

DIRECTORY OF PLAN PAGES	
PV1	PROJECT INFORMATION
PV2	SITE PLAN
PV-3A PV-3B	SINGLE-LINE DIAGRAM
PV4	PLACARDS
PV5	ATTACHMENT PLAN
PV-6A	S-5-N MINI SEAM CLAMP DATASHEET
PV-6B	S-5-N MINI SEAM CLAMP INSTALLATION
PV7	RACKING DATASHEET
PV8	CLASS A FIRE RATING DATASHEET
PV9	GROUNDING DETAILS
PV10	STATE OF OREGON ENGINEERING LETTER (IRON RIDGE RACKING)
PV-11A	PV MODULE DATASHEET (EXISTING)
PV-11B	PV MODULE DATASHEET (NEW)
PV-12A	MICROINVERTER DATASHEET (EXISTING)
PV-12B	MICROINVERTER DATASHEET (NEW)
PV13	APSYSTEMS ACCESSORIES DATASHEET
PV14	APSYSTEMS RAPID SHUTDOWN CERTIFICATION

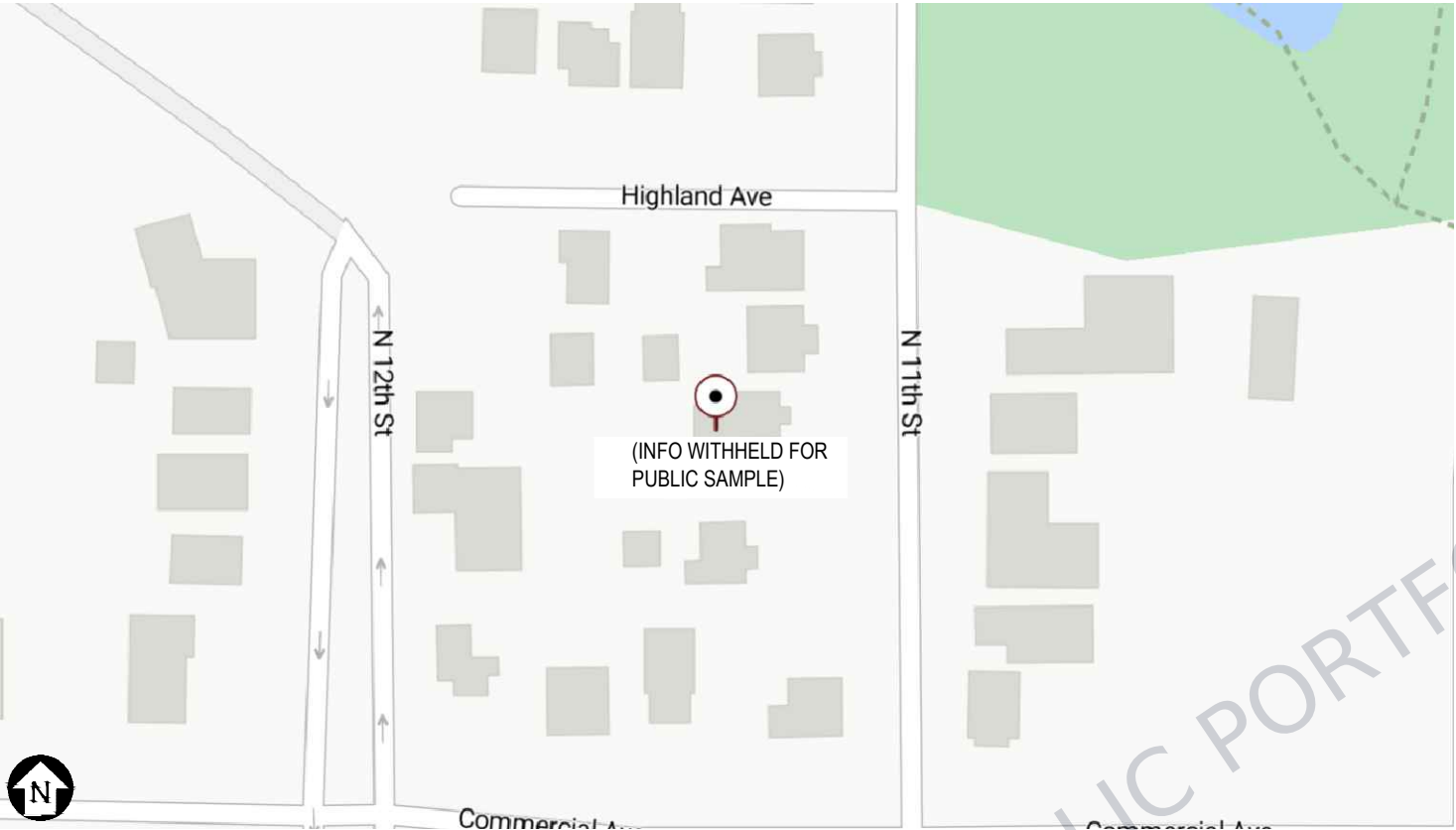
PROJECT DETAILS	
PROPERTY OWNER	(INFO WITHHELD FOR PUBLIC SAMPLE)
PROPERTY ADDRESS	(INFO WITHHELD FOR PUBLIC SAMPLE)
AHJ	(INFO WITHHELD FOR PUBLIC SAMPLE)
ZONING	RESIDENTIAL
CONST. TYPE	FLUSH ROOF-MOUNTED PHOTOVOLTAIC ARRAY
UTILITY COMPANY	PACIFIC POWER
OBSERVED CODES	2023 OREGON RESIDENTIAL SPECIALTY CODE (ORSC) 2022 OREGON STRUCTURAL SPECIALTY CODE (OSSC) 2023 OREGON ELECTRICAL SPECIALTY CODE (OESC) 2022 OREGON MECHANICAL SPECIALTY CODE (OMSC) 2023 OREGON PLUMBING SPECIALTY CODE (OPSC) 2021 OREGON ENERGY EFFICIENCY SPECIALTY CODE (OEESC) OSHA 29 CFR 1910.269 UNDERWRITERS LABORATORIES (UL) STANDARDS
STRUCT. METHOD	ASCE7-16

CONTRACTOR INFORMATION	
CONTRACTOR	(INFO WITHHELD FOR PUBLIC SAMPLE)
LICENSE NO.	(INFO WITHHELD FOR PUBLIC SAMPLE)
ADDRESS	(INFO WITHHELD FOR PUBLIC SAMPLE)
PHONE	(INFO WITHHELD FOR PUBLIC SAMPLE)
EMAIL	(INFO WITHHELD FOR PUBLIC SAMPLE)
CONTRACTOR SIGNATURE	

PLAN DESIGNER INFORMATION	
COMPANY	GEMINI SOLAR DESIGN, LLC.
NAME	SANJAY CHRISTOPHER MALLIPUDI
ADDRESS	495 HOWARD HEIGHTS ROAD FRESHWATER, CA 95503
PHONE	(609) 802-5743
PLAN DESIGNER SIGNATURE	Sanjay Mallipudi

SYSTEM DETAILS (EXISTING + NEW)	
DC RATING OF SYSTEM (EXISTING + NEW)	11,640W
AC OUTPUT CURRENT (EXISTING + NEW)	39.09A
MICROINVERTER (EXISTING)	(11) APSYSTEMS YC600
MICROINVERTER (NEW)	(4) APSYSTEMS DS3-L
MODULE (EXISTING)	(22) HANWHA Q CELLS Q.PEAK DUO BLK ML-G9+ 380
MODULE (NEW)	(8) HANWHA Q CELLS Q.PEAK DUO BLK ML-G10+ 410
BRANCH CONFIGURATION	1 BRANCH OF 3 MICROINVERTERS (EXISTING) 2 BRANCHES OF 4 MICROINVERTERS (EXISTING) 1 BRANCH OF 4 MICROINVERTERS (NEW)
PROJECT TYPE	GRID-TIED (SOLAR ONLY)
INTERCONNECTION	LOAD-SIDE (BACKFED CIRCUIT BREAKER)

SITE SPECIFICATIONS	
UTILITY SERVICE	120 / 240VAC, 1-Ø, 3-WIRE
METER / MAIN COMBINATION PANEL (LOC. ON EXTERIOR)	200A RATED BUSBAR 200A / 2P MAIN BREAKER TO BE DERATED TO 175A / 2P 50A / 2P BACKFED SOLAR BREAKER
ASHRAE EXTREME ANNUAL MEAN MINIMUM DENSITY DRY BULB TEMP.	0°C
ASHRAE 2% ANNUAL DRY DENSITY BULB TEMP.	17°C
ULTIMATE WIND SPEED	120 MPH
DESIGN SNOW LOAD (ACCORDING TO OREGON SNOW LOAD MAP FROM HTTP://SNOWLOAD.SEAO.ORG/)	1 PSF
WIND EXPOSURE CATEGORY	B
SEISMIC DESIGN CATEGORY	D
RISK CATEGORY	II



