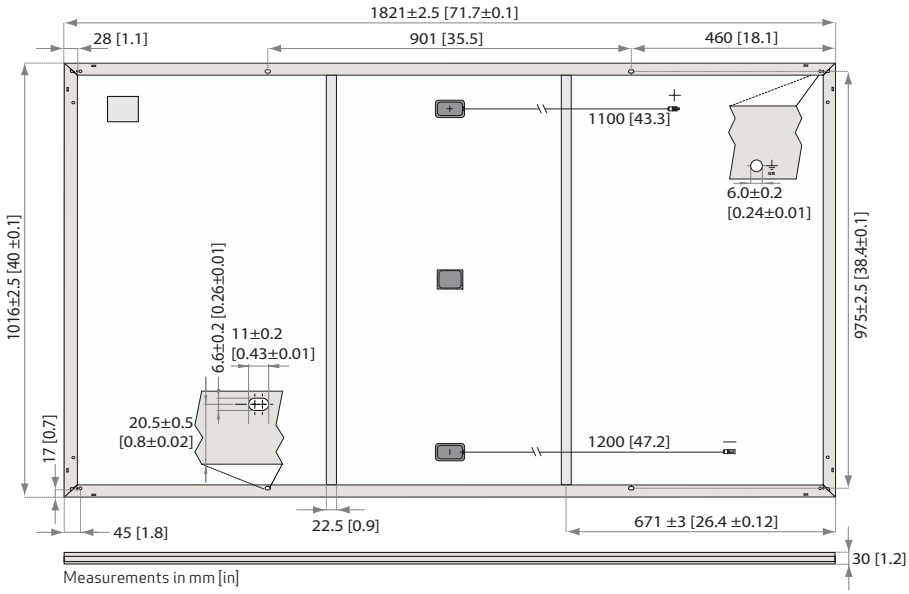
ROHS COMPLIANT

EXPERIENCE α PERFORMANCE

REC
SOLAR'S MOST TRUSTED

PRODUCT SPECIFICATIONS

REC ALPHA PURE BLACK SERIES > PRODUCT SPECIFICATIONS



Measurements in mm [in]

CERTIFICATIONS

IEC 61215:2016, IEC 61730:2016, UL 61730 (Pending)

ISO 14001:2004, ISO 9001:2015, OHSAS 18001:2007, IEC 62941

WARRANTY

	Standard	REC ProTrust	
Installed by an REC Certified Solar Professional	No	Yes	Yes
System Size	All	≤25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%

See warranty documents for details. Conditions apply

GENERAL DATA

Cell type:	132 half-cut REC heterojunction cells with lead-free, gapless technology 6 strings of 22 cells in series	Connectors:	Stäubli MC4 PV-KBT4/KST4, 12 AWG (4 mm²) in accordance with IEC 62852 IP68 only when connected
Glass:	0.13 in (3.2 mm) solar glass with anti-reflection surface treatment	Cable:	12 AWG (4 mm²) PV wire, 43+47 in (1.1+1.2 m) accordance with EN 50618
Backsheet:	Highly resistant polymer (black)	Dimensions:	71.7 x 40 x 1.2 in (1821 x 1016 x 30 mm)
Frame:	Anodized aluminum (black)	Weight:	45 lbs (20.5 kg)
Junction box:	3-part, 3 bypass diodes, IP68 rated in accordance with IEC 62790	Origin:	Made in Singapore

MAXIMUM RATINGS

Operational temperature:	-40 ... +185°F (-40 ... +85°C)
Maximum system voltage:	1000 V
Maximum test load (front):	+7000 Pa (146 lbs/sq ft)*
Maximum test load (rear):	-4000 Pa (83.5 lbs/sq ft)*
Max series fuse rating:	25 A
Max reverse current:	25 A

* See installation manual for mounting instructions.
Design load = Test load / 1.5 (safety factor)

ELECTRICAL DATA

	Product Code*: RECxxxAA Pure Black				
STC					
Power Output - P_{MAX} (Wp)	385	390	395	400	405
Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5
Nominal Power Voltage - V_{MPP} (V)	41.2	41.5	41.8	42.1	42.4
Nominal Power Current - I_{MPP} (A)	9.35	9.40	9.45	9.51	9.56
Open Circuit Voltage - V_{OC} (V)	48.5	48.6	48.7	48.8	48.9
Short Circuit Current - I_{SC} (A)	10.10	10.15	10.20	10.25	10.30
Power Density (W/sq ft)	19.3	19.6	19.8	20.1	20.3
Panel Efficiency (%)	20.8	21.1	21.3	21.6	21.9
NMOT					
Power Output - P_{MAX} (Wp)	293	297	301	305	309
Nominal Power Voltage - V_{MPP} (V)	38.8	39.1	39.4	39.7	40.0
Nominal Power Current - I_{MPP} (A)	7.55	7.59	7.63	7.68	7.72
Open Circuit Voltage - V_{OC} (V)	45.7	45.8	45.9	46.0	46.1
Short Circuit Current - I_{SC} (A)	8.16	8.20	8.24	8.28	8.32

Values at standard test conditions (STC: air mass AM 1.5, irradiance 10.75 W/sq ft (1000 W/m²), temperature 77°F (25°C), based on a production spread with a tolerance of P_{MAX}, V_{OC} & I_{SC} ±3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m², temperature 68°F (20°C), windspeed 3.3 ft/s (1 m/s). * Where xxx indicates the nominal power class (P_{MAX}) at STC above.

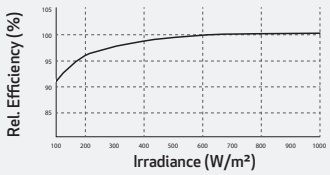
TEMPERATURE RATINGS*

Nominal Module Operating Temperature:	44°C (±2°C)
Temperature coefficient of P_{MAX}:	-0.26 %/°C
Temperature coefficient of V_{OC}:	-0.24 %/°C
Temperature coefficient of I_{SC}:	0.04 %/°C

*The temperature coefficients stated are linear values

LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



Specifications subject to change without notice.

Ref: PM-DS-12-01-Rev- A 03.21

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

REC
www.recgroup.com

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready **Enphase IQ 7 Micro™** and **Enphase IQ 7+ Micro™** dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate with the Enphase IQ Envoy™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.

Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.

UL CERTIFIED
SAFETY US-CA E341165

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US / IQ7-60-B-US	IQ7PLUS-72-2-US / IQ7PLUS-72-B-US
Commonly used module pairings[1]	235 W - 350 W +	235 W - 440 W +
Module compatibility	60-cell PV modules only	60-cell and 72-cell PV modules
Maximum input DC voltage	48 V	60 V
Peak power tracking voltage	27 V - 37 V	27 V - 45 V
Operating range	16 V - 48 V	16 V - 60 V
Min/Max start voltage	22 V / 48 V	22 V / 60 V
Max DC short circuit current (module Isc)	15 A	15 A
Overvoltage class DC port	II	II
DC port backfeed current	0 A	0 A
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	

OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit[3]	16 (240 VAC)	13 (208 VAC)	13 (240 VAC)	11 (208 VAC)
Overvoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.85 leading ... 0.85 lagging		0.85 leading ... 0.85 lagging	

EFFICIENCY	@240 V	@208 V	@240 V	@208 V
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %

MECHANICAL DATA	
Ambient temperature range	-40°C to +65°C
Relative humidity range	4% to 100% (condensing)
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)
Connector type (IQ7-60-B-US & IQ7PLUS-72-B-US)	Friends PV2 (MC4 intermateable). Adaptors for modules with MC4 or UTX connectors: - PV2 to MC4: order ECA-S20-S22 - PV2 to UTX: order ECA-S20-S25
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)
Weight	1.08 kg (2.38 lbs)
Cooling	Natural convection - No fans
Approved for wet locations	Yes
Pollution degree	PD3
Enclosure	Class II double-insulated, corrosion resistant polymeric enclosure
Environmental category / UV exposure rating	NEMA Type 6 / outdoor

FEATURES	
Communication	Power Line Communication (PLC)
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.
Compliance	CA Rule 21 (UL 1741-SA) UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC-2014 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.
3. Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

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2018-11-19

Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4
X-IQ-AM1-240-4C

X-IQ-AM1-240-4C

X-IQ-AM1-240-4

The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Centered mounting brackets support single stud mounting
- Supports bottom, back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Enphase IQ Combiner 4/4C

MODEL NUMBER	
IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.
ACCESSORIES AND REPLACEMENT PARTS	(not included, order separately)
Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75” x 19.5” x 6.63”). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, IQ Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit **enphase.com**

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Representative Image

Catalog No. TG3222R

Description: 60A 2P GD N3R 240V FUSIBLE SW

UPC No 783164008500

Products > Switches & Disconnects > Disconnect & Safety Switches > Safety Switches > General Duty

- Designed for residential and light commercial applications where duty is not severe.
- Listed to UL standard 98 enclosed and dead front switches.
- Suitable for use as service equipment when installed in accordance with the National Electrical Code.
- Certified to CSA standard 22.2 no. 4-04 enclosed and dead front switches.
- Meets or exceeds NEMA KS1 standard for enclosed switches - type GD.
- Fusible and non-fusible switches available (consult BuyLog for interrupt ratings).
- Quick-make, quick-break mechanism (30-200 amp).
- 60/75°C conductor rating.

Descriptors

Category	General Duty

Specifications

Amperage	60 A
Poles	2
Wires	3
Fusing	Fusible
Enclosure	NEMA 3R (Outdoor)
Wire Range (Cu/Al)	12-2
240 Vac, NEC Std, 1-ph	3.0 hp
240 Vac, Time Delay, 1-ph	10.0 hp
250 Vdc	10.0 hp
GSA Compliance	Yes

Classifications

CSA Certified	Yes

Dimensions

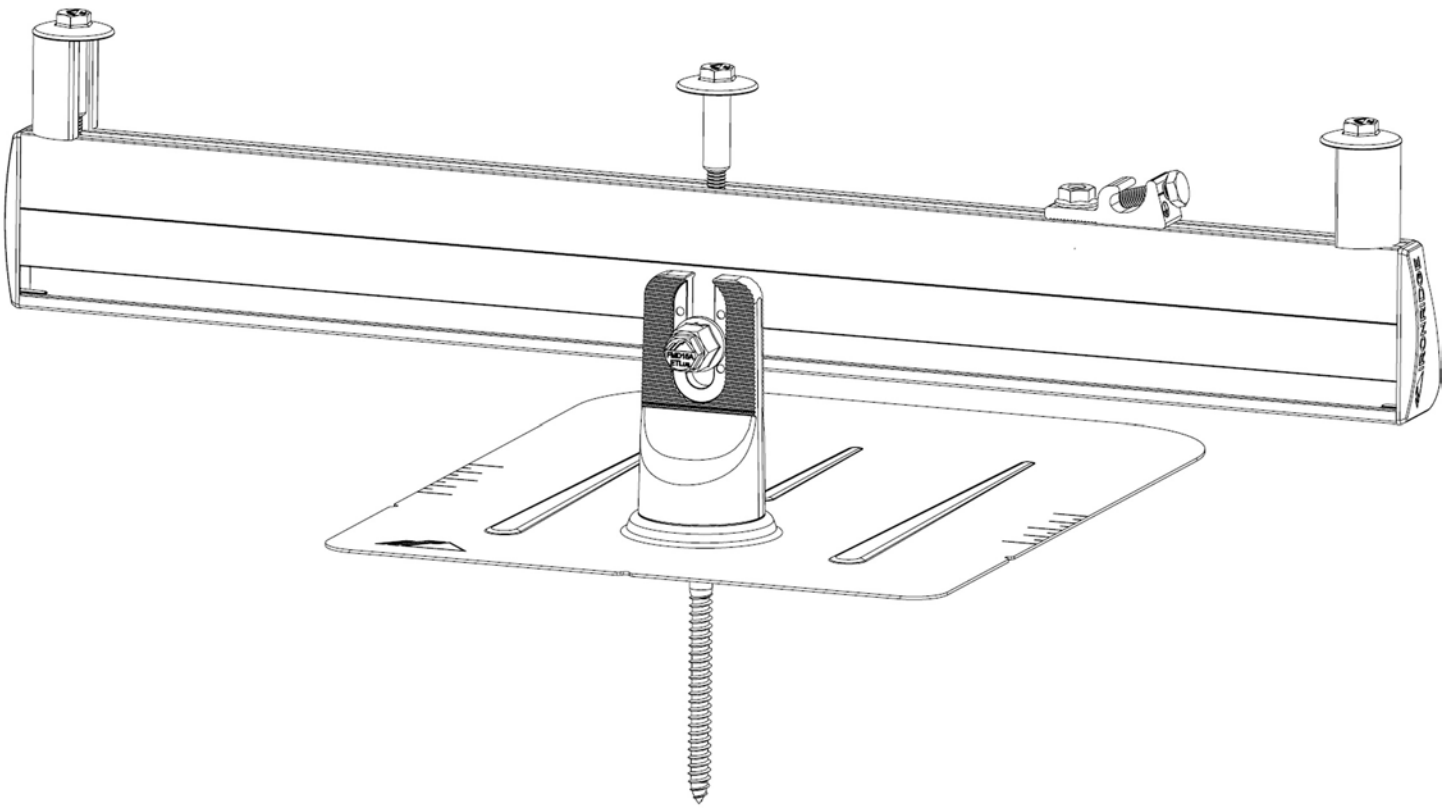
Height	13.7 in
Depth	3.9 in
Width	8.4 in
Weight	11.0 lb

Publications

Title	Publication No.	Publication Type
General Duty Safety Switches: 30-600 Amp, 240 Vac 1 page. For residential and light commercial applications.	DEE-576	Brochures
60A - Safety Switches 1 page outline drawing in .pdf format.	10103091-SH103	Drawings-Outline and Dimensional

Additional Documentation: Visit our Publication Library to find technical documentation, time current curves, CSI Specifications and promotional literature.

FLUSH MOUNT



INSTALLATION MANUAL

IRONRIDGE

CONTENTS

DISCLAIMER

This manual describes proper installation procedures and provides necessary standards required for product reliability. Warranty details are available on website. All installers must thoroughly read this manual and have a clear understanding of the installation procedures prior to installation. Failure to follow these guidelines may result in property damage, bodily injury or even death.

IT IS THE INSTALLER'S RESPONSIBILITY TO:

- Ensure safe installation of all electrical aspects of the array. All electrical installation and procedures should be conducted by a licensed and bonded electrician or solar contractor. Routine maintenance of a module or panel shall not involve breaking or disturbing the bonding path of the system. All work must comply with national, state and local installation procedures, product and safety standards.
- Comply with all applicable local or national building and fire codes, including any that may supersede this manual.
- Ensure all products are appropriate for the installation, environment, and array under the site's loading conditions.
- Use only IronRidge parts or parts recommended by IronRidge; substituting parts may void any applicable warranty.
- Review the Design Assistant and Certification Letters to confirm design specifications.
- Ensure provided information is accurate. Issues resulting from inaccurate information are the installer's responsibility.
- Ensure bare copper grounding wire does not contact aluminum and zinc-plated steel components, to prevent risk of galvanic corrosion.
- If loose components or loose fasteners are found during periodic inspection, re-tighten immediately. Any components showing signs of corrosion or damage that compromise safety shall be replaced immediately.
- Provide an appropriate method of direct-to-earth grounding according to the latest edition of the National Electrical Code, including NEC 250: Grounding and Bonding, and NEC 690: Solar Photovoltaic Systems.
- Disconnect AC power before servicing or removing modules, AC modules, microinverters and power optimizers.
- Review module and any 3rd party manufacturer's documentation for compatibility and compliance with warranty terms and conditions.

RATINGS

UL 2703 LISTED

#5003807

Conforms to STD UL 2703 Standard for Safety First Edition: Mounting Systems, Mounting Devices, Clamping/ Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels

- Max Overcurrent Protective Device (OCPD) Rating: 40A
- Max Module Size: 30.5 ft²
- Module Orientation: Portrait or Landscape
- System Design Load Rating: 10 PSF downward, 5 PSF upward, 5 PSF lateral
- Actual system structural capacity including spans and cantilevers are defined by PE stamped certification letters.
- CAMO Specific Design Load rating: 50 PSF downward, 50 PSF upward, 15 PSF lateral

Certified to CSA TIL No. A-40 Photovoltaic Module Racking Systems

- Load Rating: 2400 PA [50 PSF]

CLASS A SYSTEM FIRE RATING PER UL 2703

- Any Roof Slope with Module Types 1, 2, 3, 13, 19, 25 & 29: Allowed with any roof slope. Any module-to-roof gap is permitted, with no perimeter guarding required.
- Module Types 4 and 5: Allowed with Steep Slope Roofs (≥ 9.5°). Any module-to-roof gap is permitted, low edge guarding (Trim) required
- Class A rated PV systems can be installed on Class A, B, and C roofs without affecting the roof fire rating

CLASS B SYSTEM FIRE RATING PER UL 2703

- Module Types 4 and 5: Allowed with Steep Slope Roofs (≥ 9.5°). Any module-to-roof gap is permitted, with no perimeter guarding required

WATER SEAL RATINGS:

- UL 441 (Flashfoot2, All Tile Hook, Knockout Tile, Flashvue, L-Mount)
- TAS 100(A)-95 (Flashfoot2, All Tile Hook, Knockout Tile, Flashvue, L-Mount, Qbase)
- Tested and evaluated without sealant.
- Any roofing manufacturer approved sealant is allowed. Ratings applicable for roof slopes between 2:12 and 12:12

STRUCTURAL CERTIFICATION

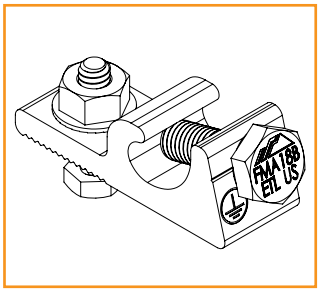
- Designed and Certified for Compliance with the International Building Code & ASCE/SEI-7

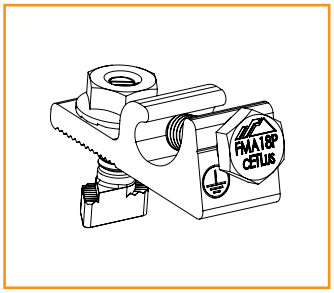
FLORIDA PRODUCT APPROVAL #FL29843

- Conforms to TAS202, TAS100(A)
- Approved for installation both inside and outside High Velocity Hurricane Zones (HVHZ)
- Allowable design pressure up to +100/-100 PSF
- Additional details and full list of approved components can be found Here.

MARKINGS

Product markings are located on the Grounding Lug bolt head.





ATTACHMENTS

PRE-INSTALLATION

☐ Verify module compatibility. See Page 21 for info.