1 PLOT
PV-1 SCALE: NTS

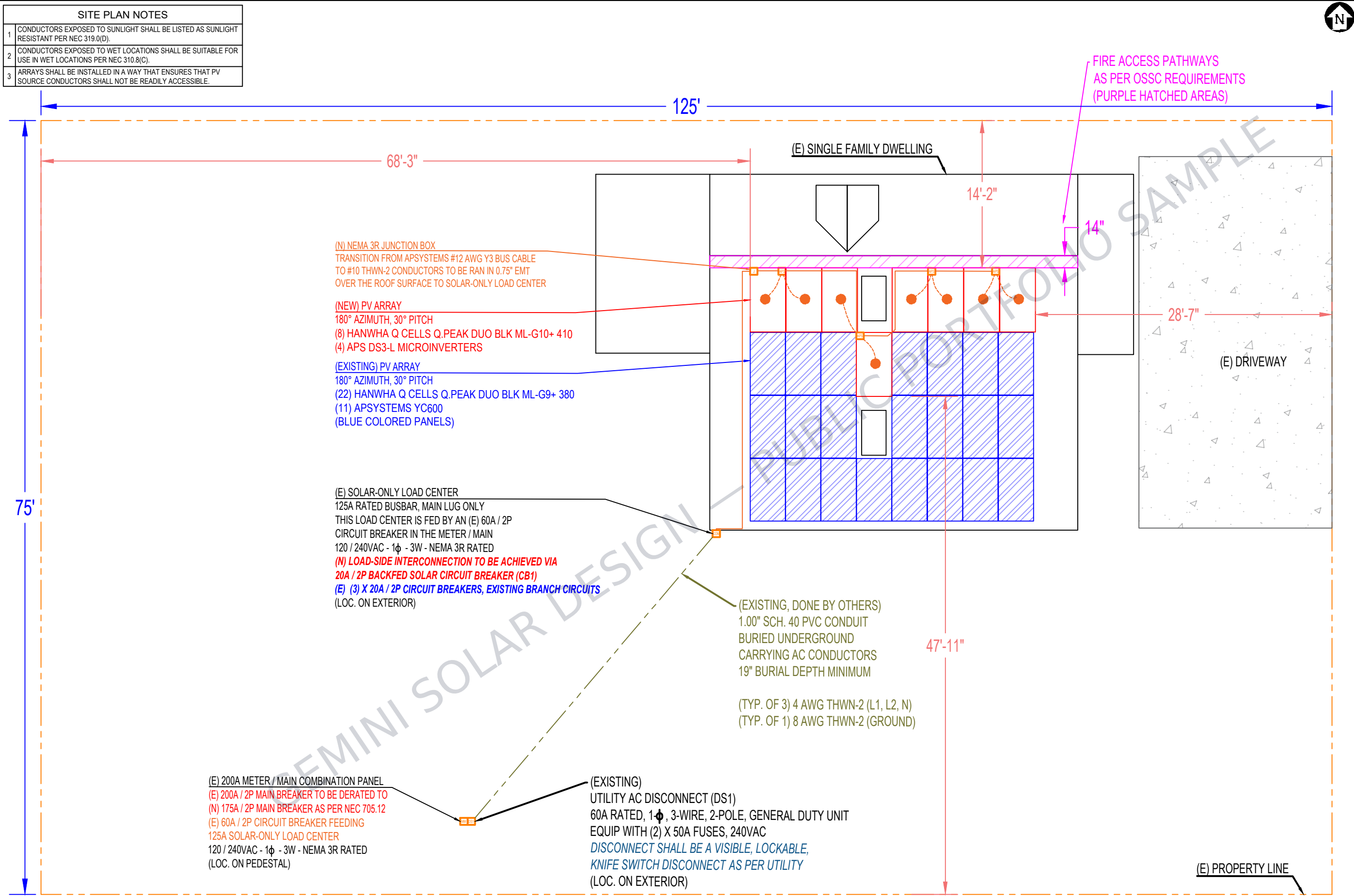


2 LOCALE
PV-1 SCALE: NTS

CONSTRUCTION NOTES	
1	CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO INITIATING CONSTRUCTION.
2	CONTRACTOR SHALL REVIEW ALL MANUFACTURER INSTALLATION DOCUMENTS PRIOR TO INITIATING CONSTRUCTION.
3	ALL EQUIPMENT SHALL BE LISTED BY THE U.L. (OR EQUAL) AND LISTED FOR ITS SPECIFIC APPLICATION.
4	ALL EQUIPMENT SHALL BE RATED FOR THE ENVIRONMENT IN WHICH IT IS INSTALLED.
5	ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6	ACCESS TO ELECTRICAL COMPONENTS OVER 150 VOLTS TO GROUND SHALL BE RESTRICTED TO QUALIFIED PERSONNEL.
7	ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 VOLTS AND 90°C WET ENVIRONMENT, UNLESS OTHERWISE NOTED.
8	WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, CONTRACTOR SHALL SIZE THEM ACCORDING TO APPLICABLE CODES.
9	PV MODULES FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER G.E.C. PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
10	PV MODULES RACKING RAIL SHALL BE BONDED TO BARE COPPER G.E.C VIA WEEB LUG, ILSCO GBL-4DBT LAY-IN LUG, OR EQUIVALENT LISTED LUG.
11	GROUNDING ELECTRODE CONDUCTOR (G.E.C) SHALL BE CONTINUOUS AND/OR IRREVERSIBLY SPLICED
12	ALL JUNCTION BOXES, COMBINER BOXES, AND DISCONNECTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
13	WORKING SPACE AROUND ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC SECTION 110.26.

SCOPE OF WORK DESCRIPTION	
THE EXISTING SYSTEM IS A ROOF MOUNTED PHOTOVOLTAIC ARRAY UTILIZING APSYSTEMS YC600 MICROINVERTERS. THE PHOTOVOLTAIC (PV) SYSTEM HAS BEEN INSTALLED ON THE RESIDENTIAL ZONED PROPERTY IN THE CITY OF COOS BAY, COOS COUNTY, OREGON.	
THE PROPOSED SCOPE OF WORK AT THIS TIME IS TO AUGMENT THE TROTAL SYSTEM CAPACITY WITH AN ADDITIONAL STRING OF APSYSTEMS DS3-L MICROINVERTERS.	
THE ENERGY PRODUCED BY THE PV SYSTEM SHALL BE INTERCONNECTED WITH THE UTILITY GRID THROUGH THE EXISTING ON-SITE ELECTRICAL EQUIPMENT VIA A LOAD-SIDE CIRCUIT BREAKER BACKFED POINT OF CONNECTION. THIS PROJECT DOES NOT INCLUDE STORAGE BATTERIES.	

(INFO WITHHELD)	
PHONE: (INFO WITHHELD)	
LICENSE NO. (INFO WITHHELD)	
CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.	
GRID-TIED SYSTEM 11.64KW DC	(INFO WITHHELD FOR PUBLIC SAMPLE)
PROJECT INFO	
PROJECT NO: GSD-20250815-SCM	
DRAWN BY: SCM	
DATE: 8/15/2025	
PV-1	



● 1 BRANCH OF 4 MICROINVERTERS (APS DS3-L)

1 SITE PLAN
PV-2 SCALE: 1" = 9'

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

SITE PLAN

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

PV-2

PV MODULE										
REF.	TYP.	MODULE	STC POWER	ISC	IMP	VOC	VMP	SERIES FUSE RATING		
PM1-8 (NEW)	8	HANWHA Q CELLS Q.PEAK DUO BLK ML-G10+ 410	410W	11.20A	10.89A	45.37V	37.64V	20A		
PM19-30 (EXIS)	22	HANWHA Q CELLS Q.PEAK DUO BLK ML-G9+ 380	380W	10.50A	10.04A	45.04V	37.85V	20A		
MICROINVERTER										
REF.	TYP.	MICROINVERTER	MODULES PER EACH MICROINVERTER	AC VOLTAGE	MAXIMUM UNITS PER 20A BRANCH	MAX OUTPUT POWER	MAX AC CURRENT	MAX DC INPUT CURRENT	MAX DC INPUT VOLTAGE	CEC EFFICIENCY
I1-4 (NEW)	4	APS DS3-L	2	240VAC	5	768W	3.2A	18A X 2	60VDC	97.0%
I5-15 (EXIS)	11	APS YC600	2	240VAC	6	600W	2.39A	12A X 2	55VDC	96.5%

SYSTEM SUMMARY (EXISTING + NEW)				
	BRANCH #1 (NEW)	BRANCH #2 (EXISTING)	BRANCH #3 (EXISTING)	BRANCH #4 (EXISTING)
INVERTERS PER BRANCH	4	3	4	4
MAX AC CURRENT	12.8A	7.17A	9.56A	9.56A
MAX AC OUTPUT POWER	3,072W	1,800W	2,400W	2,400W
ARRAY STC POWER	11,640W			
TOTAL MAX AC CURRENT	39.09A			
DERATED AC POWER OUTPUT	9,672W			

OCPD SCHEDULE				
REF.	TYP.	POLES	CURRENT RATING	MAX. VOLTAGE
CB1 (APS DS3-L BRANCH CIRCUIT, BACKFED CIRCUIT BREAKER)	1	2	20A	240VAC
EXISTING, TYP. OF 3 BRANCHES (APS YC600 BRANCH CIRCUIT, BACKFED CIRCUIT BREAKER)	3	2	20A	240VAC
F1-2 (UTILITY AC DISCONNECT FUSES)	2	N/A	50A	240VAC

UTILITY AC DISCONNECT SCHEDULE				
REF.	TYP.	POLES	CURRENT RATING	MAX. VOLTAGE
(EXISTING) UTILITY AC DISCONNECT (DS1), FUSIBLE 2-POLE KNIFE TYPE, GENERAL DUTY UNIT	1	2	60A	240VAC

CONDUCTOR SCHEDULE WITH NEC ELECTRICAL CALCULATIONS																
ID	TYP	DESCRIPTION	CONDUCTOR	CONDUIT	NO. OF CURRENT CARRYING CNDRS. IN CNDT.	FILL %	RATED AMPS	OCPD	EGC	TEMP. CORR. FACTOR @ 90°C TEMP. RATING	FILL ADJ. FACTOR	CONT. CURRENT	MAX. CURRENT	75°C TERMINAL RATING CHECK SHALL EXCEED 1.25X CONT. CURRENT	BASE AMPACITY @ 90°C TEMP. RATING	CONDITIONS OF USE (COU) @ 90°C TEMP. RATING
1	1	MICROINVERTER OUTPUT: MICROINVERTER TO JUNCTION BOX	12 AWG THWN-2 COPPER (APSYSTEMS AC BUS 12 AWG TRUNK CABLE FOR QS1 / DS3)	FREE AIR	N/A	N/A	12.8A (BRANCH #1)	N/A	6 AWG BARE COPPER	0.91 (39°C)	1.0	12.8A (BRANCH #1)	16.0A (BRANCH #1)	35A > 16.0A PASS	40A (IN FREE AIR)	36.4A (IN FREE AIR)
2	1	MICROINVERTER OUTPUT (TRANSITIONED): JUNCTION BOX TO SOLAR-ONLY LOAD CENTER	10 AWG THWN-2 COPPER	0.75" DIA. EMT	3 (L1, L2, N) X 1	15.9%	12.8A (BRANCH #1)	20A (CB1)	10 AWG THWN-2 COPPER	0.91 (39°C)	1.0	12.8A (BRANCH #1)	16.0A (BRANCH #1)	35A > 16.0A PASS	40A (IN CONDUIT)	36.4A (IN CONDUIT)
3	1	COMBINED OUTPUT OF MICROINVERTERS: SOLAR-ONLY LOAD CENTER TO UTILITY AC DISCONNECT (DS1)	4 AWG THWN-2 COPPER	1.00" DIA. SCH. 40 PVC (BURIED IN TRENCH, 19" MINIMUM BURIAL DEPTH)	3 (L1, L2, N) X 1	34.3%	39.09A	50A (F1-2) 60A (DS1)	8 AWG THWN-2 COPPER	1.0 (17°C)	1.0	39.09A	48.87A	85A > 48.87A PASS	95A (IN CONDUIT)	95A (IN CONDUIT)
4	1	UTILITY AC DISCONNECT (DS1) OUTPUT: UTILITY AC DISCONNECT (DS1) TO METER / MAIN COMBO (LOAD-SIDE POINT OF INTERCONNECTION VIA 2-POLE BACKFED CIRCUIT BREAKER)	4 AWG THWN-2 COPPER	1.00" DIA. SCH. 40 PVC	3 (L1, L2, N) X 1	34.3%	39.09A	60A / 2P BREAKER (EXISTING)	8 AWG THWN-2 COPPER	1.0 (17°C)	1.0	39.09A	48.87A	85A > 48.87A PASS	95A (IN CONDUIT)	95A (IN CONDUIT)

ALL CONDUCTORS, OCPD SIZES AND TYPES SPECIFIED ACCORDING TO NEC ARTICLES 690.8(A)(1), NEC ARTICLE 240, AND NEC ARTICLE 690.7.

VOLTAGE DROP CALCULATIONS									
ID	DESCRIPTION	CONDUCTOR	CONDUIT	RATED AMPS	MAXIMUM ONE-WAY DISTANCE (FT)	DISTANCE (FT) X 2	CONDUCTOR (OHM/KFT) X 100	(SYS NOM. VOLTAGE) X 1000	VOLTAGE DROP (%)
1	MICROINVERTER OUTPUT: MICROINVERTER TO JUNCTION BOX	12 AWG THWN-2 COPPER (APSYSTEMS AC BUS 12 AWG TRUNK CABLE FOR QS1 / DS3)	FREE AIR	12.8A (BRANCH #1)	35 FT	70 FT	1.59 X 100	/ (240 X 1000)	0.46%
2	MICROINVERTER OUTPUT (TRANSITIONED): JUNCTION BOX TO SOLAR-ONLY LOAD CENTER	10 AWG THWN-2 COPPER	0.75" DIA. EMT	12.8A (BRANCH #1)	30 FT	60 FT	1.0 X 100	/ (240 X 1000)	0.25%
3	COMBINED OUTPUT OF MICROINVERTERS: SOLAR-ONLY LOAD CENTER TO UTILITY AC DISCONNECT (DS1)	4 AWG THWN-2 COPPER	1.00" DIA. SCH. 40 PVC (BURIED IN TRENCH, 19" MINIMUM BURIAL DEPTH)	39.09A	35 FT	70 FT	0.25 X 100	/ (240 X 1000)	0.17%
4	UTILITY AC DISCONNECT (DS1) OUTPUT: UTILITY AC DISCONNECT (DS1) TO METER / MAIN COMBO (LOAD-SIDE POINT OF INTERCONNECTION VIA 2-POLE BACKFED CIRCUIT BREAKER)	4 AWG THWN-2 COPPER	1.00" DIA. SCH. 40 PVC	39.09A	5 FT	10 FT	0.25 X 100	/ (240 X 1000)	0.04%
TOTAL CUMULATIVE VOLTAGE DROP =====>									0.92%

(INFO WITHHELD)

PHONE: (INFO WITHHELD)

LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

SINGLE-LINE DIAGRAM

PROJECT NO: GSD-20250815-SCM

DRAWN BY: SCM

DATE: 8/15/2025

PV-3B

JUNCTION BOX

1 JUNCTION BOX

⚠

WARNING

⚠

PHOTOVOLTAIC
POWER SOURCE

NEC 690.35

2 JUNCTION BOX

⚠

DO NOT
DISCONNECT
UNDER LOAD

⚠

NEC 690.16(B)

125A RATED SOLAR-ONLY LOAD CENTER RACEWAYS

3 125A RATED SOLAR-ONLY LOAD CENTER

⚠

WARNING

⚠

DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND
PV SOLAR ELECTRIC SYSTEM

NEC 690.56(B)

4 125A RATED SOLAR-ONLY LOAD CENTER

⚠

WARNING

⚠

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

NEC 690.17.4

13 RACEWAYS, CABLES PER 10 FT.

⚠

WARNING

⚠

PHOTOVOLTAIC
POWER SOURCE

NEC 690.31(E)(3),(4)

5 SOLAR BACKFED CURRENT (NEW STRING)

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING CURRENT 12.8 AMPS
OPERATING VOLTAGE 240 VOLTS

NEC 690.54

6 SOLAR BACKFED CURRENT (TOTAL SYSTEM)

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING CURRENT 39.09 AMPS
OPERATING VOLTAGE 240 VOLTS

NEC 690.54

7 125A RATED SOLAR-ONLY LOAD CENTER

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

METER / MAIN COMBINATION PANEL

8 METER / MAIN COMBINATION PANEL

⚠

WARNING

⚠

DUAL POWER SUPPLY
SOURCES: UTILITY GRID AND
PV SOLAR ELECTRIC SYSTEM

NEC 690.56(B)

9 METER / MAIN COMBINATION PANEL

⚠

WARNING

⚠

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

NEC 690.17.4

10 METER / MAIN COMBINATION 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

11 SOLAR BACKFED CURRENT (TOTAL SYSTEM)

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING CURRENT 39.09 AMPS
OPERATING VOLTAGE 240 VOLTS

NEC 690.54

12 MAIN CIRCUIT BREAKER

MAIN BREAKER HAS BEEN
RESIZED TO 175 AMPS
DO NOT UPSIZE BREAKER

REQUIRED BY AHJ

DIRECTORY PLACARD

14 DIRECTORY PLACARD

⚠

CAUTION

⚠

POWER TO THIS SERVICE IS ALSO SUPPLIED FROM
THE FOLLOWING SOURCES WITH DISCONNECTS
LOCATED AS SHOWN

NEC 690.56(B)

SOLAR AC DISCONNECT (DS1)

15 SOLAR AC DISCONNECT (DS1)

⚠

WARNING

⚠

ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

NEC 690.17.4

16 SOLAR AC DISCONNECT (DS1)

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING CURRENT 39.09 AMPS
OPERATING VOLTAGE 240 VOLTS

NEC 690.54

SIGNAGE REQUIREMENTS	
1	ALL PLACARDS AND SIGNAGE REQUIRED BY THE 2023 OREGON ELECTRICAL SPECIALTY CODE (OESC), AND ANY OTHER STATE CODES OR LOCAL ORDINANCES WILL BE INSTALLED AS REQUIRED.
2	RED BACKGROUND
3	WHITE LETTERING
4	MINIMUM 3/8" LETTER HEIGHT
5	ALL CAPITAL LETTERS
6	ARIAL OR SIMILAR FONT
7	WEATHER RESISTANT MATERIAL, PER UL 969

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED
IN THIS DRAWING SET IS CONFIDENTIAL AND
SHALL NOT BE DISCLOSED IN FULL OR IN PART
TO ANYONE EXCEPT THOSE INVOLVED IN THE
DESIGN AND INSTALLATION OF THE PV SYSTEM
REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

PLACARDS

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

PV-4

The right way to attach almost anything to metal roofs!

S-5![®]

The Right Way![®]

S-5-N Clamp

S-5! introduces the new and improved S-5-N clamps. The new design features an innovative insert that ensures a superior fit for new and wider nail strip profiles as well as older ones.

The S-5-N (standard) clamp is the best choice for snow retention and other heavy and load-critical applications. It is designed for use on the most popular 1" nail strip metal roofs, including: Taylor Metal's Easy Lock[™], ASC Building Products' Skyline Roofing[®], McElroy Metal's Meridian, New Tech Machinery's FF100, Schleich 1" Nail Strip, and roofing types with similar profiles.

S-5-N Mini Clamp

The S-5-N Mini offers correct fit to the same profiles as the standard S-5-N but is shorter and has one setscrew rather than two. The Mini is ideal for attaching various rooftop accessories, such as solar arrays, signs, walkways, satellite dishes, lightning protection systems, antennas, rooftop lighting, conduit, condensate lines and other lighter load applications*

*S-5! Mini clamps are not compatible with, and should not be used with S-5! SnoRail[™]/SnoFence[™] or ColorGard[®] snow retention systems.

FEATURES AND BENEFITS

- Angled setscrews for easier installation - no special tools required
- Fits seam profiles having base of rib dimension < .82"
- Structural aluminum (6061-T6) clamp body and 300 series SS fasteners offer superior corrosion resistance & strength
- Clamp insert to facilitate installation and fit
- New design ensures straighter clamp position on seam



888-825-3432 | www.S-5.com

S-5-N and S-5-N Mini

S-5![®]

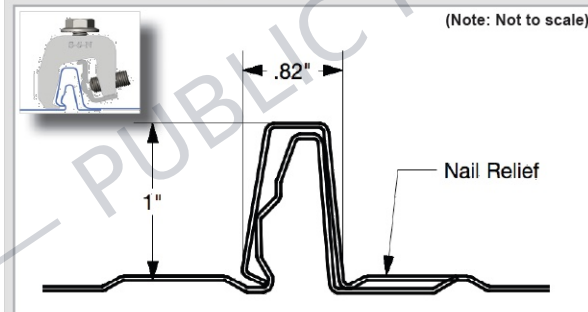
The Right Way![®]

The new and improved S-5-N features angled setscrews, a wider throat, and an insert for easy installation and best fit for wider nail strip profiles.

The S-5-N and S-5-N Mini clamps are each supplied with the hardware shown to the right. Each box also includes a bit tip for tightening setscrews using an electric screw gun. The S-5-N is a structural aluminum attachment clamp, compatible with most common metal roofing materials (excluding copper). All included hardware is 300 series stainless steel. Please visit www.S-5.com for more information including CAD details, metallurgical compatibilities, and specifications.