TOOLS REQUIRED

- ☐ Cordless Drill (non-impact)
- ☐ Impact Driver (for lag bolts)
- ☐ Torque Wrench (0-250 in-lbs)
- ☐ 7/16” Socket
- ☐ 1/2" Socket
- ☐ 9/16" Socket
- ☐ 7/32" Drill Bit
- ☐ 1/8" Drill Bit
- ☐ 1/4" Drill Bit
- ☐ T30 Bit
- ☐ Channel Lock Pliers
- ☐ #3 Phillips Bit
- ☐ 3/16" Hex Bit

BONDING HARDWARE TORQUE VALUES

Please refer to each attachment's individual section for full details on all torque values and instructions.

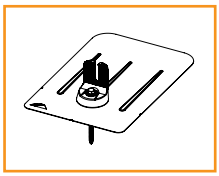
- ☐ 3/8" Bonding Hardware Nuts (7/16" Socket): 250 in-lbs
- ☐ All Tile Hook Carriage Bolts (7/16" Socket): 132 in-lbs
- ☐ Flat Roof Attachment Nuts (9/16” Socket): 250 in-lbs
- ☐ Lynx Set Screw (3/16" Hex Drive): 150 in-lbs
- ☐ Lynx Flange Nut (1/2" Socket): 150 in-lbs

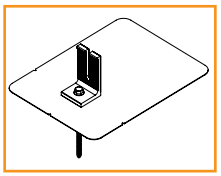
➢ **If using previous version of Integrated Grounding Mid Clamps, End Clamps, Expansion Joints and for a list of approved 3rd party components please refer to Alternate Components Addendum (Version 1.9)**

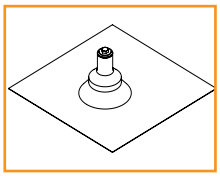
ATTACHMENTS

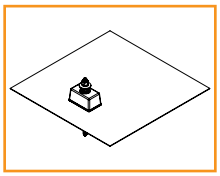
COMPOSITION SHINGLE

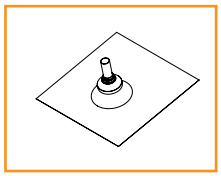

FlashFoot2


FlashVue

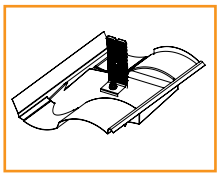

QM L-Mount

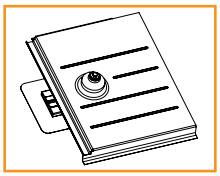

QM QBase

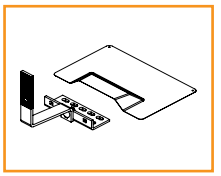

QM Classic Comp Mount

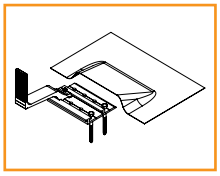

QM Composition Conduit Penetration

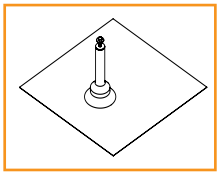
TILE

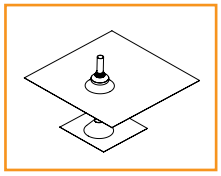

Knockout Tile


QM Tile Replacement

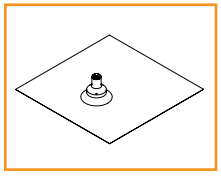

All Tile Hook and Flashing (optional)

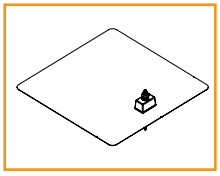

QM Quick Hook and Flashing (optional)

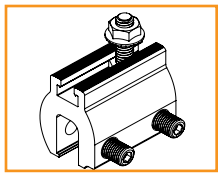

QM QBase Tile


QM Tile Conduit Penetration

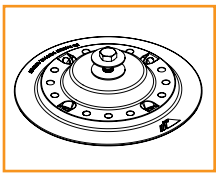
ADDITIONAL ROOF TYPES

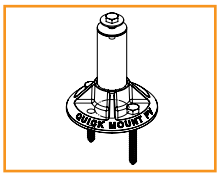

QM Qbase Shake - Slate - Metal Shingle


QM Classic Mount Shake


QM Lynx Metal Roof Attachment

LOW SLOPE ROOF


Flat Roof Attachment



QM QBase Mount

COMPONENTS

PRE-INSTALLATION

☐ Verify module compatibility. See Page 21 for info.

TOOLS REQUIRED

- ☐ Cordless Drill (non-impact)
- ☐ Impact Driver (for lag bolts)
- ☐ Torque Wrench (0-250 in-lbs)
- ☐ 7/16" Socket
- ☐ 1/2" Socket
- ☐ 9/16" Socket
- ☐ 7/32" Drill bit
- ☐ 1/8" Drill bit
- ☐ 1/4" Drill bit
- ☐ T30 Torx Bit
- ☐ Channel Lock Pliers
- ☐ #3 Phillips Bit
- ☐ Paddle Bit

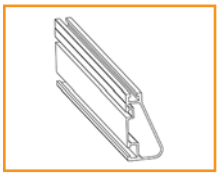
BONDING HARDWARE TORQUE VALUES

Please refer to each attachment's individual section for full details on all torque values and instructions.

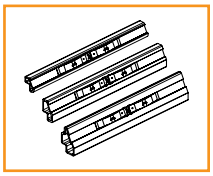
- ☐ Universal Fastening Object (7/16" Socket): 80 in-lbs
- ☐ Rail Grounding Lug Nut (7/16" Socket): 80 in-lbs
- ☐ Module Grounding Lug Nut (7/16" Socket): 60 in-lbs
  - ☐ Grounding Lug Terminal Screws (7/16" Socket): 20 in-lbs
- ☐ Expansion Joint Nuts (7/16" Socket): 80 in-lbs
- ☐ Microinverter Kit Nuts (7/16" Socket): 80 in-lbs
- ☐ Frameless Module Kit Nuts (7/16" Socket): 80 in-lbs
- ☐ 3/8" Bonding Hardware Nuts (7/16" Socket): 250 in-lbs
- ☐ Contour Clamp (T-30 Torx Bit): 80 in-lbs

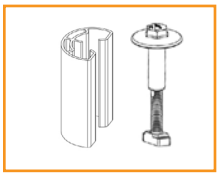
➢ **Unless otherwise noted, all components have been evaluated for multiple use. They can be uninstalled and reinstalled in the same or new location.**

COMPONENTS

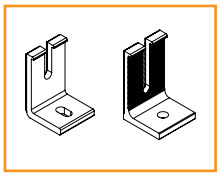

XR Rail


Wire Clip

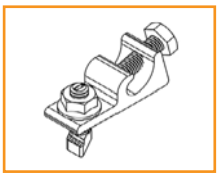

BOSS

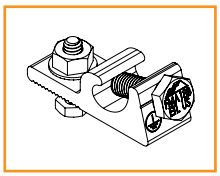

UFO and Stopper Sleeve (30-46MM)

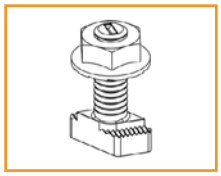

CAMO

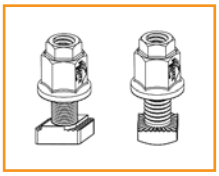

Ironridge L-Foot and QM L-Foot

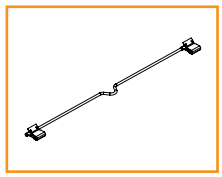
End Cap

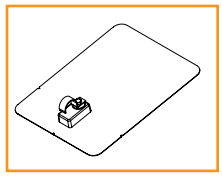

Rail Grounding Lug

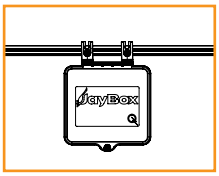

Module Grounding Lug


Microinverter Kit

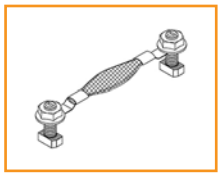

3/8" Bonding Hardware

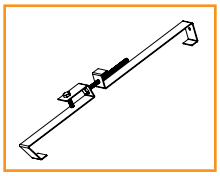

8" Bonding Jumper Single Use Only


QM Classic Conduit Comp Mount

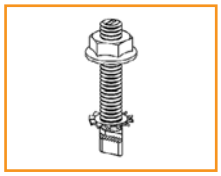


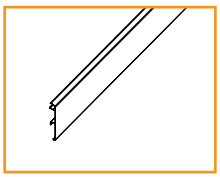
JAYBOX

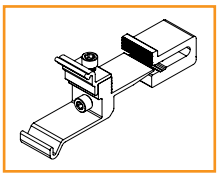

Expansion Joint


QM Tile Conduit Mount


Frameless End/Mid Clamp

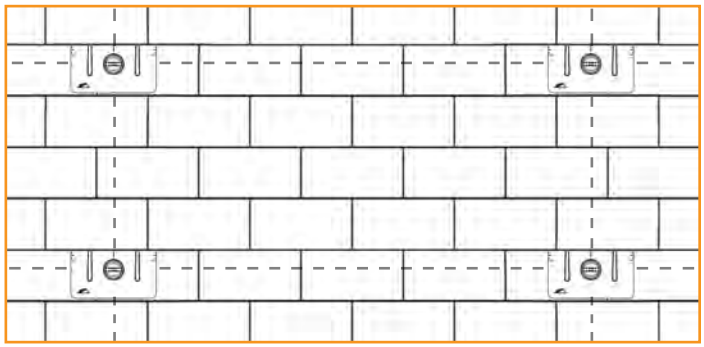

Frameless Module Kit


Contour Trim


Contour Clamp

1. PLACE ATTACHMENTS

The general installation method for attachments is to locate a rafter, drill a pilot hole and install the attachment. For composition roof attachments installation instructions refer to page 10. For tile roof attachments refer to page 12. For low slope roof attachments refer to page 14. When using approved third party attachments, refer to manufacturer's install instructions.



Tested or evaluated third-party roof attachments:

- **S-5! Standing Seam Metal Roof Clamps - Certification of metal roof clamps includes bonding to both painted and galvalume metal roofs. Tighten S-5! and S-5! Mini set screws to 130-150 in-lbs (≥ 24 gauge) or 160-180 in-lbs (22 gauge) roofs. Tighten S-5! M10 bolt to 240 in-lbs or S-5! Mini M8 bolt to 160 in-lbs. Use the following fastening guidelines for other S-5! roof clamps: ProteaBracket™ - firmly seat roof screws and tighten hinge bolt to 225 in-lbs; RibBracket™ - firmly seat roof screws and tighten M8 bolt (M8-1.25 x 22mm sold separately) to 160 in-lbs; and SolarFoot™ - firmly seat roof screws and tighten M8 flange nut to 160 in-lbs.**
- **EcoFasten Green Fasten GF-1 Anchors**

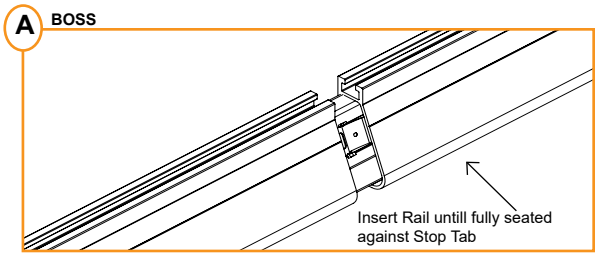
2. PLACE RAILS

A. CONNECT SPLICES

Use BOSS(Bonded Structural Splice), as needed, to join multiple sections of Rail.

BOSS - Bonded Structual Splice
Insert BOSS into first Rail up until the Stop Tab. Slide second Rail fully into place.

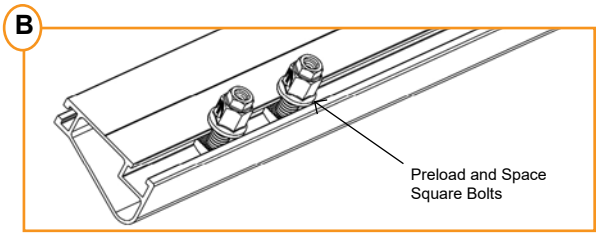
- **Rows using BOSS and exceeding 100 feet of Rail must use Expansion Joints.**
- **Boss Splices may be installed in any location within a span.**
- **UFO and Bonding Hardware must be installed 1" away from the point where two Rails join together.**



B. PREPARE HARDWARE

Slide square-headed bolts into side-facing rail slot. Space out bolts to match attachment spacing.

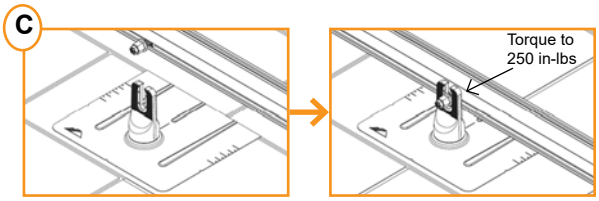
- **Tape ends of rail, to keep bolts from sliding out while moving.**
- **If using T-bolts, carry hardware onto roof and proceed.**



C. ATTACH RAILS

Drop rail with hardware into roof attachment. Level rail at desired height, then torque to **250 in-lbs**.

- **Rail can face either upslope or downslope on roof.**
- **When using attachments with longer slots, do not install Rail lower than the top of the L-Foot to avoid damage to modules.**



3. SECURE LUGS

Grounding Lugs

Only one Grounding Lug (Rail or Module) required per continuous subarray, regardless of subarray size (Unless frameless modules are used, see Page 20).

- **Grounding Lugs are intended to for use with one solid or stranded copper wire, conductor size 10-4 AWG.**

Rail Grounding Lug

Insert T-bolt in Top Rail slot and torque Hex Nut to **80 in-lbs**. Install a minimum 10 AWG solid copper or stranded grounding wire. Torque terminal screw to **20 in-lbs**.

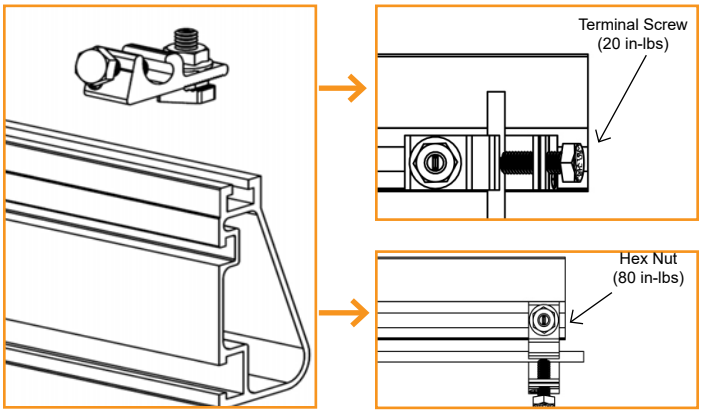
- **Module Grounding Lugs can be installed anywhere along the Rail and in either orientation shown.**

Module Grounding Lug

Insert Bolt through Manufacturer approved grounding location and torque Hex nut to **60 in-lbs.** One Module Grounding Lug may be installed to one module per row. Install a minimum 10 AWG solid copper or stranded grounding wire. Torque terminal screw to **20 in-lbs**.

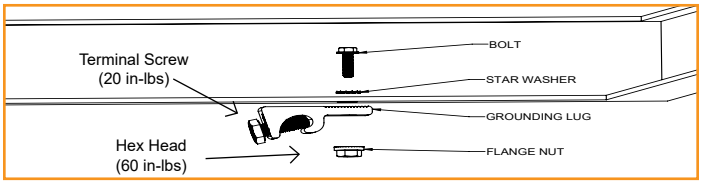
- **If using Enphase microinverters or Sunpower AC modules, Grounding Lugs may not be needed. See Page 19 for more info.**
- **Refer to module manufactuer for mounting location and instructions.**

Rail Grounding Lug



Use with one solid or stranded copper wire, conductor size 10-4AWG.

Module Grounding Lug



4. SECURE MODULES

A. SECURE FIRST END

Place first module in position on rails, a minimum of 1" from rail ends. Snap Stopper Sleeves onto UFO. Fasten module to rail using the UFO, ensuring that the UFO is hooked over the top of the module. Torque to **80 in-lbs**.

- **Ensure rails are square before placing modules.**
- **Hold Stopper Sleeves on end while torquing to prevent rotation.**
- **If using CAMO instead of UFO + Stopper Sleeve, refer to Page 19 for CAMO installation procedure.**
- **UFO can be installed on modules 30 to 46mm.**

B. SECURE NEXT MODULES

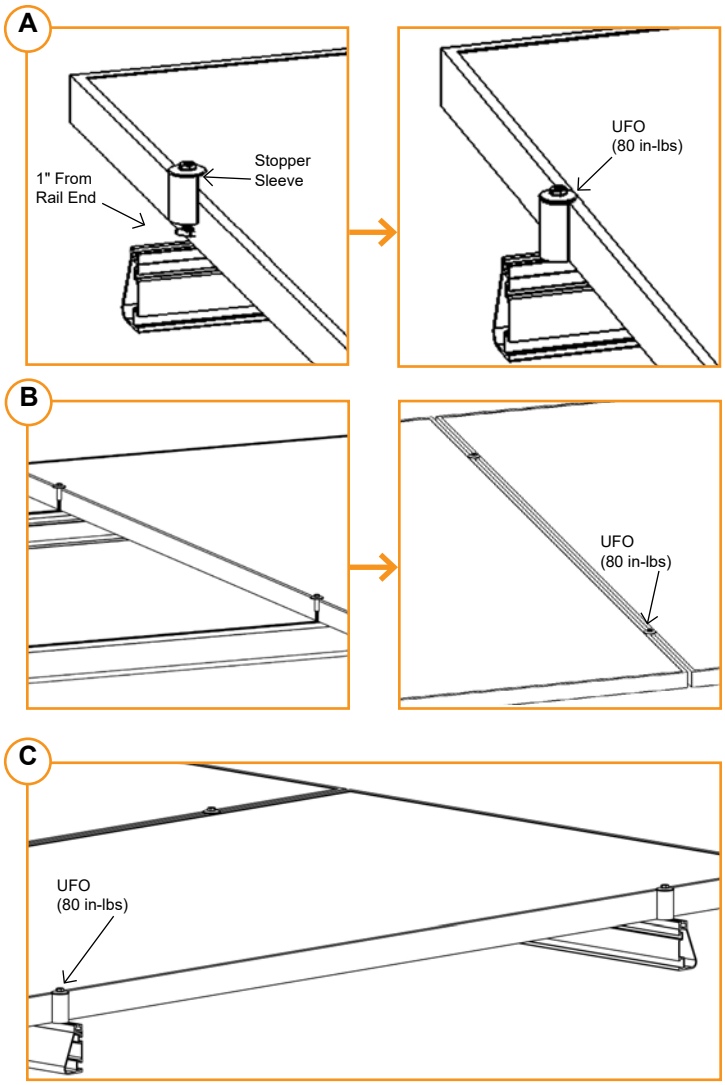
Place UFO into each rail, placing them flush against first module. Slide second module against UFO. Torque to **80 in-lbs**. Repeat for each following module.