S-5![®] holding strength is unmatched in the industry.

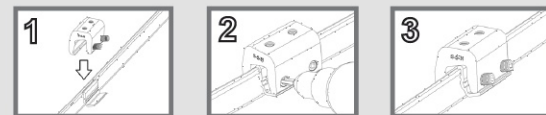
Fits Panels Up to .82"



(NOTE: Seams that exceed maximum allowance at the widest part of the seam will require hand crimping to allow the clamp to fit).

Ease of Installation...in 1...2...3

Installation Simplified: The S-5-N is still just as quick and easy to install as other S-5 clamps. But now, we've angled the setscrews toward the installer, allowing easier access with a screw gun, simplifying tool removal once the setscrew has been tightened - ensuring the clamp sits straighter on the seam. Choose the S-5-N for a non-penetrating solution that protects the roof while providing excellent holding strength.

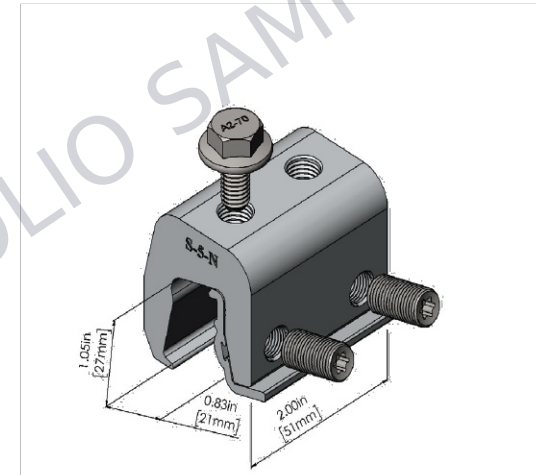


S-5![®] Warning! Please use this product responsibly!

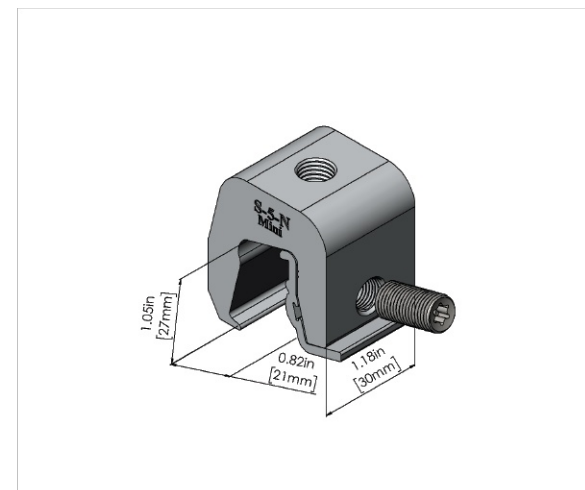
Products are protected by multiple U.S. and foreign patents. Visit the website at www.S-5.com for complete information on patents and trademarks. For maximum holding strength, setscrews should be tensioned and re-tensioned as the seam material compresses. Clamp setscrew tension should be verified using a calibrated torque wrench between 160 and 180 inch pounds when used on 22ga steel, and between 130 and 150 inch pounds for all other metals and thinner gauges of steel. Consult the S-5! website at www.S-5.com for published data regarding holding strength.

Copyright 2021, Metal Roof Innovations, Ltd. S-5! products are patent protected. S-5! aggressively protects its patents, trademarks, and copyrights. Version 081321.

S-5-N Clamp



S-5-N Mini Clamp



Distributed by

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

MOUNTING DETAIL

PROJECT NO: GSD-20250815-SCM

DRAWN BY: SCM

DATE: 8/15/2025

PV-6A



The Right Way™ to attach almost anything to metal roofs!

Installation Instructions

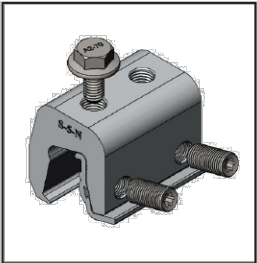
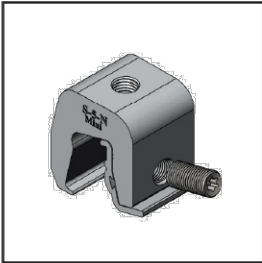
Attention! This document is a guide only. This product may not be suitable for every application. The user is responsible for all necessary applications engineering and design. Please scan the QR code to the right for additional information, warnings and disclaimers regarding product use.

You can also view load test results at www.s-5.com where applicable, or contact your S-5! distributor for more information.

These instructions are for use by those experienced in the trade. Always follow appropriate safety precautions and use appropriate tools.



What's Included in Your Box

S-5-N	Based on 1 Part	S-5-N Mini	Based on 1 Part
	• 2 – 3/8 x .90" Setscrews (10 mm x 23 mm) • 1 – M8 x 16 mm Hex Flange Bolt • 1 – N Insert		• 1 – 3/8 x .90" Setscrew (10 mm x 23 mm) • 1 – N Insert
	Minor Box Qty: 30*		Minor Box Qty: 50*
	Master Box Qty: 120*		Master Box Qty: 200*

*Broken-box quantities may vary

Note: For the S-5-N Mini, in all applications other than a PVKIT, you will need to purchase a Hex Flange top bolt separately.

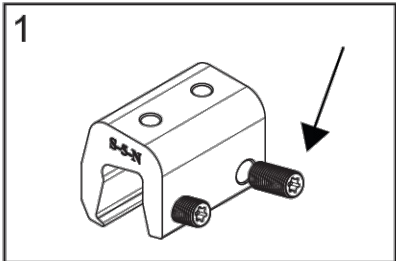
What You'll Need for Installation

- Screw Gun
- T30 Torx Bit Tip (provided)
- Dial-Calibrated Torque Wrench

(For accurate tension values, do NOT use a clicking torque wrench; inquire with S-5! for proper tool sourcing)

How to Install S-5-N and S-5-N Mini

1. Load the setscrew(s) into the clamp. (Fig 1)



888-825-3432 www.S-5.com S-5-N™ & Mini Install Instructions

2. Position clamp and insert at desired location along the seam as shown. (Fig 2)

NOTE: On wider panel profiles, it may be necessary to place the clamp onto the seam first and then slide the insert into it. Seams that exceed maximum allowance of 0.82" at the widest part of the seam may require hand crimping to facilitate clamp fit. (Fig 2a)

3. The clamp should be over the seam and insert as shown. (Fig 3) Make sure the toe of the clamp engages beneath the fold of the seam as shown. (Fig 3a)

4. Tighten the setscrew(s) using a screw gun* and the included bit tip (Fig 4). When relying on published load values, setscrew tension should be verified periodically using a dial-indicating calibrated torque wrench to ensure the tool is consistently achieving the recommended torque range (Table 1).

When installing the **S-5-N clamp**: Setscrews should be alternately tensioned as shown in Fig 4a until both setscrews have achieved recommended torque.

When installing the **S-5-N Mini clamp**: The seam material will compress evenly during the first tightening.

5. Attach your ancillary and tighten the bolt. For critical attachment applications, reference Table 1 for the appropriate torque.

Table 1

Specified Torque	Inch Pounds	Foot Pounds	Nm
Setscrew on 22ga (0.8 mm) steel	160-180	13-15	18-20
Setscrew on 24ga (0.6 mm) steel and all other materials	130-150	11-12.5	15-17
M8 Hex Flange bolt	160	13	18

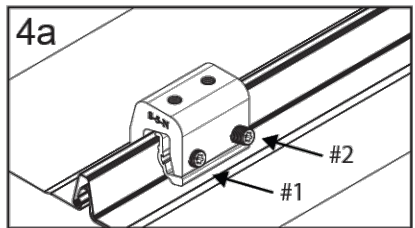
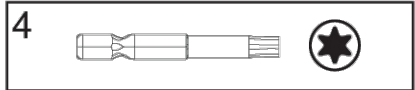
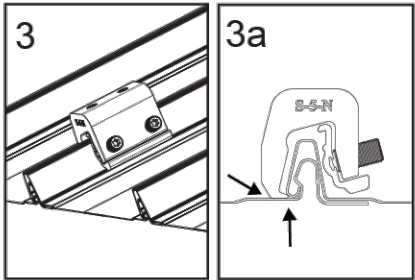
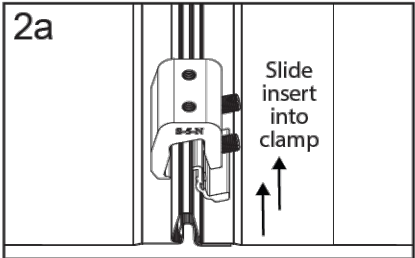
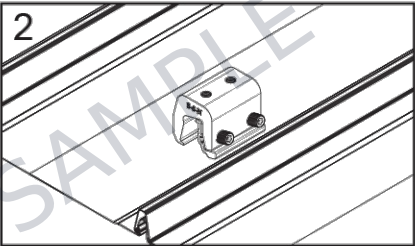
Once installed correctly, the mechanical interlock is established and these clamps require no maintenance or torque re-inspection for the life of the roof.

NOTE: Any S-5! warranty and/or calculation may be void if hardware is used that was not furnished by S-5! directly or through one of their licensed distributors or any assembly that has not been tested by S-5!

S-5!® Warning! Please use this product responsibly!

Products are protected by multiple U.S. and foreign patents. For published data regarding holding strength, fastener torque, patents, and trademarks, visit the S-5! website at www.S-5.com. Copyright 2022, Metal Roof Innovations, Ltd. S-5! products are patent protected. S-5! aggressively protects its patents, trademarks, and copyrights. ProteaBracket-V1.0-1022

S-5-N™ Installation Instructions



(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

INSTALLATION

PROJECT NO: GSD-20250815-SCM

DRAWN BY: SCM

DATE: 8/15/2025

PV-6B



S-5-N MINI SEAM CLAMP INSTALLATION
SCALE: NTS



Flush Mount System

Datasheet



Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.

Strength Tested

All components evaluated for superior structural performance.

Class A Fire Rating

Certified to maintain the fire resistance rating of the existing roof.

UL 2703 Listed System

Entire system and components meet newest effective UL 2703 standard.

PE Certified

Pre-stamped engineering letters available in most states.

Design Assistant

Online software makes it simple to create, share, and price projects.

25-Year Warranty

Products guaranteed to be free of impairing defects.

XR Rails

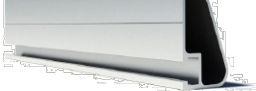
XR10 Rail



A low-profile mounting rail for regions with light snow.

- 6' spanning capability
- Moderate load capability
- Clear and black finish

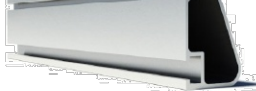
XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear and black finish

XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish

Bonded Splices

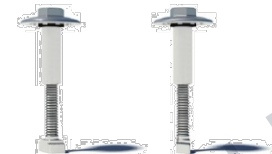


All rails use internal splices for seamless connections.

- Self-drilling screws
- Varying versions for rails
- Forms secure bonding

Clamps & Grounding

UFOs



Universal Fastening Objects bond modules to rails.

- Fully assembled & lubed
- Single, universal size
- Clear and black finish

Stopper Sleeves



Snap onto the UFO to turn into a bonded end clamp.

- Bonds modules to rails
- Sized to match modules
- Clear and black finish

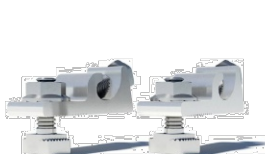
CAMO



Bond modules to rails while staying completely hidden.

- Universal end-cam clamp
- Tool-less installation
- Fully assembled

Grounding Lugs



Connect arrays to equipment ground.

- Low profile
- Single tool installation
- Mounts in any direction

Attachments

FlashFoot2



Flash and mount XR Rails with superior waterproofing.

- Twist-on Cap eases install
- Wind-driven rain tested
- Mill and black finish

Conduit Mount



Flash and mount conduit, strut, or junction boxes.

- Twist-on Cap eases install
- Wind-driven rain tested
- Secures 3/4" or 1" conduit

Slotted L-Feet



Drop-in design for rapid rail attachment.

- Secure rail connections
- Slot for vertical adjusting
- Clear and black finish

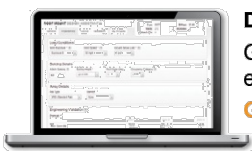
Bonding Hardware



Bond and attach XR Rails to roof attachments.

- T & Square Bolt options
- Nut uses 7/16" socket
- Assembled and lubricated

Resources



Design Assistant

Go from rough layout to fully engineered system. For free.

[Go to IronRidge.com/design](https://www.ironridge.com/design)



NABCEP Certified Training

Earn free continuing education credits, while learning more about our systems.

[Go to IronRidge.com/training](https://www.ironridge.com/training)

© 2018 IronRidge, Inc. All rights reserved. U.S. Patents: #8,695,290; #9,819,303; #9,865,938; Others Pending. Version 1.60

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

RACKING DATASHEET

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

PV-7



8431 Murphy Drive
Middleton, WI 53562 USA
Telephone: 608.836.4400
Facsimile: 608.831.9279
www.intertek.com

Test Verification of Conformity

In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address:

IronRidge, Inc.
1495 Zephyr Ave.
Hayward, CA 94544
USA

Product Description:

Flush Mount System with XR Rails.

Ratings & Principle Characteristics:

Fire Class Resistance Rating:
-Flush Mount (Symmetrical). Class A Fire Rated for Low Slope applications when using Type 1, 2 and 3, listed photovoltaic modules. Class A Fire Rated for Steep Slope applications with Type1, 2 and 3, listed photovoltaic modules. Tested with a 5" gap (distance between the bottom the module frame and the roof covering), per the standard this system can be installed at any gap allowed by the manufacturers installation instructions. No perimeter guarding is required. This rating is applicable with any IronRidge or 3'rd party roof anchor.

Models:

IronRidge Flush Mount with XR Rails

Brand Name:

IronRidge Flush Mount

Relevant Standards:

UL 2703 (Section 15.2 and 15.3) Standard for Safety Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels, First Edition dated Jan. 28, 2015 Referencing UL1703 Third Edition dated Nov. 18, 2014, (Section 31.2) Standard for Safety for Flat-Plate Photovoltaic Modules and Panels.

Verification Issuing Office:

Intertek Testing Services NA, Inc.
8431 Murphy Drive
Middleton, WI 53562

Date of Tests:

08/27/2014 to 03/17/2015

Test Report Number(s):

101769343MID-001r1, 101769343MID-001a, 101915978MID-001 & 101999492MID-001ar1-cr1.

This verification is part of the full test report(s) and should be read in conjunction with them. This report does not automatically imply product certification.

Completed by:

Chris Zimbrich

Reviewed by:

Chad Naggs

Title:

Technician II, Fire Resistance

Title:

Technician I, Fire Resistance

Signature:

Signature:

Date:

05/25/2016

Date:

05/25/2016

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense, or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

GFT-OP-11a (24-MAR-2014)



Tech Brief

Class A Fire Rating

Background

All roofing products are tested and classified for their ability to resist fire.

Recently, these fire resistance standards were expanded to include solar equipment as part of the roof system. Specifically, this requires the modules, mounting hardware and roof covering to be tested together as a system to ensure they achieve the same fire rating as the original roof covering.

These new requirements are being adopted throughout the country in 2016.

IronRidge Certification

IronRidge was the first company to receive a Class A Fire Rating—the highest possible rating—from Intertek Group plc., a Nationally Recognized Testing Laboratory.

IronRidge Flush Mount and Tilt Mount Systems were tested on sloped and flat roofs in accordance with the new UL 1703 & UL 2703 test standards. The testing evaluated the system's ability to resist flame spread, burning material and structural damage to the roof.

Refer to the table below to determine the requirements for achieving a Class A Fire Rating on your next project.

System	Roof Slope	Module	Fire Rating*
Flush Mount 	Any Slope	Type 1, 2, & 3	Class A
Tilt Mount 	≤ 6 Degrees	Type 1, 2, & 3	Class A

*Class A rated PV systems can be installed on Class A, B, and C roofs.

Fire Testing Process

Test Setup

Solar Modules

Solar modules are given a Type classification based on their materials and construction.

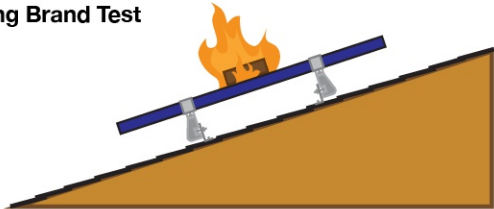
Mounting System

Mounting is tested as part of a system that includes type-tested modules and fire-rated roof covering.

Roof Covering

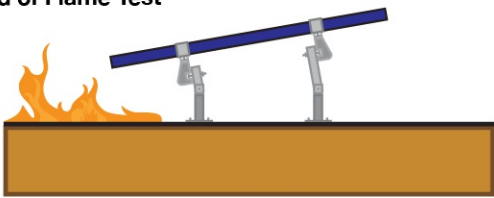
Roof covering products are given a Fire Class Rating of A, B or C based on their tested fire resistance.

Burning Brand Test



A burning wooden block is placed on module as a fan blows at 12 mph. Flame cannot be seen on underside of roof within 90 minutes.

Spread of Flame Test



Flame at southern edge of roof is aimed up the roof as a fan blows at 12 mph. The flame cannot spread 6 feet or more in 10 minutes.

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

CLASS A FIRE RATING

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

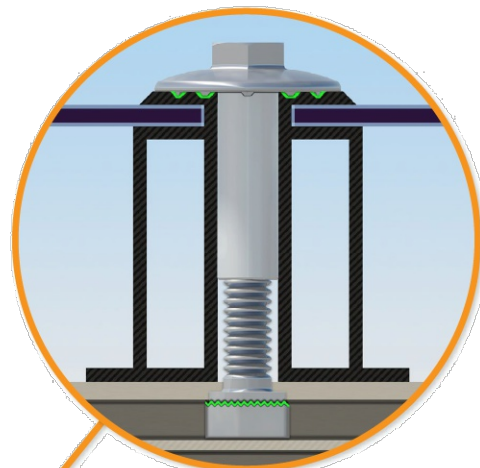
PV-8

1 CLASS A FIRE RATING DATASHEET
PV-8 SCALE: NTS

Simplified Grounding for Every Application

The UFO family of components eliminates the need for separate grounding hardware by bonding solar modules directly to IronRidge XR Rails. All system types that feature the UFO family—Flush Mount, Tilt Mount and Ground Mount—are fully listed to the UL 2703 standard.

UFO hardware forms secure electrical bonds with both the module and the rail, resulting in many parallel grounding paths throughout the system. This leads to safer and more reliable installations.



Universal Fastening Object (UFO)

The UFO securely bonds solar modules to XR Rails. It comes assembled and lubricated, and can fit a wide range of module heights.



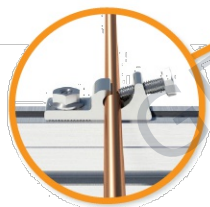
Stopper Sleeve

The Stopper Sleeve snaps onto the UFO, converting it into a bonded end clamp.



Bonded Splice

Each Bonded Splice uses self-drilling screws to form a secure connection. No bonding strap needed.