- **When reinstalling UFO, move modules a minimum of 1/16" so UFOs are in contact with a new section of module frame.**
- **When UFOs are loosened and re-tightened, ensure UFO T-bolt bottoms out in rail channel before re-torquing UFO to achieve full engagement between T-bolt and rail.**
- **If using Wire Clips, refer to Page 18.**

C. SECURE LAST END

Place last module in position on rails, a minimum of 1" from rail ends. Snap Stopper Sleeves onto UFO. Secure UFO Clamps on rails, ensuring they are hooked over top of module. Torque to **80 in-lbs**.

- **Hold Stopper Sleeves on end while torquing to prevent rotation.**
- **Repeat all steps for each following row of modules, leaving a minimum 3/8" gap between rows**
- **If using CAMO instead of UFO + Stopper Sleeve, refer to Page 6**



CAMO

A. SLIDE INTO RAIL

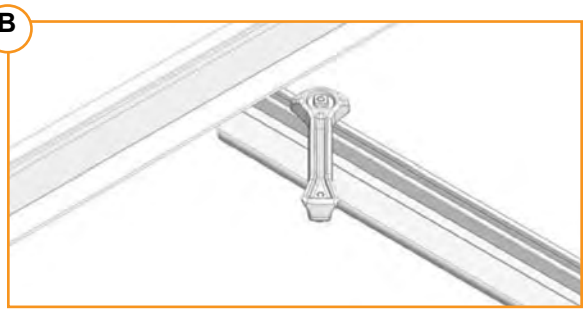
Slide CAMO into rail channel far enough to clear the module frame. CAMO requires 6" of clearance from end of rail.

A

B. PLACE MODULE

Place module on rails (module cells not shown for clarity). When installing CAMO the module can overhang the rail no more than 1/4".

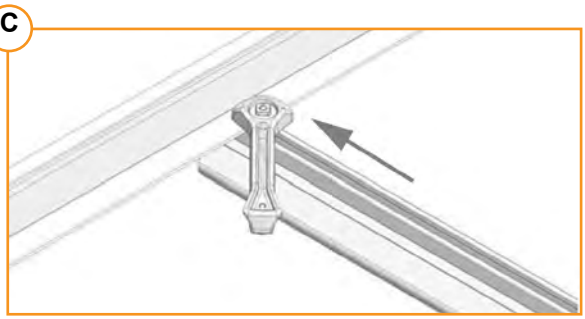
B



C. PULL TOWARDS END

Pull CAMO towards rail ends, at 45 degree angle, so the bonding bolt contacts the module flange edge.

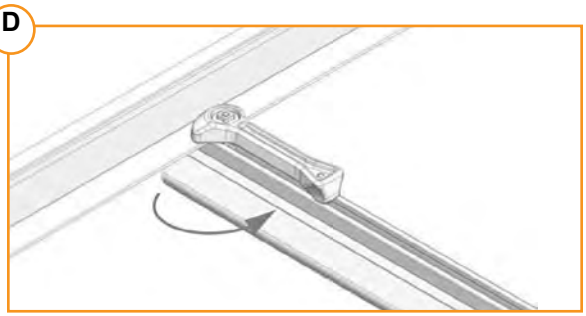
C



D. SECURE TO FRAME

Rotate handle with an upwards motion until CAMO snaps into rail channel. Ensure CAMO bonding pins are fully seated on top of module frame.

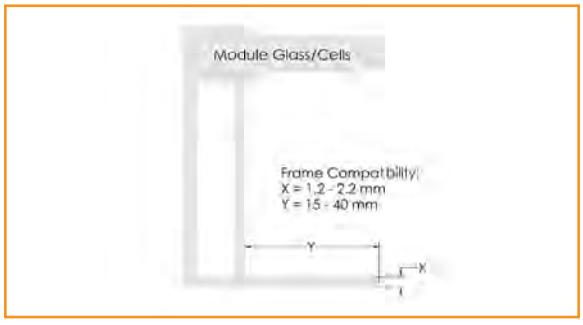
D



FRAME COMPATIBILITY

CAMO has been tested or evaluated with all modules listed in the Module Compatibility section having frames within the referenced dimensions. Be sure the specific module being used meets the dimension requirements.

- **For installations with Hanwha Q CELLS modules with 32 mm frame heights, the maximum ground snow is 45 PSF (33 PSF module pressure).**
- **CAMO is only compatible with Canadian Solar modules CS1YxxxMS and CS3N-xxxMS. "xxx" refers to the module power rating**



8" BONDING JUMPER

8" Bonding Jumper is an electrical bonding jumper that can be used on the Flush Mount System for row to row bonding; making the module frames the medium for the equipment ground path.

- **Bonding jumper is pushed onto the bottom flange of the module.**
- **New jumpers should be used if re-installation of jumper is required.**
- **Supports bottom flange thicknesses from 1.2mm to 3.1mm.**

EXPANSION JOINTS

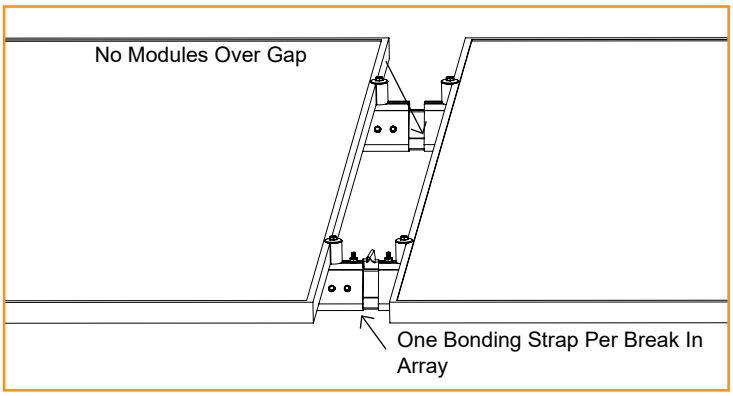
Expansion Joints are required every 100' of continuous rail to allow for thermal expansion and contraction of the system.

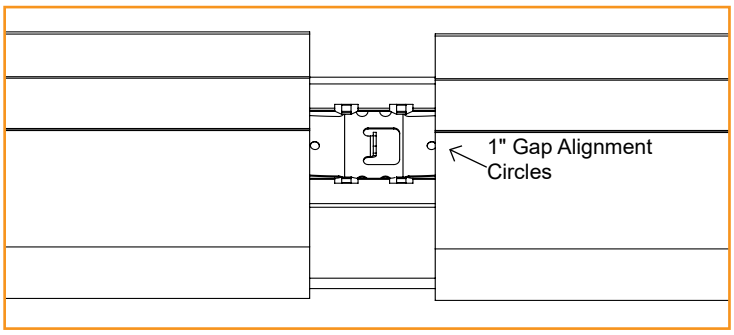
- **Do not install modules over expansion joint.**

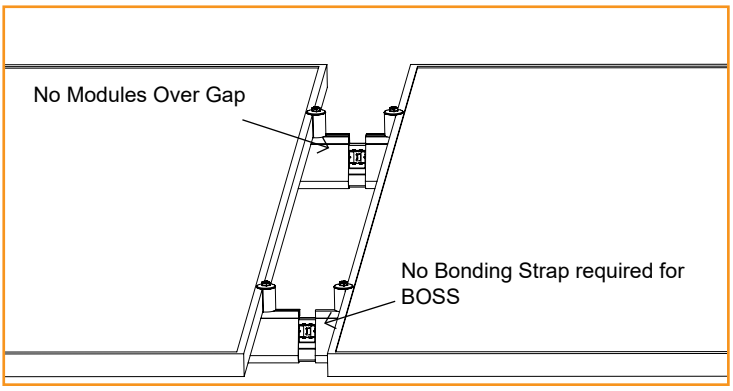
BOSS

Insert BOSS into first Rail up to the Alignment Circle, Slide second Rail over BOSS to the second Alignment Circle, leaving a 1" gap between the Rails.

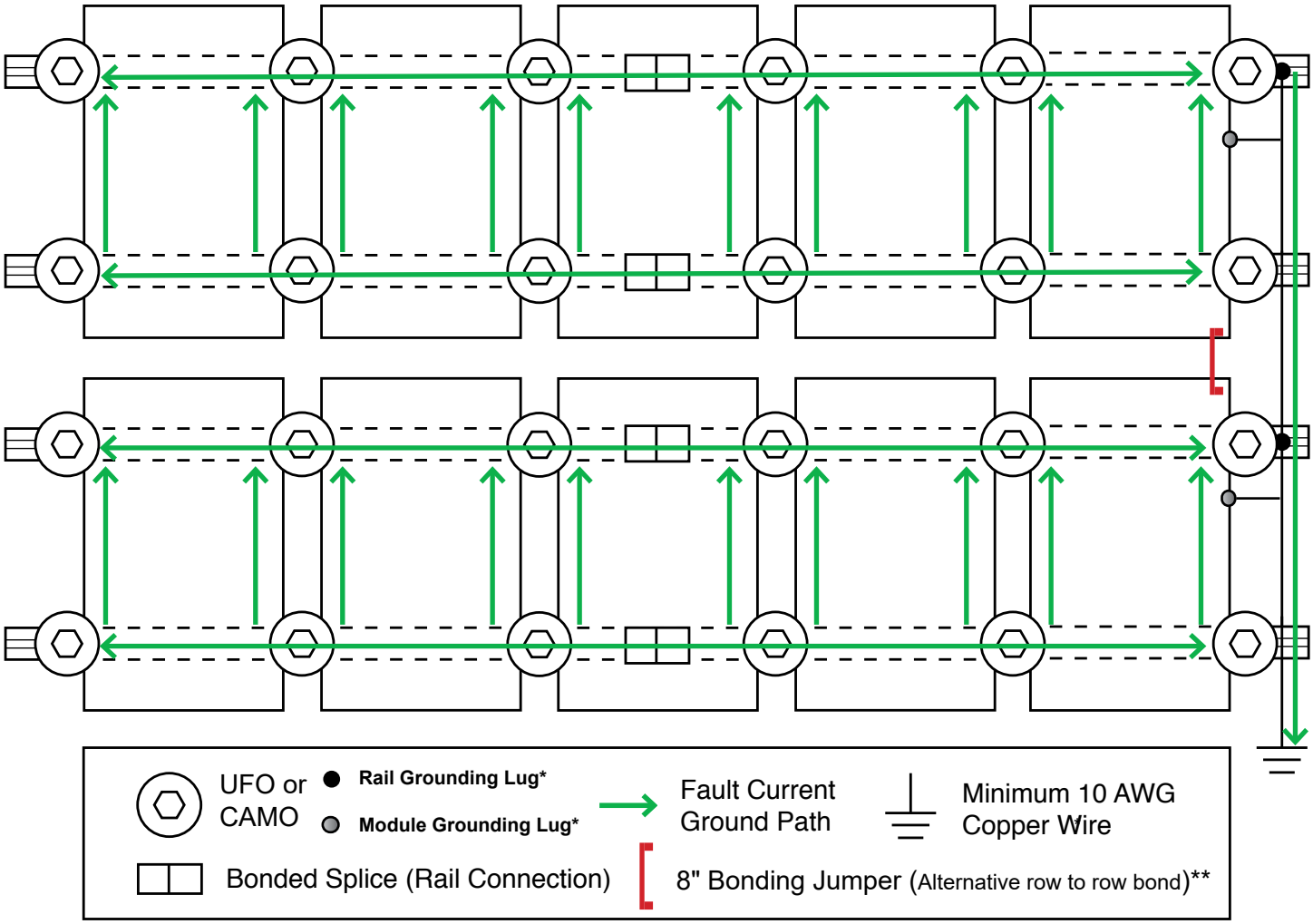
There must be a 1" of space between the edge of the Rail and the edge of the panel to allow proper installation of the UFO and Stopper Sleeve.







ELECTRICAL DIAGRAM



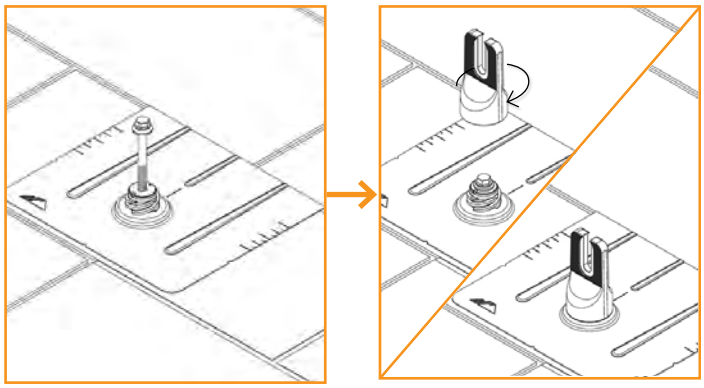
*One Module Grounding Lug or Rail Grounding lug is required per row of a system.

** The use of the 8" Bonding Jumper eliminates the need for row to row bonding. A minimum of one grounding lug per continuous array is required for earth ground.

Grounding Lugs and wire are not required in systems using certain Enphase microinverters or certain Sunpower modules. Equipment grounding is achieved with the Engage cable for Enphase or the AC module cable system for Sunpower via their integrated EGC.

FLASHFOOT2

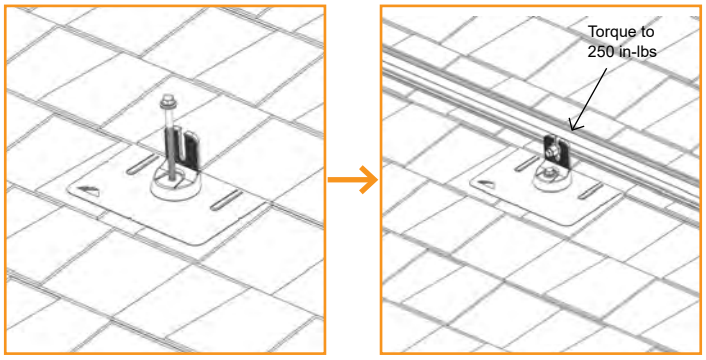
Locate roof rafters and mark locations on roof. Drill 1/4" pilot holes perpendicular to the roof and back fill with roofing manufacturers' approved sealant. Slide flashing between 1st and 2nd course of shingles, ensuring both that the flashing reaches under the 3rd shingle course and doesn't overhang the downhill shingle course. Line up with pilot hole and insert supplied lag bolt with washer through flashing. With a 7/16" Socket fully seat lag bolt. Place Cap onto flashing in desired orientation for E/W or N/S rails and rotate 180 degrees until it locks into place.



- **Rail can be installed on either side of FlashFoot2 Cap.**
- **For additional details refer to the full FlashFoot2 Installation Manual.**

FLASHVUE

Locate rafters and snap vertical and horizontal lines to mark locations of flashings. Drill 1/4" pilot holes, then backfill with an approved sealant. Slide flashing between 1st and 2nd course of shingles, ensuring both that the flashing reaches under the 3rd shingle course and doesn't overhang the downhill shingle course. Line up pilot hole with View Port. Press Grip Cap onto flashing in desired orientation for E/W or N/S rails. Insert Lag Bolt with mechanically bonded washer through flashing. With a 7/16" Socket drive Lag Bolt until fully seated. FlashVue is now installed and ready for IronRidge XR Rails.
Attach rails to either side of the open slot using bonding hardware. Level rail at desired height, then torque to **250 in-lbs (21 ft-lbs).**
When installing Gripcap+ on roofs with undulations greater than 1 inch, install GripCap+ in low points across the array as required.

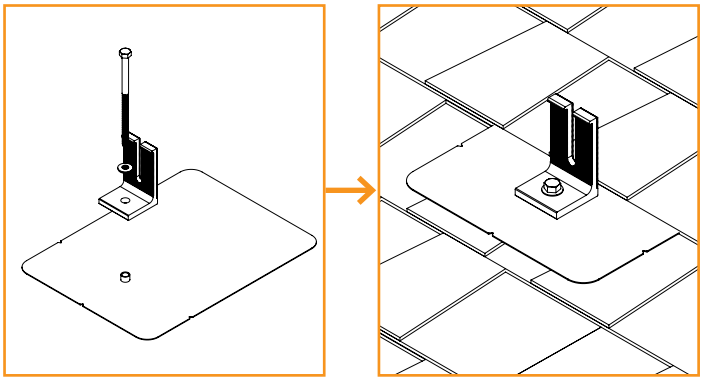


- **For additional details refer to the full FlashVue Installation Manual.**
- **For additional details on the GripCap+ refer to the full GripCap+ Installation Manual.**

COMPOSITION SHINGLE

QM L-MOUNT

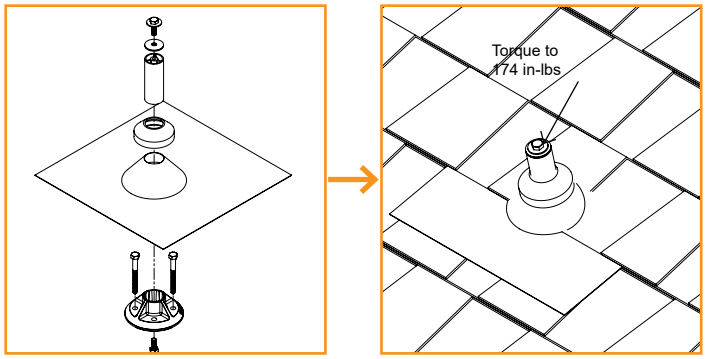
Locate roof rafters and mark locations on roof. Drill 7/32”(Lag) or 1/8"(ST) pilot holes perpendicular to the roof and back fill with roofing manufacturers' approved sealant. Slide flashing between 1st and 2nd course of shingles, ensuring both that the flashing reaches under the 3rd shingle course and doesn't overhang the downhill shingle course. Place L-foot on flute and rotate into desired position. Prepare lag bolt or structural screw with sealing washer. Use 1/2" socket to drive prepared lag bolt through L-foot until fully seated and L-foot can no longer rotate easily. Torque Nut to **156 in-lbs (13 ft-lbs)** for ST. Attach rail to L-Foot with Bonding Hardware and torque to **250 in-lbs (21 ft-lbs).**



- **Structural screw can be driven with T-30 hex head bit.**
- **For additional details refer to the full QM Installation Manual.**