Grounding Lug

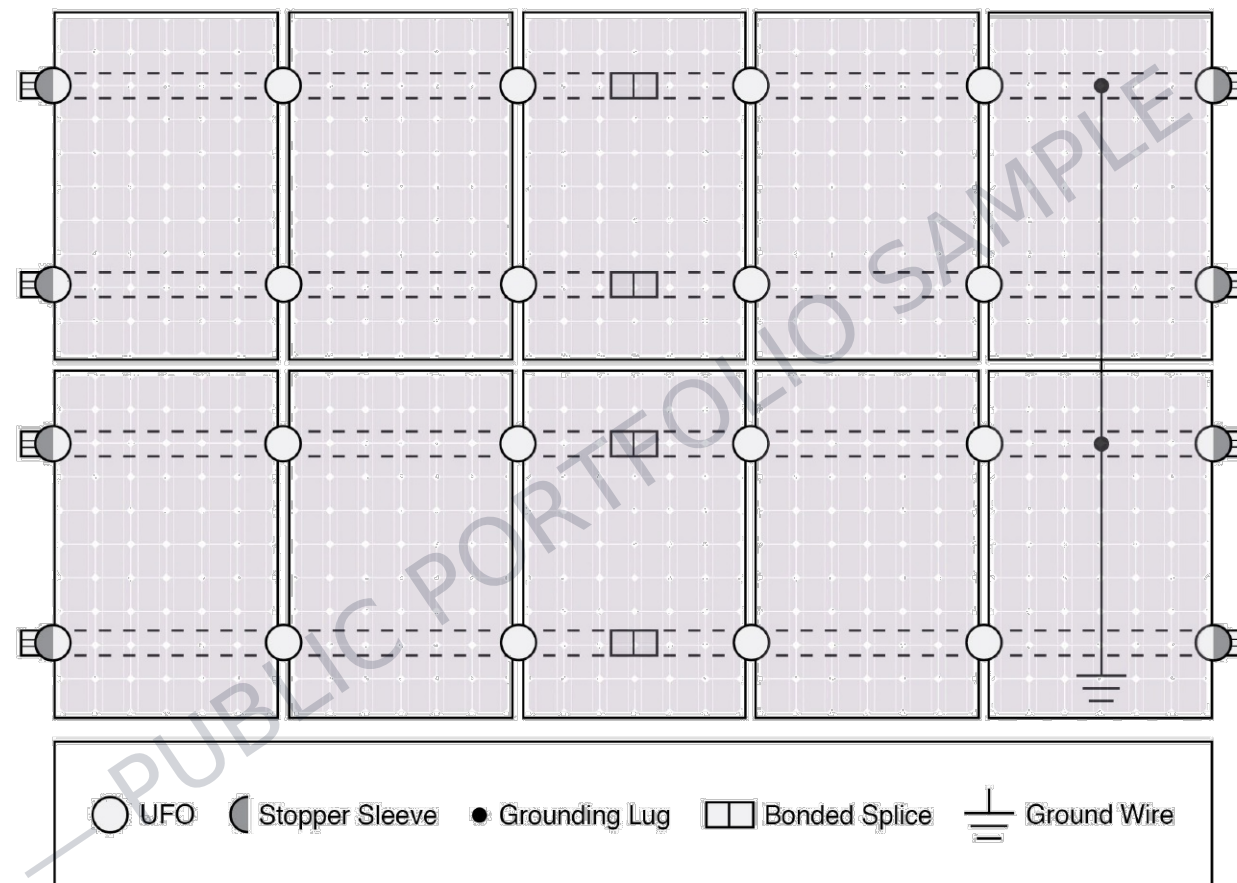
A single Grounding Lug connects an entire row of PV modules to the grounding conductor.



Bonded Attachments

The bonding bolt attaches and bonds the L-foot to the rail. It is installed with the same socket as the rest of the system.

System Diagram



Approved Enphase microinverters can provide equipment grounding of IronRidge systems, eliminating the need for grounding lugs and field installed equipment ground conductors (EGC). A minimum of two microinverters mounted to the same rail and connected to the same Engage cable is required. Refer to installation manuals for additional details.

UL Certification

The IronRidge Flush Mount, Tilt Mount, and Ground Mount Systems have been listed to UL 2703 by Intertek Group plc.

UL 2703 is the standard for evaluating solar mounting systems. It ensures these devices will maintain strong electrical and mechanical connections over an extended period of time in extreme outdoor environments.

Go to [IronRidge.com/UFO](https://www.ironridge.com/UFO)

Cross-System Compatibility			
Feature	Flush Mount	Tilt Mount	Ground Mount
XR Rails	✓	✓	XR1000 Only
UFO/Stopper	✓	✓	✓
Bonded Splice	✓	✓	N/A
Grounding Lugs	1 per Row	1 per Row	1 per Array
Microinverters & Power Optimizers	Enphase - M250-72, M250-60, M215-60, C250-72 Darfon - MIG240, MIG300, G320, G640 SolarEdge - P300, P320, P400, P405, P600, P700, P730		
Fire Rating	Class A	Class A	N/A
Modules	Tested or Evaluated with over 400 Framed Modules Refer to installation manuals for a detailed list.		

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

GROUNDING DETAILS

PROJECT NO: GSD-20250815-SCM

DRAWN BY: SCM

DATE: 8/15/2025

PV-9



Attn: Sean McDonald, CEO, IronRidge Inc.
Date: February 10th, 2025

Re: Report #7.16 XR10: Engineering Certification and Span Tables for the IronRidge XR10 Rail Flush Mount System, for Gable and Hip roofs, Rev B.

This letter certifies the loading criteria and design basis used for the structural analysis of the IronRidge XR System as shown in Report # 7.16 XR10 " Engineering Certification and Span Tables for the IronRidge XR10 Rail Flush Mount System, for Gable and Hip roofs, Rev B". All information, data, and analysis therein are based on, and comply with, the following building codes and typical specifications. The Span Tables provided in the referenced report may be used when all conditions of the design criteria provided therein are met.

- Building Codes:
1. ASCE/SEI 7-16, Minimum Design Loads for Buildings and Other Structures, by American Society of Civil Engineers
 2. 2022 Oregon Structural Specialty Code
 3. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES
 4. Aluminum Design Manual 2020, by The Aluminum Association, Inc.
 5. ANSI/AWC NDS-2018, National Design Specification for Wood Construction, by the American Wood Council

Please note our evaluation only applies to IronRidge products and excludes the structural adequacy of the chosen roof attachments, PV modules, or underlying roof supporting members. It shall be the responsibility of the installer or system designer to verify the structural capacity and adequacy of the referenced system components with respect to the applied or resultant loads of the chosen array configuration.

Sincerely,



Matthew S Kuzila, P.E.

EXPIRES: 06/30/2025

Digitally Sealed 02.10.2025

28357 Industrial Blvd.
Hayward, CA 94545
1-800-227-9523
IronRidge.com



Spans for Exposed and Edge Modules

Span values for Exposed and Edge module conditions, as defined below, are included in the attached span tables and shall be used when each condition exists.

- A module is defined as Exposed (per Section 29.4.4 of ASCE 7) if the distance from any of its free edges (an edge with no connectivity to other modules) to its facing roof edge (such as eave, ridge, rake, or hip) is greater than $0.5h$ (h is ASCE defined building height) AND if the distance from the same free edge to any other adjacent array or panel is greater than 4 feet.
- A module is defined as an Edge Module when its distance from any side of the module to its facing perimeter roof edge (such as eave, ridge, rake, or hip) is less than 2 times the height of the array ($2h_2$) where h_2 is measured from the roof surface to the top surface of the module.

The maximum allowable span for Exposed or Edge modules shall be the lesser of the following two:

1. The span value for the Exposed or Edge module condition.
2. The span value determined by site wind speed and ground snow load.

The allowable spans and cantilever shall only be applied to the portion of rail directly under Exposed or Edge Modules. Additionally, the shaded cells for the Exposed and Edge module conditions indicate conditions in which UFO Mid Clamp connection capacity is exceeded. If such conditions are encountered, contact techsupport@ironridge.com.

Prepared By:
Matthew S Kuzila, PE & Nancy E Schubert, PE

28357 Industrial Blvd.
Hayward, CA 94545
1-800-227-9523
IronRidge.com

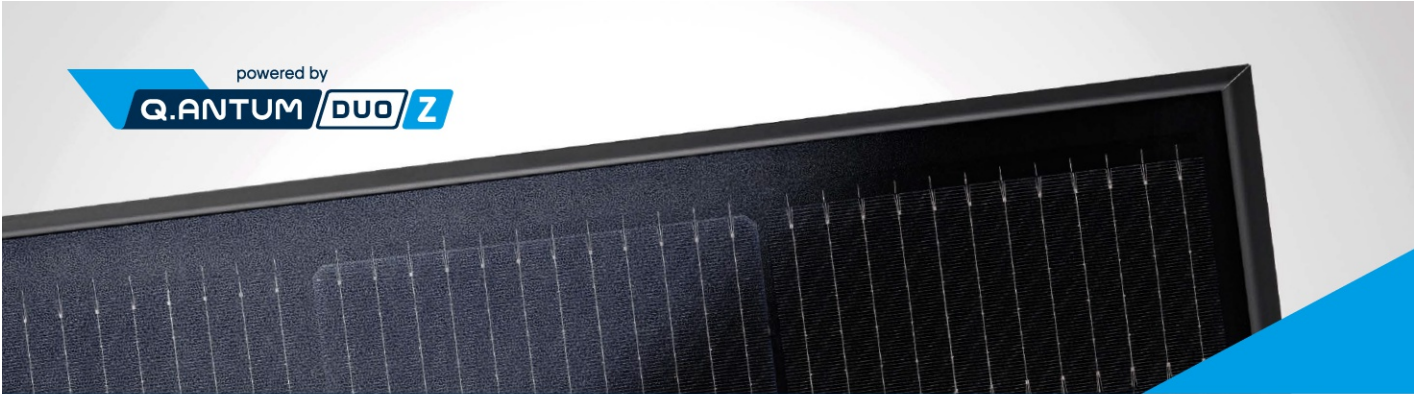
(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)
CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC
(INFO WITHHELD FOR PUBLIC SAMPLE)

ENGINEERING LETTER

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

PV-10



Q.peak DUO BLK ML-G9+
365-385
ENDURING HIGH
PERFORMANCE



- BREAKING THE 20% EFFICIENCY BARRIER**
Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.6%.
- THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY**
Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.
- INNOVATIVE ALL-WEATHER TECHNOLOGY**
Optimal yields, whatever the weather with excellent low-light and temperature behavior.
- ENDURING HIGH PERFORMANCE**
Long-term yield security with Anti LID Technology, Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.
- EXTREME WEATHER RATING**
High-tech aluminum alloy frame, certified for high snow (6000 Pa) and wind loads (4000 Pa).
- A RELIABLE INVESTMENT**
Inclusive 25-year product warranty and 25-year linear performance warranty².

¹ APT test conditions according to IEC/TS 62804-1:2015, method A (~1500V, 96h)
² See data sheet on rear for further information.