QM QBASE COMPOSITION MOUNT

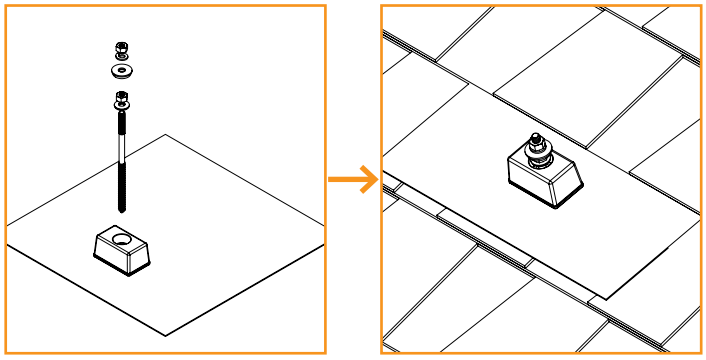
Locate roof rafters and mark locations on roof. Align QBase vertical holes over center rafter and mark. Drill two pilot holes with 7/32" drill bit, perpendicular to roof and back fill with roofing manufacturers' approved sealant. Set grade 8 cap screw through bottom of QBase, place QBase over drilled holes and secure lags. Screw Post to QBase. Proceed with roofing up until the flashing should be installed. Install flashing over mount. Allow roofing to proceed to the next course. Apply sealant where post and flashing meet, install EPDM counter flashing collar. Attach L-Foot on Standoff with hardware. Torque to **174 in-lbs (14.5 ft-lbs)**. Attach rail to L-Foot with Bonding Hardware and torque to **250 in-lbs (21 ft-lbs).**



- **For additional details refer to the full QM Installation Manual.**

CLASSIC COMP MOUNT

Locate roof rafters and mark locations on roof. Drill 7/32" pilot holes perpendicular to the roof and back fill with roofing manufacturers' approved sealant. Slide flashing between 1st and 2nd course of shingles, ensuring both that the flashing reaches under the 3rd shingle course and doesn't overhang the downhill shingle course. Prepare Hanger Bolt with Hex Nut and Sealing Washer, insert into hole and using 1/2" socket drive hanger bolt until fully seated and QBlock stops rotating easily. Insert EPDM rubber washer over hanger bolt into block, using Rack Kit hardware secure L-Foot to the mount. Torque to **156 in-lbs (13 ft-lbs)**. Attach rail to L-Foot with Bonding Hardware and torque to **250 in-lbs (21 ft-lbs).**

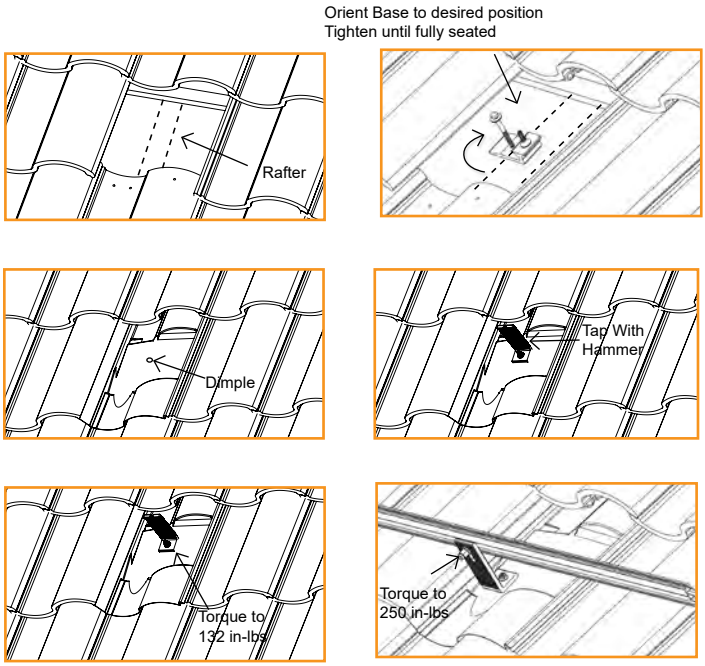


- **For additional details refer to the full QM Installation Manual.**

KNOCKOUT TILE

Remove tile and mark rafter. Use base as guide to drill 1/4” pilot hole and fill with roofing manufacturer’s approved sealant. Install optional Roof Flashing and seal appropriately. Insert lag bolt with bonded washer through base (and flashing if used) and drive until fully seated. Insert Tile Replacement Flashing, lower onto base and apply pressure over the threaded post until it dimples the flashing. Place L-Foot over dimple and tap with hammer to punch threaded post through the flashing. Ensure punched pieces of flashing are cleared away. Form flashing as needed to sit flush with surrounding tiles, position L-Foot in desired orientation and torque hardware to **132 in-lbs (11 ft-lbs)**. Attach rail to L-Foot with Aire Dock and torque to **250 in-lbs (21 ft-lbs)**.

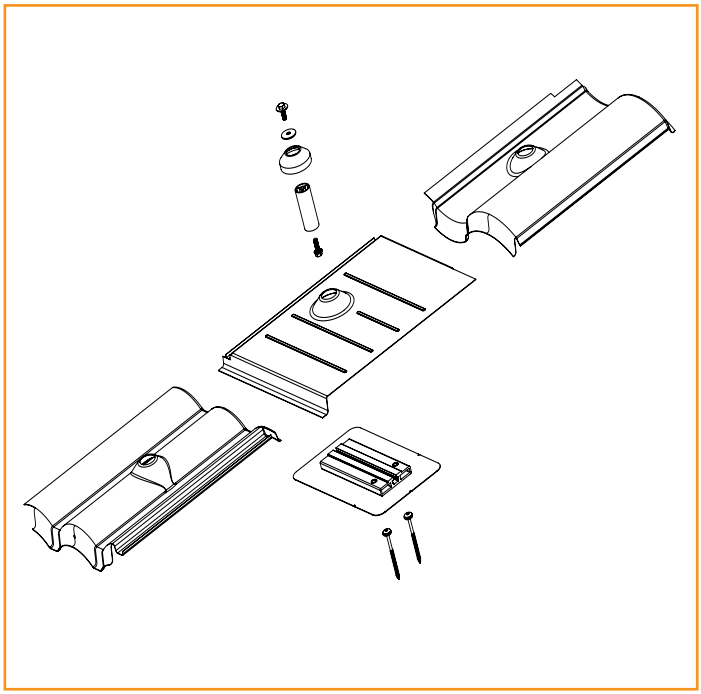
- **Base can be installed in any orientation relative to rafter.**
- **Ensure L-Foot does not extend above rail.**
- **Optional deck level flashing is available. Standalone installation manual available on website**
- **Standalone Knockout Tile manual available on website.**



QM TILE REPLACEMENT

Remove tile and mark rafter. Measure up 8 3/4" from the adjacent tiles and mark horizontal across rafter. Align baseplate over rafter so that the lag holes align with the post groove. The orientation of the plate can be adjusted cross roof, mark location of lag holes on the roof. Drill two 1/8" Pilot holes and back fill with roofing manufacturers' approved sealant. Waterproof at underlayment level according to roofing manufacturers' instructions and the Tile Roofing Industry Alliance guidelines. Use T-30 Torx bit to lag base into position. Insert Grade 8 Serrated Flange Bolt into bottom of the Post, slide Post into Base channel. Line up post with the hole in the Tile Replacement Flashing. Leave loose for adjustments. Place Tile Replacement Flashing over the Post and Mount, allowing the flashing to properly interlock with surrounding tiles. Secure Post by tightening with channel lock pliers. Replace all tiles. Apply a bead of sealant where the post meets the flashing, slip EPDM collar over post and down to flashing. Attach L-Foot on Standoff with hardware. Torque to **174 in-lbs (14.5 ft-lbs).** Attach rail to L-Foot with Bonding Hardware and torque to **250 in-lbs (21 ft-lbs)**.

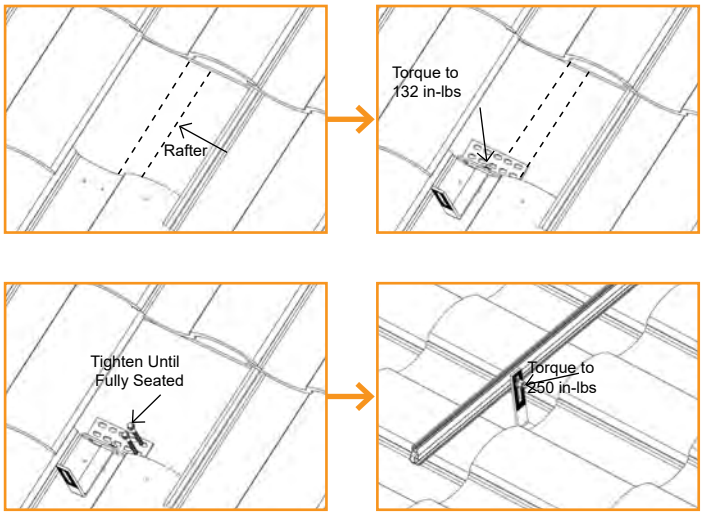
- **If deck level flashing is required, approved flashing methods include user supplied adhesive backed flexible flashing.**
- **For additional details refer to the full QM Installation Manual.**



ALL TILE HOOK

Remove tile and mark rafter. Position base over rafter, adjust arm if necessary and torque hardware to **132 in-lbs (11 ft-lbs)**. Use base as guide to drill 1/4" pilot holes, back fill with roofing manufacturer's approved sealant, then insert lag bolts and tighten until fully seated. Replace tiles and notch as necessary to ensure proper fit. Attach rails to either side of slot using Bonding Hardware and torque to **250 in-lbs (21-ft-lbs)**.

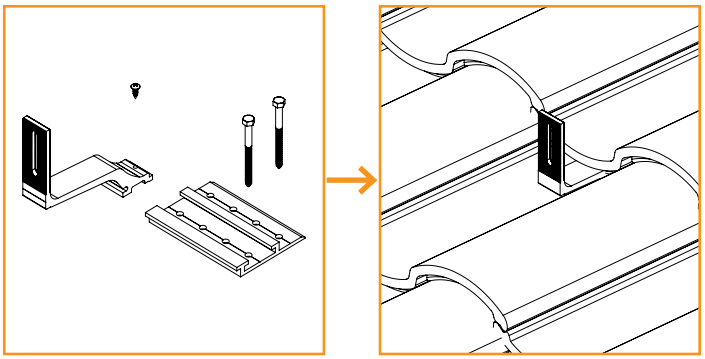
- **Position arm near the center of valley for curved tiles.**
- **Position arm away from seam of joining flat tiles.**
- **Ensure top of hook does not extend above rail.**
- **Standalone All Tile Hook manual available on website.**

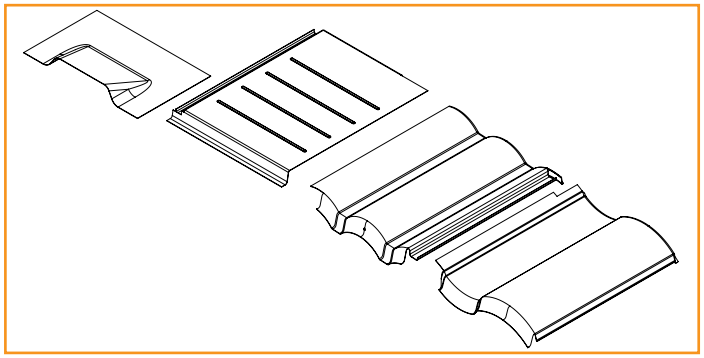


QM QUICK HOOK

Remove tile and mark rafter, use Base Plate to mark two holes on rafter. Drill two 7/32" pilot holes and back fill with roofing manufacturers' approved sealant. Use 1/2" socket to drive lag into place. Slide hook into place and adjust to desired position. Drive self-tapping screw using a #3 Phillips bit to lock hook in place. Clean underlayment and apply a bead of sealant compatible with roofing manufacturer, install flashing over mount. Fasten sub-flashing to deck with one roofing nail in each corner. Waterproof at underlayment level according to roofing manufacturers' instructions and the Tile Roofing Industry Alliance guidelines. Cut clearance notch in the weather guard of tile as needed or utilize QM Tile Replacement Flashings. Attach rails to either side of slot using Bonding Hardware and torque to **250 in-lbs (21-ft-lbs)**.

- **Position arm near the center of valley for curved tiles.**
- **Position arm away from seam of joining flat tiles.**
- **Ensure top of hook does not extend above rail.**
- **For additional details refer to the full QM Installation Manual.**

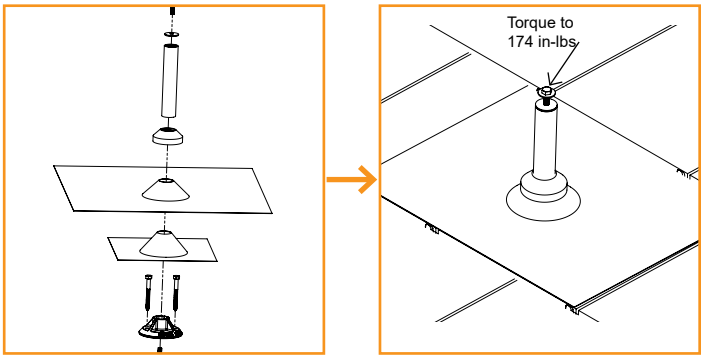




TILE

QM QBASE UNIVERSAL TILE MOUNT

Remove tile and mark rafter. Measure up 6 5/8" from bottom of tiles and mark horizontally. Align QBase over rafter center and drill two 7/32" pilot holes, back fill with roofing manufacturers' approved sealant. Place grade-8 Cap Screw under QBase, lag QBase into rafter location. Install Sub-flashing, waterproof at underlayment level according to roofing manufacturers' instructions and the Tile Roofing Industry Alliance guidelines. Cut tile with diamond blade to allow post to pass through. Place tile in position and then install Post. Install 18"x18" flashing, pre-bent to follow the contour of the tile as required. Apply sealant where Post and Flashing meet and install EPDM counter flashing. Attach L-Foot on Standoff with hardware. Torque to **174 in-lbs (14.5 ft-lbs).** Attach rails to L-Foot using Bonding Hardware and torque to **250 in-lbs (21-ft-lbs)**.

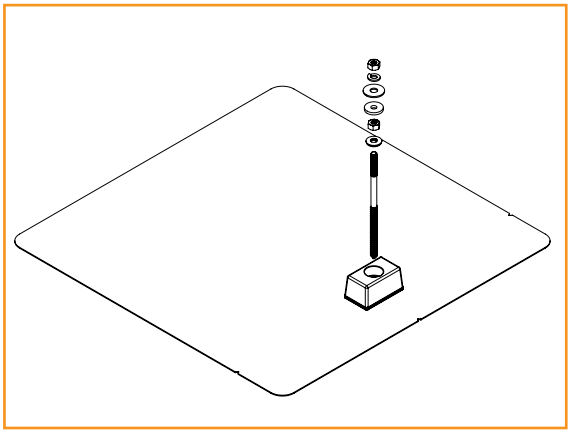


- **For additional details refer to the full QM Installation Manual.**

ADDITIONAL ROOF TYPES

QM CLASSIC SHAKE MOUNT

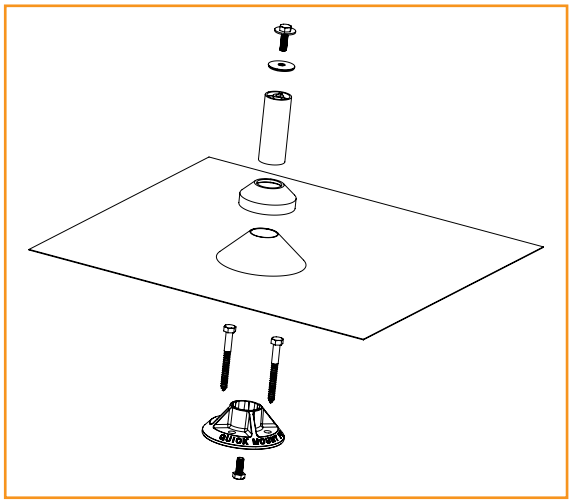
Locate roof rafters and mark locations on roof, remove shakes directly above mount if needed to expose felt paper. Level out installation area and location installation point, mark. Drill 7/32" pilot hole, back fill with roofing manufacturers' approved sealant. Prepare Hanger Bolt with Hex Nut and Sealing washer, insert into QBlock hole and drive into rafter until fully seated and the QBlock no longer swivels easily. Insert EPDM washer over hanger bolt and then install L-Foot in desired orientation and torque hardware to **132 in-lbs (11 ft-lbs)**. Attach rail to L-Foot with Bonding Hardware and torque to **250 in-lbs (21 ft-lbs)**.



- **For additional details refer to the full QM Installation Manual.**

QM QBASE METAL, SHAKE AND SLATE

The QM QBase can be used to install on multiple roofing types with different installation methods.

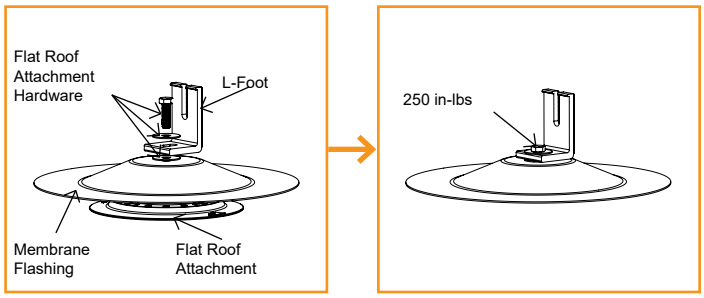


- **For instructions on installing the QBase on Slate refer to the full QM Installation Manual.**
- **For instructions on installing the QBase on Shake refer to the full QM Installation Manual.**
- **For instructions on installing the QBase on Metal Shingle refer to the full QM Installation Manual.**

LOW SLOPE ROOFS

FLAT ROOF ATTACHMENT

Flat Roof Attachment can be used with an L-foot for flush mounting modules on low sloped roofs. Mark locations for Flat Roof Attachment. Screws should be installed symmetrically to each other. If using a membrane flashing, remove the silicone washer's protective liner prior to attaching the membrane. Attach L-foot with washers and 3/8” hardware torqued to **250 in-lbs (21 ft-lbs)**. Seal attachment and/or membrane per roofing manufacturer’s requirements.