THE IDEAL SOLUTION FOR:
Rooftop arrays on residential buildings

Engineered in Germany



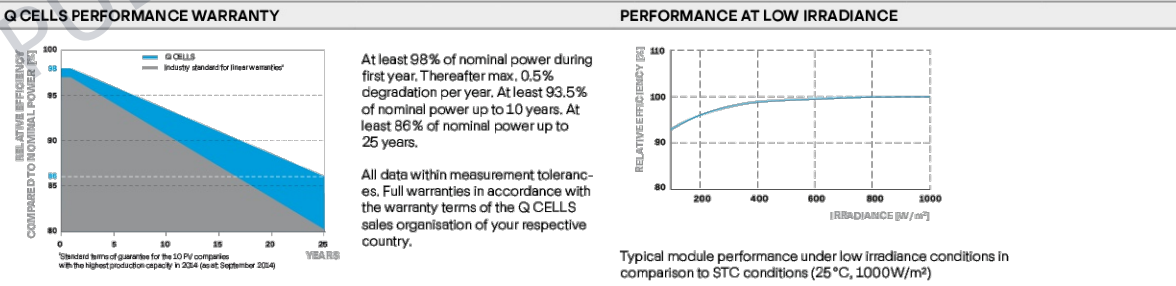
MECHANICAL SPECIFICATION

Format	72.4" x 40.6" x 1.26" (including frame) (1840 mm x 1030 mm x 32 mm)
Weight	43.0 lbs (19.5 kg)
Front Cover	0.11" (2.8 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 x 22 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 in x 1.26-2.36 in x 0.59-0.71 in (53-101 mm x 32-60 mm x 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥47.2 in (1200 mm), (-) ≥47.2 in (1200 mm)
Connector	Stäubli MC4; IP68

ELECTRICAL CHARACTERISTICS							
POWER CLASS			365	370	375	380	385
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W / -0W)							
Minimum	Power at MPP ^a	P _{MPP} [W]	365	370	375	380	385
	Short Circuit Current ^a	I _{SC} [A]	10.40	10.44	10.47	10.50	10.53
	Open Circuit Voltage ^a	V _{OC} [V]	44.93	44.97	45.01	45.04	45.08
	Current at MPP	I _{MPP} [A]	9.87	9.92	9.98	10.04	10.10
	Voltage at MPP	V _{MPP} [V]	36.99	37.28	37.57	37.85	38.13
	Efficiency ^a	η [%]	≥19.3	≥19.5	≥19.8	≥20.1	≥20.3
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²							
Minimum	Power at MPP	P _{MPP} [W]	273.3	277.1	280.8	284.6	288.3
	Short Circuit Current	I _{SC} [A]	8.38	8.41	8.43	8.46	8.48
	Open Circuit Voltage	V _{OC} [V]	42.37	42.41	42.44	42.48	42.51
	Current at MPP	I _{MPP} [A]	7.76	7.81	7.86	7.91	7.96
	Voltage at MPP	V _{MPP} [V]	35.23	35.48	35.72	35.96	36.20

¹Measurement tolerances P_{MPP} ± 3%; I_{SC} ± 1%; V_{OC} ± 5% at STC: 1000W/m² 25±2°C AM 1.5 according to IEC 60904-3 3800W/m² NMOT spectrum AM 1.5

¹ Measurement tolerances P_{MPP} ±3%; I_{SC}: V_{OC} ±5% at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • *800 W/m², NMOT, spectrum AM 1.5



TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α [%/K]	+0.04	Temperature Coefficient of V _{OC}	β [%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.35	Nominal Module Operating Temperature	NMOT [°F]	109 ± 5.4 (43 ± 3 °C)

PROPERTIES FOR SYSTEM DESIGN

Maximum System Voltage V _{sys}	[V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull ³	[lbs/ft ²]	84 (4000 Pa) / 55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ³	[lbs/ft ²]	125 (6000 Pa) / 84 (4000 Pa)		

QUALIFICATIONS AND CERTIFICATES

UL 61730, CE-compliant, Quality Controlled PV - TÜV Rheinland, IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells)

PACKAGING AND TRANSPORT INFORMATION

Horizontal packaging	74.4 in 1890 mm	42.5 in 1080 mm	47.6 in 1208 mm	1458 lbs 661 kg	28 pallets	24 pallets	32 modules
Vertical packaging	76.8 in 1950 mm	45.3 in 1150 mm	46.7 in 1185 mm	1505 lbs 682.5 kg	28 pallets	24 pallets	33 modules

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product. Q CELLS supplies solar modules in two different stacking methods, depending on the location of manufacture (modules are packed horizontally or vertically). You can find more detailed information in the document "Packaging and Transport Information", available from Q CELLS.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL Inquiry@us.q-cells.com | WEB www.q-cells.us

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

MODULE DATASHEET

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

PV-11A

Q.PEAK DUO BLK ML-G10+ SERIES

385-410 Wp | 132 Cells
20.9% Maximum Module Efficiency

MODEL Q.PEAK DUO BLK ML-G10+



Breaking the 20% efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.



A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty¹.



Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology² and Hot-Spot Protect.



Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).



Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



The most thorough testing programme in the industry

Qcells is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.

¹ See data sheet on rear for further information.

² APT test conditions according to IEC/TS 62804-1:2015, method A (-1500V, 96h)

The ideal solution for:



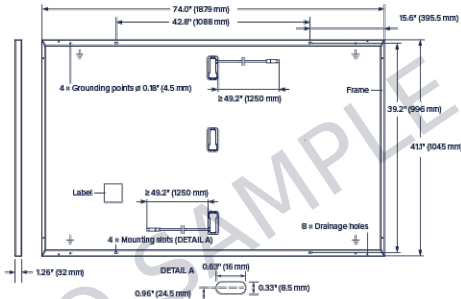
Rooftop arrays on residential buildings



Q.PEAK DUO BLK ML-G10+ SERIES

■ Mechanical Specification

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 49.2 in (1250 mm), (-) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68

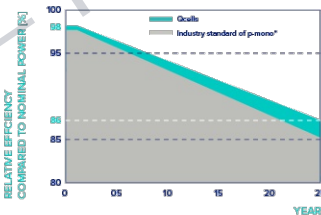


■ Electrical Characteristics

POWER CLASS			385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC ¹ (POWER TOLERANCE +5W/-0 W)								
Minimum	Power at MPP ¹	P _{MPP} [W]	385	390	395	400	405	410
	Short Circuit Current ¹	I _{SC} [A]	11.04	11.07	11.10	11.14	11.17	11.20
	Open Circuit Voltage ¹	V _{OC} [V]	45.19	45.23	45.27	45.30	45.34	45.37
	Current at MPP	I _{MPP} [A]	10.59	10.65	10.71	10.77	10.83	10.89
	Voltage at MPP	V _{MPP} [V]	36.36	36.62	36.88	37.13	37.39	37.64
	Efficiency ¹	η [%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	≥20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT ²								
Minimum	Power at MPP	P _{MPP} [W]	288.8	292.6	296.3	300.1	303.8	307.6
	Short Circuit Current	I _{SC} [A]	8.90	8.92	8.95	8.97	9.00	9.03
	Open Circuit Voltage	V _{OC} [V]	42.62	42.65	42.69	42.72	42.76	42.79
	Current at MPP	I _{MPP} [A]	8.35	8.41	8.46	8.51	8.57	8.62
	Voltage at MPP	V _{MPP} [V]	34.59	34.81	35.03	35.25	35.46	35.68

¹Measurement tolerances P_{MPP} ± 3%; I_{SC}; V_{OC} ± 5% at STC: 1000 W/m², 25 ± 2 °C, AM 1.5 according to IEC 60904-3 • ²800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

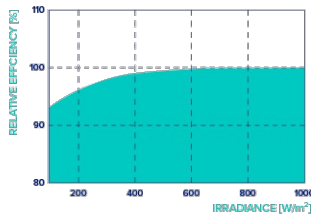


At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective country.

¹Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I _{SC}	α [%/K]	+0.04	Temperature Coefficient of V _{OC}	β [%/K]	-0.27
Temperature Coefficient of P _{MPP}	γ [%/K]	-0.34	Nominal Module Operating Temperature	NMOT [°F]	109 ± 5.4 (43 ± 3 °C)

■ Properties for System Design

Maximum System Voltage	V _{sys} [V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI/UL 61730	TYPE 2
Max. Design Load, Push/Pull ³	[lbs/ft ²]	75 (3600 Pa)/55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	-40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push/Pull ³	[lbs/ft ²]	113 (5400 Pa)/84 (4000 Pa)		

³ See Installation Manual

■ Qualifications and Certificates

UL 61730, CE-compliant,
Quality Controlled PV - TÜV Rheinland,
IEC 61215:2016, IEC 61730:2016,
U.S. Patent No. 9,893,215 (solar cells).



Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.