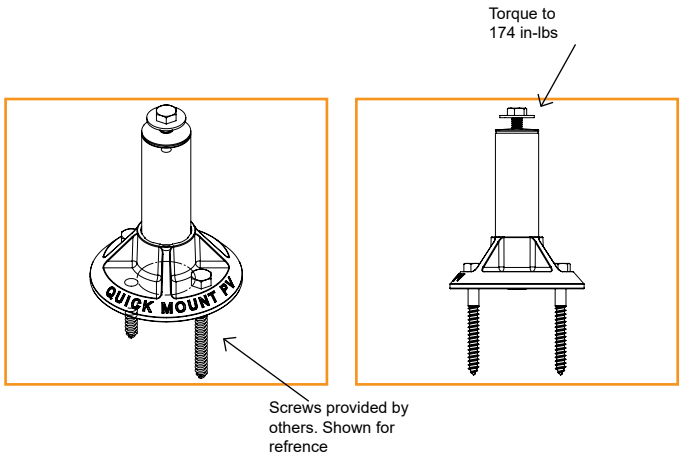


- **Type, size, and quantity of roof screws to be specified by Structural Engineer. Fastener size not to exceed #15.**
- **Membrane flashing available for TPO, PVC, and KEE roofs. Ensure membrane flashing is compatible with existing roofing material.**
- **If membrane flashing is not used, only washer on top of L-Foot is required.**
- **Standalone Flat Roof Attachment Manual available on website.**

QM QBASE MOUNT

Locate the desired mount placement over a rafter. Using the base as a template, mark the two penetration points. Drill two 7/32" pilot holes, back fill with roofing manufacturers' approved sealant. Place the grade-8 hex bolt in the bottom of the base and screw the Post. Attach L-Foot on Standoff with hardware. Torque to 1**74 in-lbs (14.5 ft-lbs).** Attach rail to L-Foot with Bonding Hardware and torque to **250 in-lbs (21 ft-lbs).**

The mount can be flashed with available 9", 12" or 18" aluminum flashings, pitch pocket or curb, or with a membrane cone flashing. If using a membrane flashing utilize the services of a qualified roofer

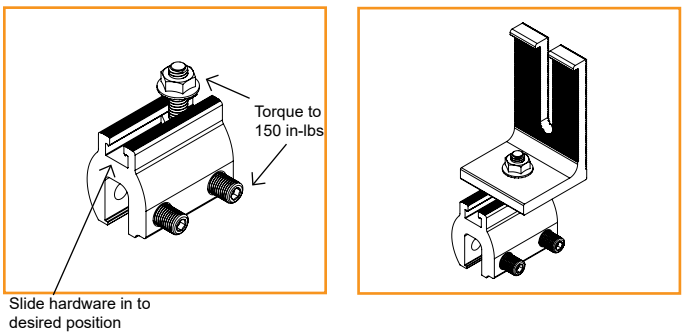


- **For additional details refer to the full QM Installation Manual.**

METAL ROOF

QM LYNX

Locate the desired mount placement over a roofing seam, make sure block is fully seated on metal seam. Torque Set Screws to **150 in-lbs(12.5 ft-lbs)** using 3/16" Hex Drive, alternate driving each bolt till required torque is met. Slide Hex Bolt into slot and to desired position. Place rail attachment bracket over Hex Bolt and secure with Flange Nut, torque Flange Nut to **150 in-lbs(12.5 ft-lbs)** using 1/2" socket.

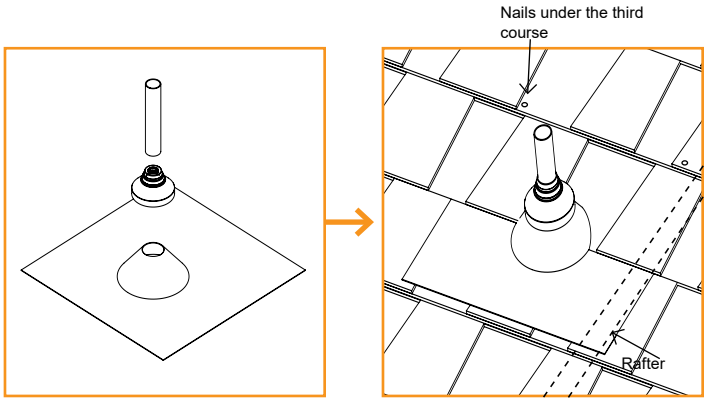


- **For additional details refer to the full QM Installation Manual.**
- **Certification of Lynx calmp includes bonding to both painted and galvalume metal roofs.**

CONDUIT PENETRATION FLASHINGS

QM CONDUIT PENETRATION FLASHING - COMP SHINGLE

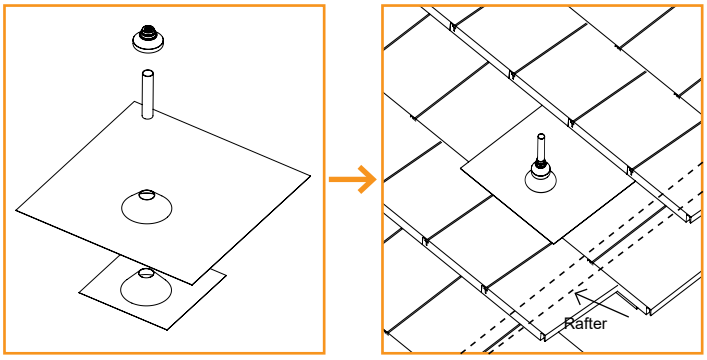
Mark a drill point so that the flashing reaches up to the 3rd shingle course. Drill your conduit hole next to the rafter so you can secure the conduit below the roof surface. Cut shingle and remove nails as needed to center the drilled hole and flashing hole. Apply roofing manufacturer's approved sealant on the underside of the flashing in a Upside down U and to top of flashing. Under the 3rd course and through the second course secure flashing with 2 roofing nails, apply sealant over the nail heads. Cut EPDM collar to appropriate size. Apply a bead of sealant compatible with the roofing manufacturer and EPDM rubber to anywhere the EPDM collar contacts.



- **Be sure to secure conduit to rafters below the roof surface per local building codes and NEC code requirements.**
- **Cut EPDM collar to appropriate size using the sizing chart in the installation manual, approved for 1/2" to 1" EMT.**
- **For additional details refer to the full QM Installation Manual.**

QM CONDUIT PENETRATION FLASHING - TILE

Drill your conduit hole next to the rafter so that you can secure the conduit below the roof surface. Apply roofing manufacturer approve sealant to the underside of the sub-flashing in the shape of an upside down U. Clear away any dust and debris to install sub-flashing. Waterproof at under laminate level according to roofing manufacturer instructions and Tile Roofing Institute Guidelines. Under the top layer of felt, secure the sub-flashing with two roofing nails. Cut EPDM collar to appropriate size. Apply a bead of sealant compatible with the roofing manufacturer and EPDM rubber to anywhere the EPDM collar contacts. With a diamond blade cut tile to allow conduit to pass through, replace all tiles. Bend the flashing to follow the contour of the tiles. Place flashing over the conduit and tuck up under the next course of tiles. Apply a bead of sealant compatible with the roofing manufacturer and EPDM rubber to anywhere the EPDM collar contacts. Slide collar onto conduit all the way down to the flashing.



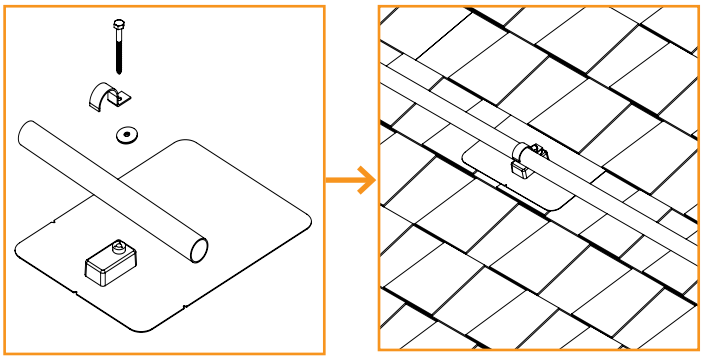
- **Be sure to secure conduit to rafters below the roof surface per local building codes and NEC code requirements.**
- **Cut EPDM collar to appropriate size using the sizing chart in the installation manual, approved for 1/2" to 1" EMT.**
- **For additional details refer to the full QM Installation Manual.**

CONDUIT MOUNT

QM CONDUIT MOUNT - COMPOSITION SHINGLE

Place conduit mounts along path of conduit. Lift shingle above mount location and insert flashing into position. Mark center for drilling, remove flashing and drill pilot hole with 1/8" bit. Clean area, fill hole with roofing manufacturer's approved sealant. Lift shingle and slide Conduit Mount into place. Prepare the lag bolt with sealing washer and pipe clamp (not included). Insert lag through hole in block and drill with 7/16" socket until block is tight.

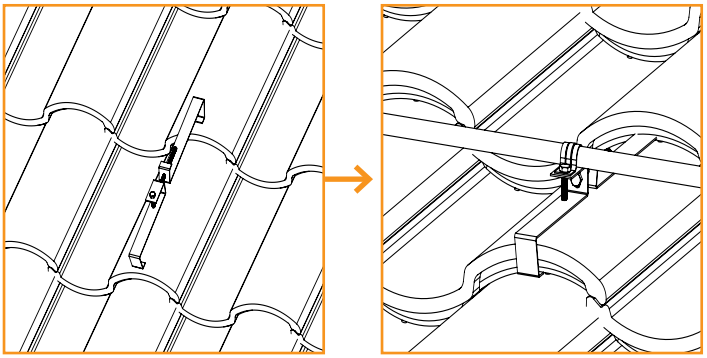
- **Install mounts as required to support conduit across the roof.**
- **For additional details refer to the full QM Installation Manual.**



QM CONDUIT MOUNT - TILE

Remove the tile that the mount will be installed on, and the tiles in the course above it. Lift the bottom of the tile and slide the bottom clamp over the bottom edge of the tile. Insert the 4" tap bolt through the slot into the threaded hole and use a 7/16" socket to thread the screw. Tighten until the top clamp hook end unbends and forms a 90 degree angle with the tile. Use the Cap Screw (included) to attach your pipe clamp (not included) to bottom clamp. Insert conduit and tighten with 7/16" socket.

- **The clamp is reversible, use the wider hook end on tile greater than 1" thick and the thinner hook end on tiles less than 1" thick.**
- **The installation process is the same on curved tile, make sure that the Conduit Mount is installed on the crown(high point) of the tile.**
- **Install mounts as required to support conduit across the roof.**
- **For additional details refer to the full QM Installation Manual.**

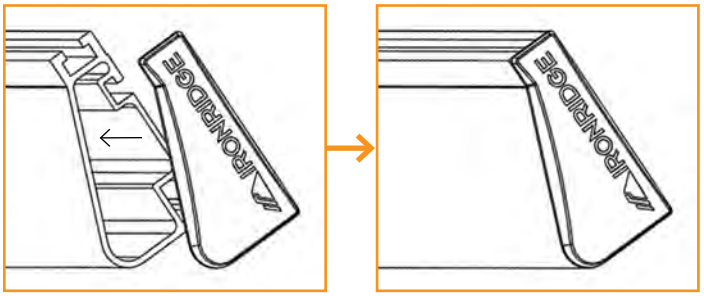


WIRE CLIPS

End Caps add a completed look and keep debris and pests from collecting inside rail.

Firmly press End Cap onto rail end.

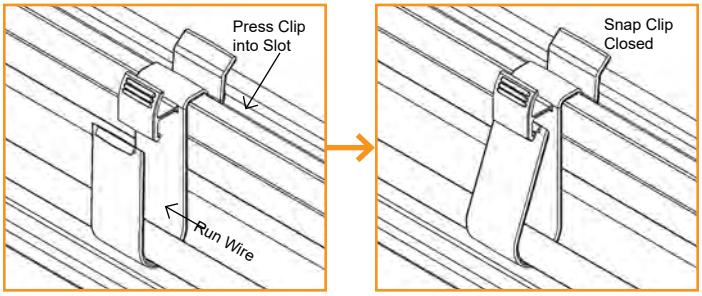
- **End Caps come in sets of left and right. Check that the proper amount of each has been provided.**



WIRE CLIPS

Wire Clips offer a simple wire management solution.

Firmly press Wire Clip into top rail slot. Run electrical wire through open clip. Snap closed once all wires have been placed.

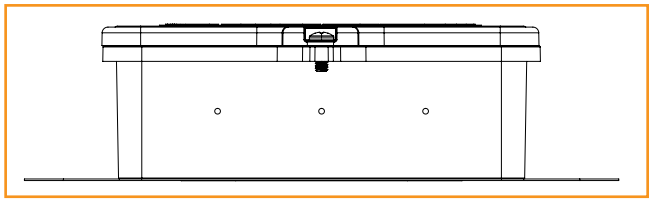


JAYBOX

A.

Prior to installation, use step drill bit to place pass through holes for conduits or water-tight connectors. Drill bit starter locations are provided on the sides and front of enclosure.

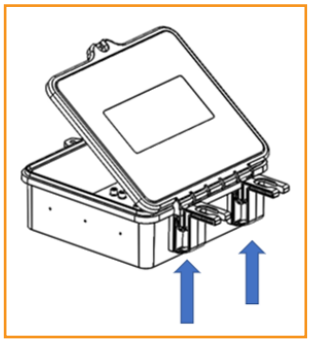
- **Do not install conduit facing up roof.**

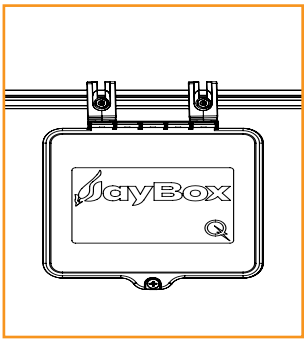


B (Rail).

Use rail-specific MLPE mounting hardware to attach Rail Hangers to rail. Ensure junction box is pushed as close to the rail as possible. Torque to 80-in lbs (1/2" or 7/16" socket).

- **Do not overtighten**
- **If installing in areas with ground snow loads greater than 40 psf, install JayBox under module directly next to module frame edge.**

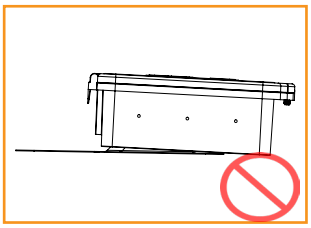


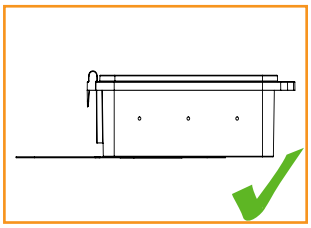


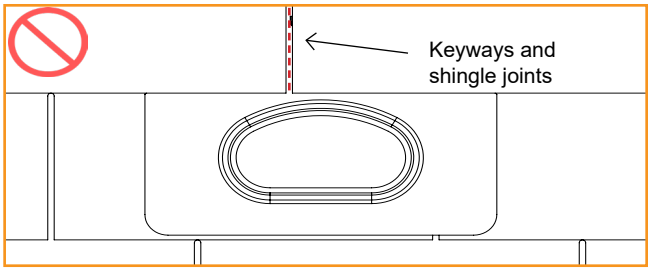
B (Shingle).

Align sealing oval of box to align with mating feature on flashing. An EPDM foam gasket is pre-installed to the underside of the junction box to seal the flashing to the box without the need for additional sealant. Secure with supplied #12 x 1-¾" deck screws (2x) until the junction box is pulled tight to the flashing. Do not over-tighten screws to avoid stripping screws in OSB.

- **If installing pass through fittings, ensure that the JayBox and roof deck are both properly prepared. Complete installation process before attaching the Jaybox to the deck.**
- **Do not install JayBox under shingle seam as illustrated below.**



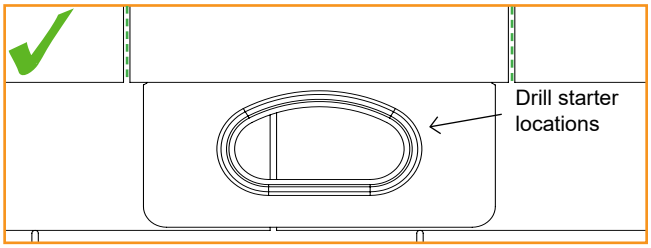




C.

Install wiring, conduit and fittings per NEC requirements and following local AHJ guidance. Using Philips Head Driver tighten the bolt.

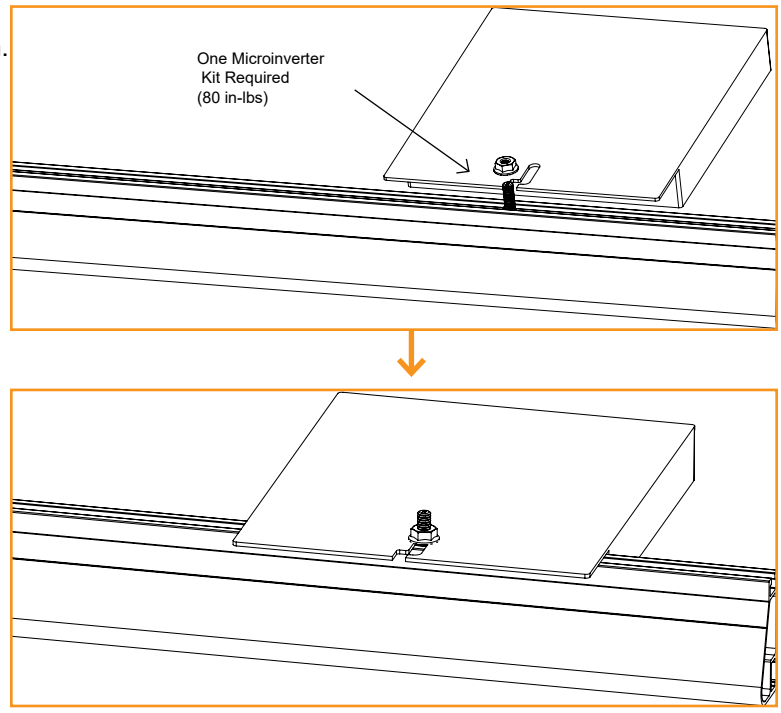
- **For additional details refer to the full QM Installation Manual.**



MICROINVERTER KITS

Use IronRidge's Microinverter Kit to bond compatible microinverters and power optimizers to the racking system.

Insert Microinverter Kit T-bolt into top rail slot. Place compatible microinverter or power optimizer into position and tighten hex nut to **80 in-lbs**.



- **If installing in areas with ground snow loads greater than 40 psf, install MLPE devices directly next to module frame edge**

COMPATIBLE PRODUCTS

Enphase
M250-72, 250-60, M215-60, C250-72, S230, S280, IQ 6, IQ 6+, IQ IQ7, IQ 7A, IQ 7+, IQ7 PD, IQ 7X, Q Aggregator; IQ8-60, IQ8PLUS-72, IQ8A-72, IQ8H-208-72, IQ8H-240-72, IQ8M-72, may be followed by -2-US

Darfon
MIG240, MIG300, G320, G640

Solar Edge
M1600, P300, P320, P340, P370, P400, P401, P405, P485, P505, P600, P700, P730, P750, P800p, P800s, P801, P850, P860, P950, P960, P1100, P1101, S440, S500, S1200, S1201

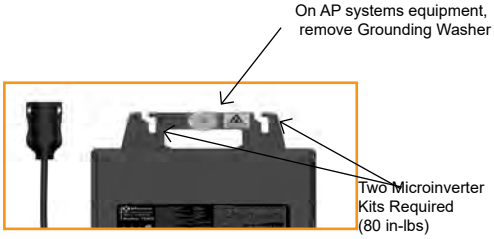
SMA
RoofCommKit-P2-US, TS4-R Module Retrofit Kits (TS4-R-S, TS4-R-O, TS4-R-F)

Tigo
Tigo Access Point (TAP)
TS4-R-X (where X can be F, M, O, or S)
TS4-R-X-DUO (where X can be M, O, or S)
TS4-A-X (where X can be F, 2F, O, O-DUO, or S)

Generac
S2502

AP Systems
DS3, QS1, QT2 and YC600

NEP
BDM-300, BDM-300X2 and BDM-800



- **Remove Grounding Washer on AP Systems QS1, QT2, DS3 and YC600 inverters before installing to XR rails.**
- **Remove the Stainless Steel Clip on Tigo-"A" MLPE Devices before attaching to XR rails.**
- **Use the number of IronRidge Microinverter kits allowed by the MLPE mounting flange. Some will require 1 kit and others 2 kits.**

SYSTEMS USING ENPHASE MICROINVERTERS OR SUNPOWER AC MOD-

IronRidge systems using approved Enphase products or SunPower modules eliminate the need for lay-in lugs and field installed equipment grounding conductors (EGC). This solution meets the requirements of UL 2703 for bonding and grounding and is included in this listing.

COMPATIBLE PRODUCTS

Sunpower
Modules with model identifier Ab-xxx-YY and InvisiMount (G5) 46mm frame; where "A" is either E, or X; "b" can be 17, 18, 19, 20, 21, or 22; and "YY" can be C-AC, D-AC, BLK-C-AC, or BLK-D-AC.

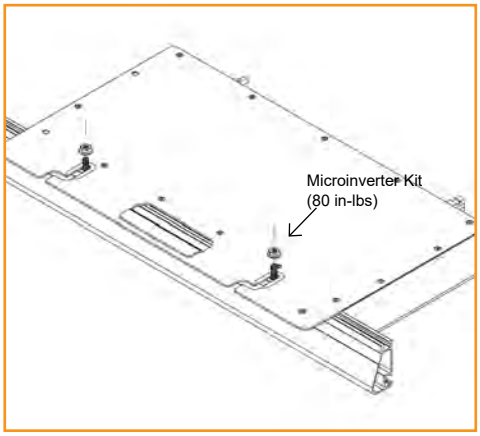
Enphase
Microinverters M250-72, M250-60, M215-60, C250-72, and Engage cables ETXX-240, ETXX-208, ETXX-277.

- **A minimum of two inverters mounted to the same rail and connected to the same Engage cable are required.**
- **The microinverters or Sunpower AC modules must be used with a maximum 20 A branch rated overcurrent protection device (OCPD).**
- **If an AC module is removed from a circuit for maintenance, you must first disconnect AC power and then install a temporary EGC to bridge the gap by inserting an AC extension cable (or via other NEC-compliant means), in order to maintain effective ground continuity to subsequent modules.**

SYSTEMS USING MICROSTORAGE PRODUCTS

Use IronRidge's Microinverter Kit to bond compatible microstroage devices to the racking system. Insert Microinverter Kit T-bolt into top rail slot. Place compatible microstorage into position and tighten hex nut to **80 in-lbs**.

PHAZR



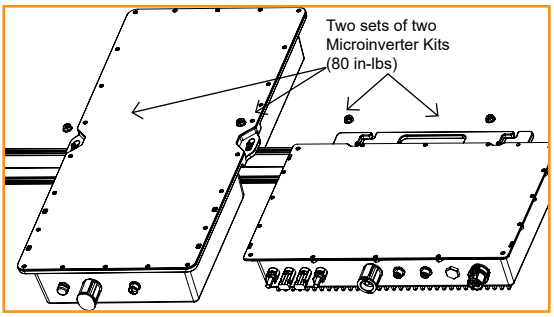
COMPATIBLE PRODUCTS

PHAZR
PHAZR Devices PHAZR-X, where X is 6-12.

Solpad
Solpad Inverter model SI-1k
Solpad Battery Storage model SB-2K
Solpad Junction Box model SJB-4k

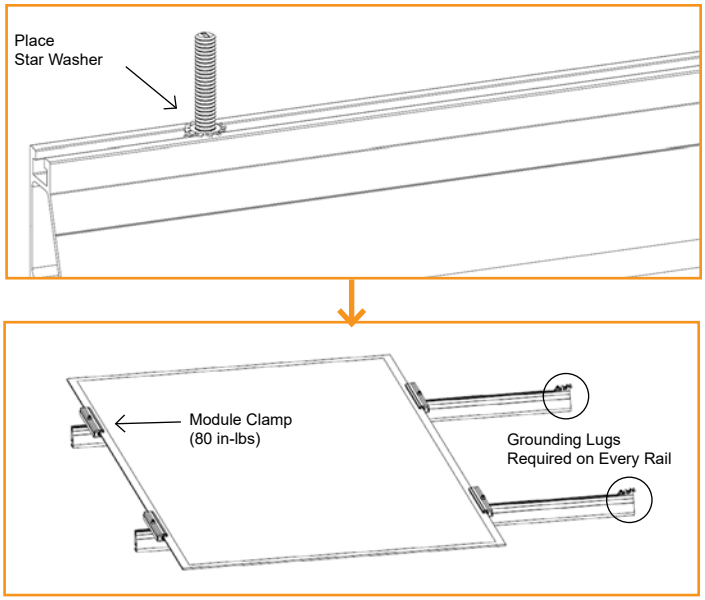
- **Running a separate equipment grounding conductor to the PHAZR or Solpad devices is not required.**
- **If installing in areas with ground snow loads greater than 40 psf and underneath a module, install PHAZR and Solpad devices as close as possible to module frame edge.**
- **Solpad may only be installed on XR-100 and XR-1000**
- **Solpad may only be installed with modules having a frame thickness of 35mm or greater.**
- **Use the number of IronRidge Microinverter kits allowed by the microstorage mounting flange. Some will require 1 kit and others 2 kits.**

Solpad



FRAMELESS MODULE KITS

Insert Frameless Kit T-bolt in top rail slot. Place star washer over T-bolt, allowing it to rest on top of rail. Secure module clamps with a hex nut and torque to **80 in-lbs**.



COMPATIBLE PRODUCTS

Sunforson
Sunforson silver or black SFS-UTMC-200(B) mid and SFS-UTEC-200(B) end clamps.

Sunpreme
Sunpreme silver or black mid and end clamps with part numbers 7500105X where "X" is 1, 5, 6 or 7.

Ironridge
IronRidge silver or black mid and end clamps with part numbers FMLS-XC-001-Y where "X" is E or M and "Y" is B or blank.

- **Follow module manufacturer's installation instructions to install the module clamps.**
- **Frameless modules require using a Grounding Lug on every rail.**
- **For Sunpreme Modules Only: If required to use slide prevention hardware, see Module Slide Prevention Addendum (Version 1.10).**

Install Contour

Install Contour on a completed array.

A. Start by placing Contour Clamp on module frame within 12 inches of the down roof corner of the array. Each piece of 84" Contour Trim must be suppported by two Clamps. Clamps must be installed in the 12" clamping zones at edge of trim. Once trim is placed and in position, secure trim by tightening Clamp set screw to **80 in-lbs**.

B. Multiple Contour pieces can be joined using Contour Splice. Install Splice on exsisting Contour edge and install Clamps in appropriate clamping zones for next piece of trim. Place trim on Clamps, slide into splice to join two pieces together. Secure Contour by tightening Clamp set screw to **80 in-lbs**. Repeat as needed across the array.

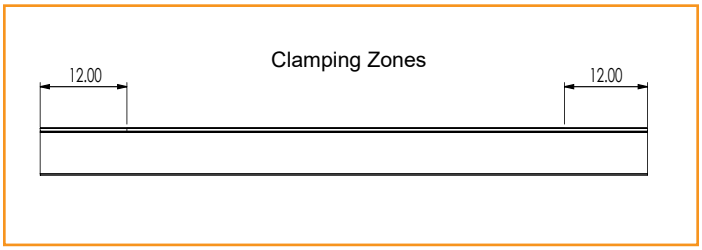
C. Cut trim to line up with edge of array.

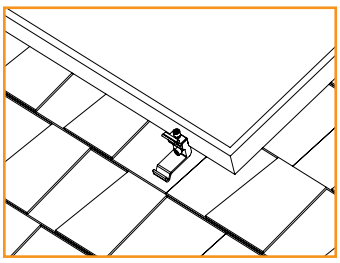
D. Install Clamps within clamping zones on side of array. Install second Clamp as needed up array. Place Corner Cap on trim and slide side trim to align with Cap. Repeat as needed along roof for both inside and outside corners.

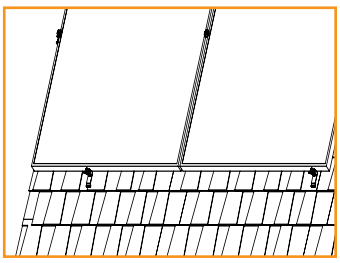
E. Use optional End Caps to cover any exposed edges of Contour as desired.

- **Do not install on side of array facing roof peak.**
- **Contour can be installed with 1 clamp if trim section is 12" long (or shorter) and has a splice attached on one end, on which the section of trim the 12" section is spliced to also has 2 clamps.**
- **Contour Trim when installed when installed up roof requires the use of Aire Stealth Clamps.**
- **Wind Speed: no restrictions**
- **Ground Snow: up to 90 PSF**

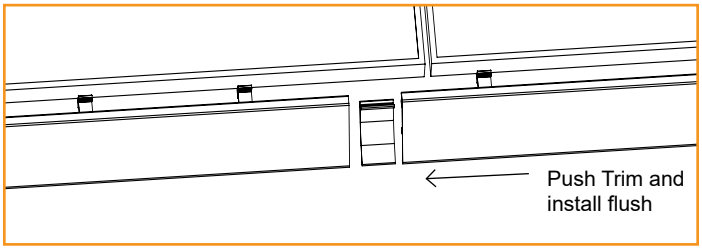
A.



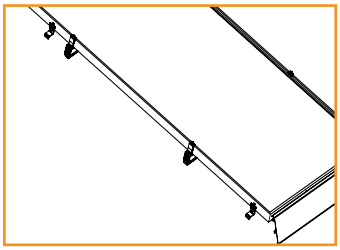




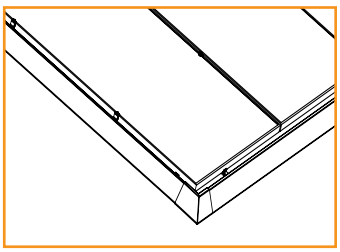
B.



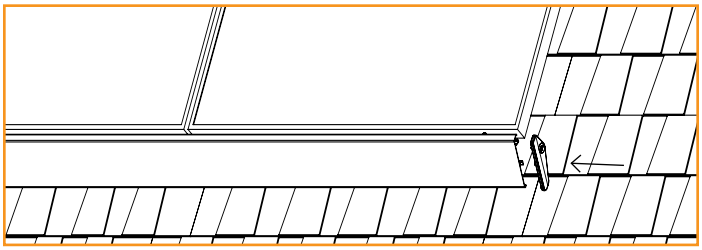
C.



D.



E.



MODULE COMPATIBILITY

The Flush Mount System may be used to ground and/or mount a PV module complying with UL 2703 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions. Unless otherwise noted, “xxx” refers to the module power rating and both black and silver frames are included in the certification.

FRAMED MODULE LIST

MAKE	MODELS
Adani	Adani modules with 35 and 40mm frames ASX-Y-ZZ-xxx Where "X" can be B, M or P, "Y" can be 6, 7 or M10 and "ZZ" can be blank, 144, PERC, B-PERC, or AB-PERC
AIONRISE	AIONRISE modules with 35 and 40mm frames AIONyyG1-xxx Where "yy" can be 60 or 72
Amerisolar	Amerisolar modules with 35 and 40 mm frames AS-bYxxxZ Where "b" can be 5 or 6; "Y" can be M, P, M27, P27, M30, or P30; and "Z" can be blank, W or WB
Aptos Solar	Aptos modules with 35 and 40 mm frames DNA-yy-zzaa-xxx Where "yy" can be 120 or 144; "zz" can be MF or BF; and "aa" can be 23 or 26
Astronergy Solar	Astronergy modules with 30, 35 and 40 mm frames aaSMbbyyC/zz-xxx Where “aa” can be CH or A; "bb" can be 60, 66, or 72; “yy” can be blank, 10 or 12; "C" can M, P, M(BL), M-HC, M(BL)-HC, P-HC, M(DG), or M(DGT); and “zz” can be blank, HV, F-B, or F-BH
ASUN	ASUN modules with 35 and 40 mm frames ASUN-xxx-YYZZ-aa Where "YY" can be 60 or 72; "ZZ" can be M,or MH5; and "aa" can be blank or BB
Auxin	Auxin modules with 40 mm frames AXN6y6zAxxxB Where "y" can be M or P; "z" can be 08, 09, 10, 11, or 12; and "A" can be F, M or T; and "B" can be blank, A, B or C
Axitec	Axitec Modules with 30, 35 and 40 mm frames AC-xxxY/aaZZb Where "Y" can be M, P, MB or MH; "aa" can be blank, 125- or 156-; "ZZ" can be 54, 60, 72, 108, 120, or 144; "b" can be S, X, V, VB, XV, or MX
Bluesun Solar	Bluesun modules with 30 and 35mm frames BSMxxxY-AAA Where "Y" can be M or M10; and "AAA" can be 54HPH, 60HPH or 72HBD
Boviet	Boviet modules with 35 and 40mm frames BVMZZaaYY-xxxBcc Where "ZZ" can be 66 or 76; "aa" can be 9, 10 or 12; "YY" is M or P; and "B" can be blank, L or S; and "cc" can be blank, H, H-BF, H-BF-DG, H-HC, H-HC-BF, H-HC-BF-DG, HC-BF or HC-BF-DG
BYD	BYD modules with 35 mm frames BYDxxxAY-ZZ Where "A" can be M6, P6, MH or PH; "Y" can be C or K; and "ZZ" can be 30 or 36
Canadian Solar	Canadian Solar modules with 30, 32, 35 and 40 mm frames CSbY-xxxZ Where "b" can be 1, 3, 6 or 7 "Y" can be H, K, L, N, P, R, U, V, W, X or Y; and "Z" can be M, P, MS, PX , M-SD, P-AG, P-SD, MB-AG, PB-AG, MS-AG, MS-HL, or MS-SD
CertainTeed	CertainTeed modules with 35 and 40 frames CTxxxYZZ-AA Where "Y" can be M, P, or HC; "ZZ" can be 00, 01, 10, or 11; and "AA" can be 01, 02, 03, 04 or 06

MODULE COMPATIBILITY

CSUN	Csun modules with 35 and 40 mm frames YYxxx-zzAbb Where "YY" is CSUN or SST; "zz" is blank, 60, or 72; and "A" is blank, P, M or MM; "bb" is blank, BB, 5BB, BW, or ROOF
Dehui	Dehui modules with 30, 35 and 40mm frames DH-MYYYZ-xxx Where “YYY” can be 760, 772, 860, 872; and “Z” can be B, F or W
Ecosolargy	Ecosolargy modules with 35 and 40 mm frames ECOxxxYzzA-bbD Where “Y” can be A, H, S, or T; “zz” can be 125 or 156; “A” can be M or P; “bb” can be 60 or 72; and “D” can be blank or B
ET Solar	ET Solar modules with 30, 35 and 40 mm frames ET-YZZZxxxAA Where "Y" can be P, L, or M; "ZZZ" can be 660, 660BH, 672, 672BH, 754BH, 766BH, 772BH; and "AA" can be GL, TB, TW, WB, WW, BB, WBG, WWG, WBAC, WBCO, WWCO, WWBCO or BBAC
Flex	Flex modules with 35 and 40 mm frames FXS-xxxYY-ZZ; Where “YY” can be BB or BC; and “ZZ” can be MAA1B, MAA1W, MAB1W, SAA1B, SAA1W, SAC1B, SAC1W, SAD1W, SBA1B, SBA1W, SBC1B, or SBC1W
Freedom Forever	Freedom Forever modules with 35mm frames FF-MP-BBB-xxx
GCL	GCL modules with 35 mm and 40 mm frames GCL-ab/YY xxx Where “a” can be M or P; “b” can be 3 or 6; and “YY” can be 60, 72, 72H, or 72DH
GigaWatt Solar	Gigawatt modules with 40 mm frames GWxxxYY Where “YY” can be either PB or MB
Hansol	Hansol modules with 35 and 40 frames HSxxxYY-zz Where “YY” can be PB, PD, PE, TB, TD, UB, UD, or UE; and “zz” can be AH2, AN1, AN3, AN4, HH2, HV1, or JH2
Hanwa Solar	Hanwha Solar modules with 40 mm frames HSLaaP6-YY-1-xxxZ Where “aa” can be either 60 or 72; “YY” can be PA or PB; and “Z” can be blank or B
Hanwha Q CELLS	Hanwha Q CELLS Modules with 32, 35, 40mm frames aaYY-ZZ-xxx where "aa" can be Q. or B.; "YY" can be PLUS, PRO, PEAK, LINE PRO, LINE PLUS, PLUS DUO or PEAK DUO; and "ZZ" can be G3, G3.1, G4, G4.1, L-G2, L-G2.3, L-G3, L-G3.1, L-G3y, L-G4, L-G4.2, L-G4y, LG4.2/TAA, BFR-G3, BLK-G3, BFR-G3.1, BLK-G3.1, BFR-G4, BFR-G4.1, BFR G4.3, BLK-G4.1, G4/SC, G4.1/SC, G4.1/TAA, G4.1/MAX, BFR G4.1/TAA, BFR G4.1/MAX, BLK G4.1/TAA, BLK G4.1/SC, EC-G4.4, G5, G5/SC, G5/TS, BLK-G5, BLK-G5/SC, BLK-G5/TS, L-G5, L-G5.1, L-G5.2, L-G5.2/H, L-G5.3, G6, G6/SC, G6/TS, G6+/TS, G6+, BLK-G6, L-G6, L-G6.1, L-G6.2, L-G6.3, G7, BLK-G6+, BLK-G6+/AC, BLK-G6+/HL, BLK-G6+/SC, BLK-G6/TS, BLK-G6+/TS, BLK-G7, G7.2, G8, BLK-G8, G8+, BLK-G8+ L-G7, L-G7.1, L-G7.2, L-G7.3, L-G8, L-G8.1, L-G8.2, L-G8.3, L-G8.3/BFF, L-G8.3/BFG, L-G8.3/BGT, ML-G9, BLK ML-G9, ML-G9+, BLK ML-G9+, BLK-G10+, BLK G10+/AC, ML-G10, BLK ML-G10, ML-G10+, BLK ML-G10+, ML-G10.a, BLK ML-G10.a, ML-G10.a+, BLK ML-G10.a+, XL-G9, XL-G9.2, XL-G9.3, XL-G9.3/BFG, XL-G10.2, XL-G10.3, XL-G10.c, XL-G10.d, XL-G10.d/BFG, XL-G10.3/BFG, XL-G11.2, XL-G11.3 or XL-G11.3/BFG
Heliene	Heliene modules with 35 and 40 mm frames YYZZxxxA Where "YY" can be 36, 60, 72, 96, 120 or 144; "ZZ" can be HC, M, P, or MBLK; and "A" can be blank, HomePV, Bifacial, M10 Bifacial or M10 SL-Bifacial
HT-SAAE	HT-SAAE modules with 35 and 40 mm frames HTyy-aaaZ-xxx Where "yy" can be 60, 66, 72 or 78, "aaa" can be 18, 156 or 166, "Z" can be M, P, M-C, P-C, M(S), M(VS), M(V), P(V), M(V)-C, P(V)-C, or X

MODULE COMPATIBILITY

Hyundai	Hyundai modules with 32, 33, 35 and 40mm frames HiY-SxxxZZ Where "Y" can be A, D or S; "S" can be M or S; and "ZZ" can be GI, HG, HI, KI, MI, MF, MG, PI, RI, RG, RG(BF), RG(BK), SG, TI, TG, YH(BK) or XG(BK)
Itek	Itek Modules with 40 mm frames IT-xxx-YY Where “YY” can be blank, HE, or SE, or SE72
JA Solar	JA Solar modules with 30, 35 and 40 mm frames JAyyzz-bbww-xxx/aa Where “yy” can be M, P, M6 or P6; “zz” can be blank, (K), (L), (R), (V), (BK), (FA), (TG), (FA)(R), (L)(BK), (L)(TG), (R)(BK), (R)(TG), (V)(BK), (BK)(TG), or (L)(BK)(TG); “bb” can be 48, 54, 60, 66, 72 or 78; "ww" can be D09, D10, D20, D30, S01, S02, S03, S06, S09, S10, S12, S17, S20, S30 or S31; and “aa” can be BP, MB, MR, SI, SC, PR, 3BB, 4BB, 4BB/RE, 5BB
Jinko	Jinko modules with 35 and 40 mm frames JKMYxxxZZ-aa Where "Y" can either be blank or S; "ZZ" can be M, P, or PP; and "aa" can be blank, 60, 60B, 60H, 60L, 60BL, 60HL, 60HB, 60HBL, 6HBL-EP, 60-J4, 60B-J4, 60B-EP, 60(Plus), 60-V, 60-MX, 6RL3, 6RL3-B, 6TL3-B, 7RL3-V, 7RL3-TV, 72, 72B, 72-J4, 72B-J4, 72(Plus), 72-V, 72H-V, 72L-V, 72HL-V, 72HL4-V, 72HL4-TV, 72-MX, 72H-BDVP, 72HL-TV, or 72HL-V-MX3
Kyocera	Kyocera Modules KYxxxZZ-AA Where “Y” can be D or U; “ZZ” can be blank, GX, or SX; and “AA” can be LPU, LFU, UPU, LPS, LPB, LFB, LFBS, LFB2, LPB2, 3AC, 3BC, 3FC, 4AC, 4BC, 4FC, 4UC, 5AC, 5BC, 5FC, 5UC, 6BC, 6FC, 8BC, 6MCA, or 6MPA
LG	LG modules with 35 and 40 mm frames LGxxxYaZ-bb Where "Y" can be A, E, M, N, Q, S; "a" can be A, 1, 2 or 3 "Z" can be C, K, T, or W; and "bb" can be A3, A5, A6, B3, B6, E6, E6.AW5, G3, G4, J5, K4, L5, N5, V5, V6
Longi	Longi modules with 30, 35 and 40 mm frames LRa-YYZZ-xxxM Where "a" can be 4, 5 or 6; "YY" can be blank, 60, 66, or 72; and "ZZ" can be blank, BK, BP, HV, PB, PE, PH, HBD, HIB, HIH, HPB, HPH, or HIBD
Maxeon	Maxeon modules with 35, 40 and 46mm frames SPR-AAAY-xxx-zzz Where "AAA" can be MAX, P or X; "Y" can be 3, 5, 6, 21 or 22; and "zzz" can be BLK, COM or UPP
Meyer Burger	Meyer Burger Modules with 35mm frames Meyer Burger Black or White
Mission Solar	Mission Solar modules with 33, 35 and 40 mm frames YYYbb-xxxZZaa Where "YYY" can be MSE or TXS; "bb" can be blank, 6 or 60A; "ZZ" can be blank, MM, SE, SO, SQ , SR, SX, TS, 120 or 144; and "aa" can be blank, BB, BW, 1J, 4J, 4S, 5K, 5R, 5T, 60, 6J, 6S, 6W, 6Z, 8K, 8T, or 9S
Mitsubishi	Mitsubishi modules PV-MYYxxxZZ Where “YY” can be LE or JE; and “ZZ” can be either HD, HD2, or FB
Moltech	IM and XS series modules with 40 mm frames
Next Energy Alliance	Next Energy Alliance modules with 35 and 40mm frames yyNEA-xxxZZ where “yy” can be blank or US; “ZZ” can be M, MB or M-60
Neo Solar Power	Neo Solar Power modules with 35 mm frames D6YxxxZZaa Where “Y” can be M or P; “ZZ” can be B3A, B4A, E3A, E4A, H3A, H4A; and “aa” can be blank, (TF), ME or ME (TF)

MODULE COMPATIBILITY

Panasonic (HIT)	Panasonic modules with 35 and 40 mm frames VBHNxxxYYzzA Where “YY” can be either KA, RA, SA or ZA; “zz” can be either 01, 02, 03, 04, 06, 06B, 11, 11B, 15, 15B, 16, 16B, 17, or 18; and “A” can be blank, E, G, or N
Panasonic (EverVolt)	Panasonic modules with 30 mm frames EVPVxxxA Where "A" can be blank or H, K or PK
Peimar	Peimar modules with 40 mm frames SbxxxYzz Where “b” can be G, M or P; “Y” can be M or P; and “zz” can be blank, (BF) or (FB)
Philadelphia Solar	Philadelphia modules with 35 and 40 mm frames PS-YzzAA-xxx Where "Y" can be M or P; "zz" can be 60, 72 or 144; and "AA" can be blank, (BF), (HC) or (HCBF)
Phono Solar	Phono Solar modules with 30, 35 and 40mm frames PSxxxY-ZZ/A Where "Y" can be M, M1, MH, M1H, M4, M4H, M5GF, M5GFH, M6, M6H, M8GF, M8GFH or P; "ZZ" can be 18, 20 or 24; and "A" can be F, T, TH, U, UH, UHB, VH or VHB
Prism Solar	Prism Solar modules with 35mm frames PST-xxxW-M72Y Where "Y" can be H, HB or HBI
Recom	Recom modules with 35 and 40 mm frames RCM-xxx-6yy Where “yy” can be MA, MB, ME or MF
REC Solar	REC modules with 30 and 38 mm frames RECxxxYYZZ Where “YY” can be AA, M, NP, NP2, PE, PE72, TP, TP2, TP2M, TP2SM, TP2S, TP3M or TP4; and “ZZ” can be blank, Black, BLK, BLK2, SLV, 72, or Pure
Renesola	ReneSola modules with 35 and 40 mm frames AAxxxY-ZZ Where "AA" can be SPM(SLP) or JC; "Y" can be blank, F, M or S; and "ZZ" can be blank, Ab, Ab-b, Abh, Abh-b, Abv, Abv-b, Bb, Bb-b, Bbh, Bbh-b, Bbv, Bbv-b, Db, Db-b, or 24/Bb
Renogy	Renogy Modules with 40 mm frames RNG-xxxY Where “xxx” is the module power rating; and “Y” can be D or P
Risen	Risen Modules with 30, 35 and 40 mm frames RSMyy-a-xxxZZ Where "yy" can be 60, 72, 110, 120, 132 or 144; "a" can be 6, 7 or 8; and "ZZ" can be M, P or BMDG
S-Energy	S-Energy modules with 35 and 40mm frames SABB-CCYYY-xxxZ Where “A” can be C, D, L or N; “BB” can be blank, 20, 25, 40 or 45; “CC” can be blank, 60 or 72; “YYY” can be blank, BDE, MAE, MAI, MBE, MBI, MCE or MCI; and “Z” can be V, M-10, P-10 or P-15
SEG Solar	SEG Solar with 30, 35 and 40 mm frames SEG-aYY-xxxZZ Where "a" can be blank, 6 or B; "YY" can be blank, MA, MB, PA, or PB; and "ZZ" can be blank, BB, BG, BW, HV, WB, WW, BMB, BMA-HV, BMA-BG, BMA-TB, BMB-TB, BMB-HV, BMD-HV, BMB-BG
Seraphim USA	Seraphim modules with 30, 35 and 40 mm frames SRP-xxx-YYY-ZZ Where "xxx" is the module power rating; and "YYY" can be BMA, BMD, 6MA, 6MB, 6PA, 6PB, 6QA-XX-XX, and 6QB-XX-XX; ZZ is blank, BB, BG or HV
Sharp	Sharp modules with 35 and 40 mm frames NUYYxxx Where “YY” can be SA or SC

MODULE COMPATIBILITY

Shinsung E&G	Shinsung Modules with 35mm frames SSVxxx-144MH
Silfab	Silfab Modules with 35 and 38 mm frames SYY-Z-xxxAb Where "YY" can be IL, SA, LA, SG or LG; "Z" can be blank, M, P, or X; "A" can be blank, B, H, M, N; and "b" can be A, C, G, K, L, N, T, U or X
Solaria	Solaria modules with 35 and 40 mm frames PowerA-xxxY-ZZ Where "A" can be X or XT, "Y" can be R or C; and "ZZ" can be blank, AC, BD, BX, BY, PD, PL, PM, PM-AC, PX, PZ, WX or WZ
Solarcity (Tesla)	Solarcity modules with 40 mm frames SCxxxYY Where “YY” can be blank, B1 or B2
SolarTech	SolarTech modules with 40 mm frames AAA-xxxYY Where "AAA" can be PERCB-B, PERCB-W, HJTB-B, HJTB-W or STU; "YY" can be blank, PERC or HJT
SolarWorld AG	SolarWorld Sunmodule Plus, Protect, Bisun, XL, Bisun XL, may be followed by mono, poly, duo, black, bk, or clear; modules with 31 and 33 mm frames SW-xxx
SolarWorld Americas	SolarWorld Sunmodule Plus, Protect, Bisun, XL, Bisun XL, may be followed by mono, poly, duo, black, bk, or clear; modules with 33 mm frames SWA-xxx
Sonali	Sonali Modules with 35 and 40 mm frames SS-M-xxx Where "M" can be blank or M
Stion	Stion Thin film modules with 35 mm frames STO-xxx or STO-xxxA
SunEdison	SunEdison Modules with 35 and 40 mm frames SE-YxxxZABCDE Where "Y" can be B, F, H, P, R, or Z; "Z" can be 0 or 4; "A" can be B,C,D,E,H,I,J,K,L,M, or N ; "B" can be B or W; "C" can be A or C; "D" can be 3, 7, 8, or 9; and "E" can be 0, 1 or 2
Suniva	Suniva modules with 35, 38 and 40 mm frames OPTxxx-AA-B-YYY-Z MVXxxx-AA-B-YYY-Z Where "AA" is either 60 or 72; "B" is either 4 or 5; "YYY" is either 100,101,700,1B0, or 1B1; and "Z" is blank or B
Sunmac Solar	Sunmac Solar modules with 30 and 35mm frames SMxxxMaaaZZ-BB Where "aaa" can be 660 or 754; and "ZZ" can be NH or SH
Sunpower	Sunpower standard (G3 or G4) or InvisiMount (G5) 35 and 40mm frames SPR-Zb-xxx-YY Where "Z" can be A, E, M, P or X; “b” can be blank, 17, 18, 19, 20, 21, or 22; and “YY” can be blank, BLK, COM, C-AC, D-AC, E-AC, BLK-E-AC, G-AC, BLK-G-AC, H-AC, BLK-H-AC, BLK-C-AC, or BLK-D-AC
Sunspark	Sunspark modules with 40 mm frames SYY-xxxZ-A Where “YY” can be MX or ST; and “Z” can be M, MB, M3, M3B, P or W; and "A" can be 60 or 72
Suntech	Suntech Modules with 35 and 40mm frames STPxxxy-zz/aa Where "y" is blank or S; and "zz" can be 20, 24, A60, A72U, B60 or B72; and "aa" can be Vd, Vem, Vfw, Vfh, Vnh, Wdb, Wde, Wd, Wfhb or Wnhb
Talesun	Talesun modules with 30, 35 and 40mm frames TAByZZaa-xxx-b Where "A" can be D or P; "B" can be 6 or 7; "y" can be blank, F, G, H, I or L; "ZZ" can be 60, 66, 72 or 78; "aa" can be M, M(H), or P; and "b" can be blank, B, T, or (H)

MODULE COMPATIBILITY

Tesla	Tesla modules with 40 mm frames TxxxY Where "Y" can be H or S
Trina	Trina Modules with 30, 35 and 40mm frames TSM-xxxYYZZ Where "YY" can be DD05, DD06, DD14, DE14, DE15, DE15V, DEG15, DEG15VC, DE18M, DEG18MC, DE09, DE19, DEG19C.20, DE06X, PA05, PC05, PD05, PD06, PA14, PC14, PD14, PE14, or PE15 ; and "ZZ" can be blank, .05, .05(II), .08, .08(II), .10, .18, .08D, .18D, 0.82, .002, .00S, 05S, 08S, .20(II), A, A.05, A.08, A.10, A.18, (II), A(II), A.05(II), A.08(II), A.082(II), A.10(II), A.18(II), C.05, C.07, C.05(II), C.07(II), H, H(II), H.05(II), H.08(II), HC.20(II), HC.20(II), M, M(II), M.05(II), MC.20(II)
URE	URE modules with 35 mm frames DyZxxxaa Where "D" can be D or F, "y" can be A, B, 6 or 7; "Z" can be K or M; and "aa" can be C8G, H3A, H4A, H8A, E7G-BB, E8G, E8G-BB or MFG-BB
Vikram	Vikram solar modules with 35 and 40 mm frames XVSyy.ZZ.AAA.bb Where "X" can be blank, Paradea, Prexos or Somera; "yy" can be M, P, MBB, MDH, MDHT, MH, MS, MHBB, or PBB; "ZZ" can be 60 or 72; "AAA" is the module power rating; and "bb" can be 03, 04 or 05
VSUN	VSUN modules with 30, 35 and 40 mm frames VSUNxxx-YYz-aa Where "YY" can be 60, 72, 108, 120, or 144; "z" can be M, P, MH, PH, or BMH; and "aa" can be blank, BB, BW, or DG
Waaree	Waaree modules with 40mm frames AAyy-xxx Where "AA" canbe WS or Bi; and "yy" can be blank, M, MB, 55 or 66
Winaico	Winaico modules with 35 and 40 mm frames Wsy-xxxZa Where "y" can be either P or T; "Z" can be either M, P, or MX; and "a" can be blank or 6
Yingli	Yingli modules with 35 and 40 mm frames YLxxxZ-yy Where "Z" can be D or P; "yy" can be 29b, 30b, 34d, 35b, 36b or 40d
ZN Shine	ZN Shine modules with 35mm frames ZXMY-AAA-xxx/M Where "Y" can be 6, 7 or 8; "AAA" can be 72, NH120, NH144, NHDB144, NHLDD144, SH144, SHDB144, SHLDD144 or TP120

MODULE COMPATIBILITY

FRAMELESS MODULE LIST

MAKE	MODELS
Astronergy Solar	Astronergy frameless modules CHSM6610P(DG)-xxx
Canadian Solar	Canadian Solar frameless modules CSbY-xxx-Z Where “b” can be 3 or 6; “Y” is K, P, U, or X; and “Z” can be M-FG, MS-FG, P-FG, MB-FG, or PB-FG
Heliene	Heliene frameless modules YYZZxxxA Where "YY" can be72; "ZZ" can be M; and "A" can be GH
Jinko	Jinko frameless modules JKMxxxPP-DV
Prism Solar	Prism Solar frameless modules BZYY-xxxAAA Where "Z" can be i or N; "YY" can be 48, 60, 60S, 72 or 72S; and "AAA" can be blank or BSTC
Risen	Risen frameless modules RSMyy-6-xxxZZ Where “yy” can be 60, 72, 120 or 144; and “ZZ” can be MDG or PDG
Stion	Stion frameless modules STL-xxx or STL-xxxA
Sunpreme	Sunpreme frameless modules GXB-xxxYY Where “YY” can be blank or SL
Trina	Trina frameless modules TSM-xxxYY Where “YY” can be either DEG5(II), DEG5.07(II), DEG5.40(II), DEG5.47(II), DEG14(II), DEG14C(II), DEG14C.07(II), DEG14.40(II), PEG5, PEG5.07, PEG5.40, PEG5.47, PEG14, or PEG14.40

SOLADECK
FLASHED PV ROOF-MOUNT
COMBINER/ENCLOSURES

Installation manual for models 0799 Series and 0766-41AD

Table of Contents

2nd Edition – October 2017

RSTC Enterprises, Inc.
2214 Heimstead Road
Eau Claire, WI 54703
866-367-7782

www.soladeck.com

Read the entire installation manual before installing a SolaDeck

WARNING! *STOP*

DO NOT WORK ON ROOF IF SURFACE IS WET, FROSTED, ICE OR SNOW COVERED.
USE LADDERS SAFELY
USE HAND & EYE PROTECTION WHEN WORKING WITH POWER TOOLS
USE EXTREME CAUTION TO AVOID CONTACT WITH POWER LINES. CONTACT WITH POWER LINES, ELECTRIC LIGHTS OR POWER CIRCUITS MAY BE FATAL

Installation of this product should be attempted only by individuals skilled in the use of the tools and equipment necessary for installation. Protect you and all persons and property during installation. If you have any doubt concerning your competence or expertise, consult a qualified expert to perform the installation.
R.S.T.C. Enterprises Incorporated assumes no responsibility for the failure of an architect, contractor, installer, or building owner to comply with all applicable laws, building codes and requirements, and adequate safety precautions.

ATTENTION! *STOP*

NE FONCTIONNE PAS SUR LE TOIT Si la surface est mouillée, dépolie, la glace ou couvert de neige.
Utiliser les échelles TOUTE SÉCURITÉ
UTILISATION DES MAINS ET DES LUNETTES DE PROTECTION LORS DE TRAVAILLER AVEC LES OUTILS DE PUISSANCE. UTILISATION EXTRÊME PRUDENCE POUR ÉVITER LE CONTACT AVEC DES LIGNES DE PUISSANCE. CONTACT AVEC DES LIGNES DE PUISSANCE, lumières électriques circuits électriques ou PEUT ÊTRE MORTEL

L'installation de ce produit devrait être tentée que par des personnes formées à l'utilisation des outils et équipements nécessaires pour l 'installation. Protégez vous et les personnes et les biens pendant l'installation. Si vous avez un doute concernant votre compétence ou l'expertise, consulter un expert qualifié pour effectuer l'installation.
RSTC Enterprises Incorporated décline toute responsabilité de l'échec d'un architecte, entrepreneur, installateur ou propriétaire d'immeuble pour se conformer à toutes les lois, les codes du bâtiment et des exigences, et les précautions de sécurité adéquates.

Tools and Hardware List

Utility knife - 1/4" nut driver - #2 Phillips head drive bit - Pry bar – Roof sealant – Drill

0799 Series: (5) # 10 – 1" Phillips screws; (5) # 10 bonded seal washers; (5) 8x32-1/4" self thread hex screws

0766-41AD: (7) # 10 – 1" Phillips screws; (5) # 10 bonded seal washers; (5) 8x32-1/4" self thread hex screws

IMPORTANT SAFETY INSTRUCTIONS

Save this manual - It contains important instructions for models 0799 Series and 0766-41 AD that should be followed during the installation of this product.

SolaDeck products are listed by ETL to the UL standards: UL 1741; CSA C22.2 No. 290

These enclosures are rated for up to 1000 VDC 180 amp, 480 VAC 60 amp max

Grounding Instructions- The system should be connected to a grounded, permanent wiring system.

System wiring and grounding must comply with NEC Code, ANSI/NFPA 70-1996, or other appropriate codes and is the responsibility of the installer.

The equipment ground on SolaDeck is marked with the: 

Note: Solar panels produce electrical current when light is present and during overcast weather. Do not wire from the array to the SolaDeck combiner. Complete all connections inside the SolaDeck combiner first and then connect the array.

General Wiring Installation Instructions

Acceptable UL recognized components are found in UL Report # 3171411PRT-002

Remove any necessary knockouts before securing the SolaDeck to the roof or other surface.

Follow the mounting instructions page 4

Install components onto the din rail and lock in place.

When combining, secure the bus bar to the fuse holders or breakers.

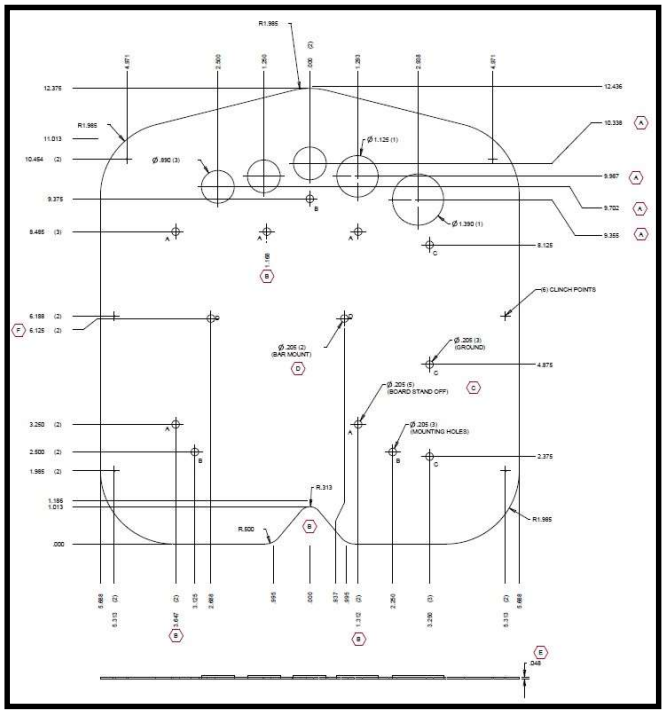
Install neutral mounted power block on din rail where designated PV neutral or negative and lock in place.

Torque values are listed in the table on page 5.

SolaDeck Base showing dimple locations

The 2 corner dimples support .5”, .75” or 1" fittings or conduit

The 3 center dimples support .5” fittings or conduit



Base plate drawing for knockout sizes and locations

SolaDeck Installation Instructions

DO NOT PROCEED WITH INSTALLATION UNTIL YOU HAVE READ ENTIRE INSTRUCTIONS INCLUDING WARNINGS

Figure 1

- Determine the location for the SolaDeck on the roof surface.
- Use the template from the bottom of the SolaDeck carton to trace the SolaDeck on the shingles.

Figure 1

Figure 2

- Use a pry bar to loosen the shingles, then remove any nails that would interfere with the SolaDeck flashing. *The flashing will slide beneath the shingles.
- Cut the roofing material to the shape of the template.
- Remove the knockouts needed to penetrate the roof deck.

Figure 2

Figure 3

- Slide the SolaDeck into place beneath the shingles and mark the knockout locations.
- Remove the SolaDeck and drill a hole through the roof deck 1/3 larger than the knockout holes.
- Determine the size and number of fittings or conduit needed to bring the circuit or string wiring into the SolaDeck. The corner dimples allow up to 1" fittings, the center dimples allow .5" fittings. Use a knockout tool or drill to cut the fitting holes where the base dimples are located.
- Install the fittings, reposition the SolaDeck and using the 1" truss head screws provided fasten the Soladeck to the roof deck from inside the enclosure (locations shown).
- Use roof cement to seal the shingles to the flashing & replace roof nails.

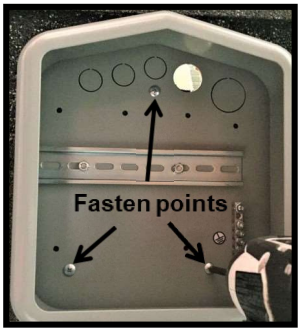


Figure 3

Figure 4

Figure 4

- Install components needed to connect the solar panel circuits.

Figure 5

- When connections are complete, finish by installing the cover using the 8/32 x 3/8" hex head screws provided.

Figure 5

Requirements: 75 C copper wire

Use only code approved, appropriately UL listed or recognized components

Ratings for 0799 model series and 0766-41AD

1000VDC / 180amps 10Ka short circuit; 480 VAC / 60 amps 10Ka Short circuit

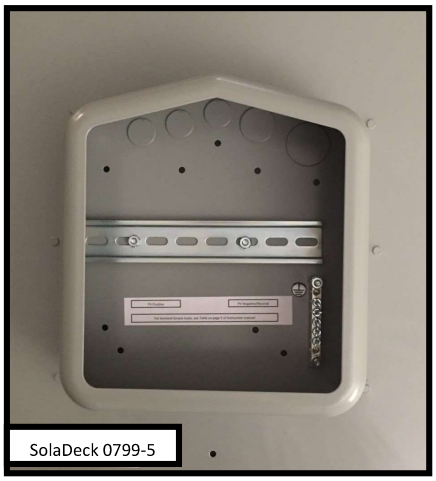
Typical wire size, torque loads and ratings

	1 Conductor	2 Conductors	Torque				
			Type	NM	Inch Lbs	Voltage	Current
ABB ZS6 terminal block	24-10 awg	24-16 awg	Sol/Str	0.5-0.7	6.2-8.85	600V	30 amp
ABB ZS10 terminal block	24-6 awg	20-12 awg	Sol/Str	1.0-1.6	8.85-14.16	600V	40 amp
ABB ZS16 terminal block	24-4 awg	20-10 awg	Sol/Str	1.6-2.4	14.6-21.24	600V	60 amp
ABB ZS50 terminal block	18-0 awg	18-4 awg	Sol/Str	3	26.55	1000V	140 amp
ABB M6/8 terminal block	22-8 awg		Sol/Str	.08-1	8.85	600V	50 amp
ABB M10 terminal block	35-16 awg		Sol/Str	1.2-1.4	10.62-12.39	600V	65 amp
ABB DBL 80 primary	4 awg		Sol/Str	1.5-2	13.5-18	1000V	80 amp
ABB DBL80 secondary	14-10 awg		Sol/Str	.08-1.2	7.2-10.8	1000V	80 Amp
ABB BDL 125 primary	8-2 awg		Sol/Str	2-3	18 - 26.5	1000 VAC	125 amp
ABB BDL 125 primary	8-2 awg		Sol/Str	2-3	18 - 26.5	1500VDC	125 amp
Abb DBL 125 secondary	14-6 awg		Sol/Str	2 - 3	18 - 26.5	1000VAC	125 amp
Abb DBL 125 secondary	14-6 awg		Sol/Str	2 - 3	18 - 26.5	1500VDC	125 amp
Little fuse LPHV series	8 - 14 awg		STR	2	17.7	1000VDC	30 amp
Little fuse LPHV series	10-14 awg		Sol	2	17.7	1000VDC	30 amp
Little fuse LPSM CH series	10 - 14 awg		Sol	2	17.7	600V	30 amp
Little fuse LPSM CH series	8 - 14 awg		Str	2	17.7	600V	30 amp
Bussmann CHPV series	14 - 10 awg		Sol/Str	2.3	20	1000VDC	30 amp
Bussmann CHPV series	14 - 10 awg		Sol/Str	2.3	20	600VDC	30 amp
ABB Breaker SU200 m series	18 - 4 awg		Sol/Str	2.8	13.3 - 39.8	480VAC	15 & 20 amp
International Hydraulics 2S2/0	14-10 awg		Sol/Str	4	35		
	8 awg		Sol/Str	4.5	40		
	4 awg		Sol/Str	5.1	45		
	2 awg		Sol/Str	5.7	50		
Brumall 4-9,1,2,89-RS	4-6 awg		Sol/Str		45	2000V	
	8 awg		Sol/Str		40		
	10 - 14 awg		Sol/Str		35		
Blackburn LL414	4 14 awg		Sol/Str				

Typical SolaDeck Combiner Features

- Typical SolaDeck Combiner Features
- Stamped seamless galvanized steel or Stainless
- Powder coated surfaces (1,100 salt spray hours)
- Models available grey, black or stainless steel
- Flashes into the roof deck
- Two, five or single position ground lug
- 8” din rail installed
- 5 Roof deck knockouts (3) @.5”, (1) @ .75”, (1) @ 1”
- 5 dimples for gland fitting or conduit entry
- Mounting hardware included

0799 Series SolaDecks


SolaDeck 0799-5


SolaDeck 0799-D


SolaDeck 0799-2

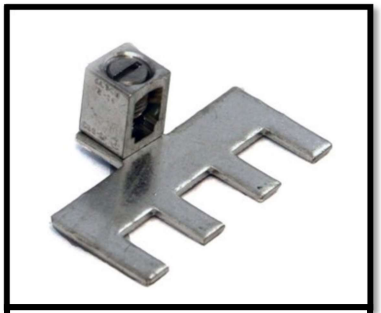
Common Component & Kit Examples

1 Pole Fuse Holder

2 Pole AC Breaker

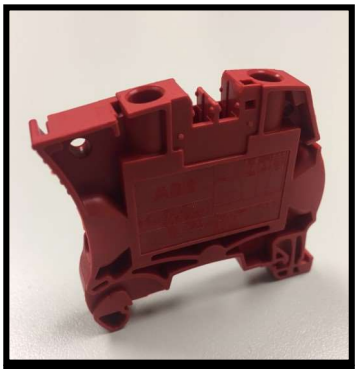
Power Distribution Block

3/4" Fitting



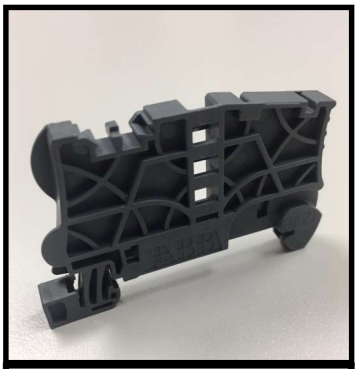
Positive Bus Bar

Midget Fuse



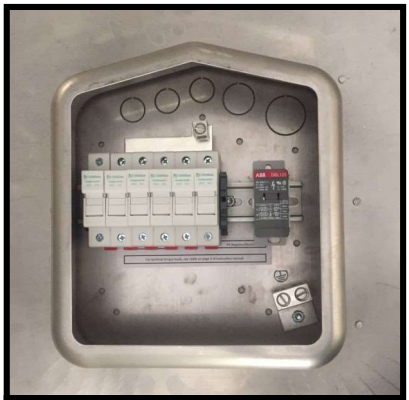
Terminal blocks, available in red, grey or black;

4mm, 8mm, 10mm

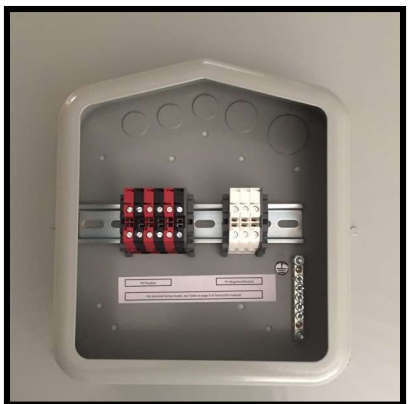


Rail Stop

End Plate



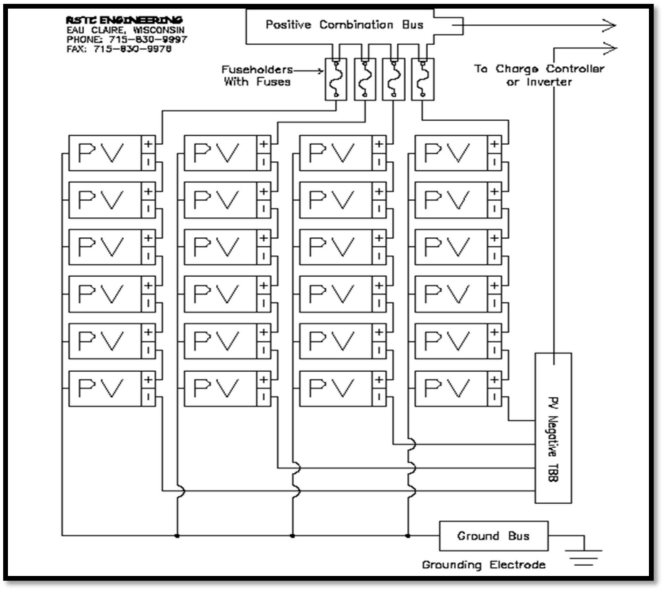
SolaDeck 0799-2 with DC Combiner Kit



SolaDeck 0799-5 with DC Passthrough Kit

*SolaDeck enclosures include din rail and ground blocks. All other internal parts are sold separately.

Typical DC Wiring Schematic



Warranty Information

Warranty repairs must conform to warranty terms.

As with all manufactured devices, replacement may be needed due to damage, unauthorized use, or defect.

Equipment must be installed according to the instructions and manuals provided.

Products returned must be packaged, properly addressed and shipped prepaid.

There is no additional allowance or reimbursement for installer or user for labor or travel time required to disconnect, service or reinstall the damaged component (s).

RSTC will ship a replacement product prepaid to addresses in the continental United States.

In the event of a product malfunction, RSTC will not bear any responsibility for resulting losses, expenses or damage to other components.

One Year Limited Warranty

Important: Evidence of original purchase is required for warranty service.
WARRANTOR: RSTC Enterprises Incorporated
ELEMENTS OF WARRANTY: RSTC warrants for one year to the original retail owner, this product is free from defects in materials and craftsmanship with only the limitations or exclusions set out below.
WHAT IS NOT COVERED: This warranty covers only defects in materials and workmanship provided by RSTC Enterprises, and does not cover equipment damage or malfunction from misuse, abuse, accident, and act of God. Installation must be in accordance with our written instructions. RSTC Enterprises will not be liable for any installation charges associated with replacement incidental or consequential damages resulting from your use of or inability to use the product.
REMEDY: Your only remedy under this warranty is the exchange or replacement in the event that the product does not conform to this warranty. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.
CLAIMS PROCESS: To make a claim under this warranty, the product should be shipped postage paid, with original purchase receipt to:

RSTC ENTERPRISES
2214 HEIMSTEAD ROAD
EAU CLAIRE, WI 54703
1-866-367-7782 or www.soladeck.com

POWERWALL
Backup Gateway 2

The Backup Gateway 2 for Tesla Powerwall provides energy management and monitoring for solar self-consumption, time-based control, and backup.

The Backup Gateway 2 controls connection to the grid, automatically detecting outages and providing a seamless transition to backup power. When equipped with a main circuit breaker, the Backup Gateway 2 can be installed at the service entrance. When the optional internal panelboard is installed, the Backup Gateway 2 can also function as a load center.

The Backup Gateway 2 communicates directly with Powerwall, allowing you to monitor energy use and manage backup energy reserves from any mobile device with the Tesla app.

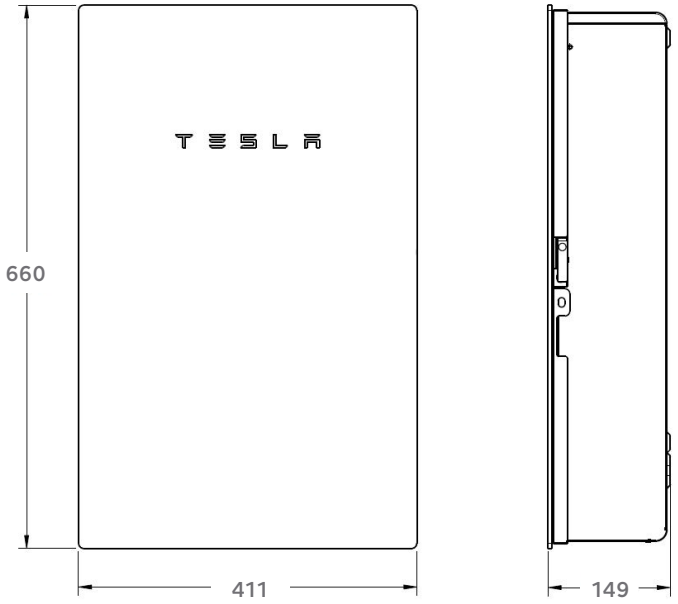
PERFORMANCE SPECIFICATIONS

AC Voltage (Nominal)	120/240V
Feed-In Type	Split Phase
Grid Frequency	60 Hz
Current Rating	200 A
Maximum Input Short Circuit Current	10 kA[1]
Overcurrent Protection Device	100-200A; Service Entrance Rated[1]
Overvoltage Category	Category IV
AC Meter	Revenue accurate (+/– 0.2 %)
Primary Connectivity	Ethernet, Wi-Fi
Secondary Connectivity	Cellular (3G, LTE/4G)[2]
User Interface	Tesla App
Operating Modes	Support for solar self-consumption, time-based control, backup, and off-grid
Backup Transition	Automatic disconnect for seamless backup
Modularity	Supports up to 10 AC-coupled Powerwalls
Optional Internal Panelboard	200A 6-space / 12 circuit Eaton BR Circuit Breakers
Warranty	10 years

[1] When protected by Class J fuses, Backup Gateway 2 is suitable for use in circuits capable of delivering not more than 22kA symmetrical amperes.
[2] The customer is expected to provide internet connectivity for Backup Gateway 2; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 149 mm (26 in x 16 in x 6 in)
Weight	20.4 kg (45 lb)
Mounting options	Wall mount, Semi-flush mount



COMPLIANCE INFORMATION

Certifications	UL 67, UL 869A, UL 916, UL 1741 PCS CSA 22.2 0.19, CSA 22.2 205
Emissions	FCC Part 15, ICES 003

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	–20°C to 50°C (–4°F to 122°F)
Operating Humidity (RH)	Up to 100%, condensing
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Type	NEMA 3R