Hanwha Q CELLS America Inc. 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL: +1 949 748 59 96 | EMAIL: hqc-inquiry@qcells.com | WEB: www.qcells.com



(INFO WITHHELD)

PHONE: (INFO WITHHELD)

LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

MODULE DATASHEET

PROJECT NO: GSD-20250815-SCM

DRAWN BY: SCM

DATE: 8/15/2025

PV-11B



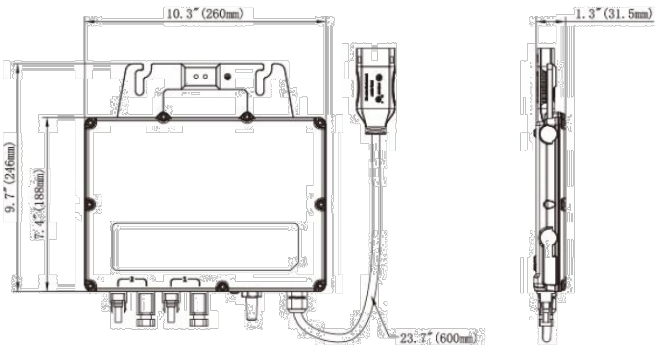
Leading the Industry in
Solar Microinverter Technology



YC600
Microinverter

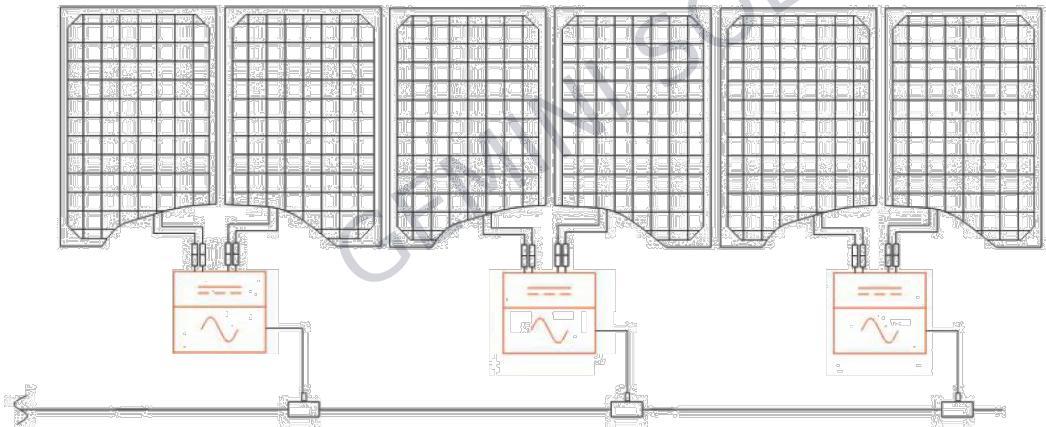
- Single unit connects two modules
- 2 input channels with independent MPPT and monitoring function
- Peak output power up to 600VA
- Auto disconnection device integrated
- Adjustable output power factor

DIMENSIONS



Our flagship new range of Grid-tied microinverters with Reactive Power Control (RPC) features includes the new YC600. The APsystems YC600 is a grid-tied microinverter with intelligent networking and advanced monitoring systems to ensure maximum efficiency. High efficiency, high reliability of the YC600 with 2 independent MPPT inputs, Peak AC output power reaching 600VA. Half the inverters and half the installation means real cost savings for residential and commercial customers.

WIRING SCHEMATIC



YC600 Microinverter Datasheet

Region	APAC
Model	YC600-SAA
Input Data (DC)	
Recommended PV Module Power(STC)Range	250Wp-440Wp+
MPPT Voltage Range	22V-48V
Operation Voltage Range	16V-55V
Maximum Input Voltage	60V
Startup Voltage	20V
Maximum Input Current	12A×2
Maximum Total PV Array Short Circuit Current	14A
Output Data (AC)	
Maximum Continuous Output Power	550VA
Peak Output Power	600VA
Nominal Output Voltage/Range	230V/184V-253V
Adjustable Output Voltage Range	160V-278V
Nominal Output Current	2.39A
Maximum Units per Branch	6units per 20A AC breaker/8units per 25A AC breaker
Maximum Output Fault Current	18A
Inrush Current	54.8A
Maximum Output Overcurrent Protection	6.3A
Nominal Output Frequency/Range	50Hz/48Hz-51Hz
Adjustable Output Frequency Range	45.1Hz-54.9Hz
Power Factor(Adjustable)	0.9leading...0.9lagging
Total Harmonic Distortion	<3%
Efficiency	
Peak Efficiency	96.7%
CEC Efficiency	96.5%
Nominal MPPT Efficiency	99.5%
Night Power Consumption	20mW
Mechanical Data	
Operating Ambient Temperature Range	-40°C to +65°C
Storage Temperature Range	-40°C to +85°C
Dimensions (W x H x D)	260mm × 188mm × 31.5mm
Weight	2.6kg
AC BUS Maximum Current	20A(2.5mm ²)
Enclosure Environmental Rating	IP67
Overvoltage Category	III
Wet Locations Classification	For Wet Locations
Pollution Degree Classification	Internal-PD2, Outside-PD3
Cooling	Natural Convection - No Fans
Overvoltage Category	OVC II For PV Input Circuit, OVC III For Mains Circuit
Features	
DRM	Yes
Communication	Wireless
Transformer Design	High Frequency Transformers, Galvanically Isolated
Monitoring	Via EMA Software
Warranty	10 Years Standard ; 15 Years Optional
Certificate&Compliance	
Safety And EMC Compliance	IEC62109-1/-2 ;EN61000-6-1/-2/-3/-4
Grid Connection Compliance	AS/NZS 4777.2:2015

Specifications subject to change without notice - please ensure you are using the most recent update found at www.APsystems.com
YC600 must be installed in conjunction with ECU-C or ECU-R in order to comply with AS/NZS 4777.2:2015
Suite 502, 8 Help Street, Chatswood NSW 2067 Australia | 61 (0)2-8034-6587 | APsystems.com 2020/5/13 Rev2.1 1

(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED
IN THIS DRAWING SET IS CONFIDENTIAL AND
SHALL NOT BE DISCLOSED IN FULL OR IN PART
TO ANYONE EXCEPT THOSE INVOLVED IN THE
DESIGN AND INSTALLATION OF THE PV SYSTEM
REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC

(INFO WITHHELD FOR PUBLIC SAMPLE)

INVERTER DATASHEET

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

PV-12A



DS3 Series
The most powerful Dual
Microinverter

- One microinverter connects to two solar modules
- Max output power reaching 640VA, 768VA or 880VA
- Two independent input channels (MPPT)
- CA Rule 21 (UL 1741 SB) compliant
- NEC 2020 690.12 Rapid Shutdown Compliant
- Encrypted Wireless ZigBee Communication
- Phase Monitored and Phase Balanced

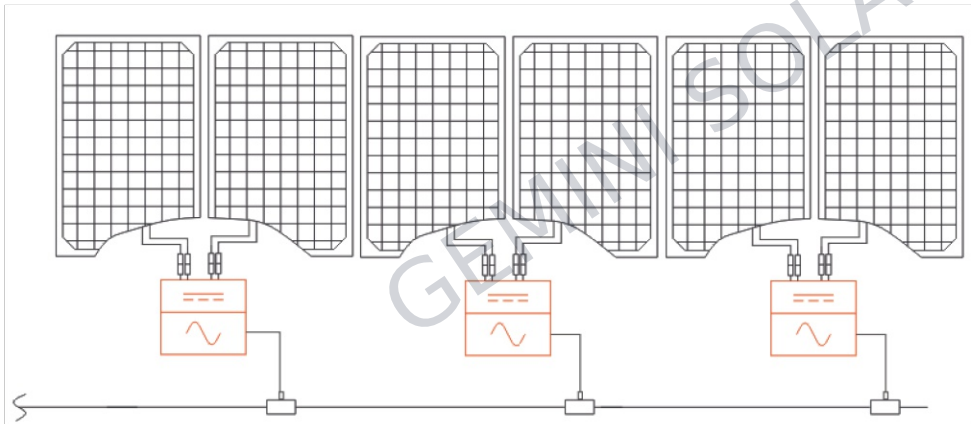
PRODUCT FEATURES

APsystems' 3rd generation of dual-module microinverters, the DS3 product family represents the culmination of years of power conversion expertise and innovation in high-efficiency, high-density power conversion to maximize the peak performance of today's high-capacity PV modules.

The DS3 series reaches unprecedented levels of power output. It features 2 input channels, each with independent MPPT, and encrypted wireless ZigBee communication. An innovative and compact design makes the product lighter while maximizing power production, and silicone-encapsulated components reduce stress on electronics, facilitate thermal dissipation, and enhance weatherproofing. Reliability is significantly increased thanks to 20% fewer components than previous generations. A 24/7 energy access through apps or web based portal facilitate remote diagnosis and maintenance.

The DS3 series is grid-interactive and fully compliant with CA Rule 21 requirements. With an excellent performance and high conversion efficiency, a unique integration with less components, the APsystems DS3 series is a gamechanger for residential and commercial solar.

WIRING SCHEMATIC



2024/02/22 Rev2.0

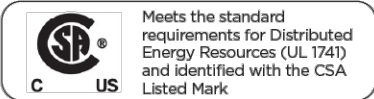
Datasheet | DS3 Microinverter Series

Model	DS3-S		DS3-L	DS3
Region	USA / Canada			
Input Data (DC)				
Recommended PV Module Power (STC) Range	250Wp-480Wp+	265Wp-570Wp+	300Wp-660Wp+	
Peak Power Tracking Voltage	28V-45V			
Operating Voltage Range	26V-60V			
Maximum Input Voltage	60V			
Maximum Input Current	16A x 2	18A x 2	20A x 2	
Maximum input short circuit current	20A per input	22.5A per input	25A per input	
Output Data (AC)				
Maximum Continuous Output Power	640VA	768VA	880VA	
Nominal Output Voltage/Range ⁽¹⁾	240V / 211V-264V			
Nominal Output Current	2.66A	3.2A	3.7A	
Maximum Output Fault Current (ac) And Duration	5.691Apk, 26.75ms of duration; 3.307Arms			
Nominal Output Frequency/ Range ⁽¹⁾	60Hz/58.8Hz-61.2Hz(HECO:57Hz-63Hz)			
Power Factor (Default/Adjustable)	0.99/0.8 leading...0.8 lagging			
Maximum Units per 12AWG Branch ⁽²⁾	6 (20A breaker)	5 (20A breaker)	4 (20A breaker)	
Maximum Units per 10AWG Branch ⁽²⁾	9 (30A breaker)	7 (30A breaker)	6 (30A breaker)	
Efficiency				
Peak Efficiency	97.3%			
CEC Efficiency	97%			
Nominal MPPT Efficiency	99.5%			
Night Power Consumption	20mW			
Mechanical Data				
Operating Ambient Temperature Range ⁽³⁾	-40°F to +149°F (-40°C to +65°C)			
Storage Temperature Range	-40°F to +185°F (-40°C to +85°C)			
Dimensions (W x H x D)	10.3" x 8.6" x 1.6" (263mm x 218mm x 41.2mm)		10.3" x 8.6" x 1.7" (263mm x 218mm x 42.5mm)	
Weight	5.7lbs(2.7kg)		6.8lbs(3.1kg)	
DC Connector Type	Stäubli MC4 PV-ADBP4-S2&ADSP4-S2			
Cooling	Natural Convection - No Fans			
Enclosure Environmental Rating	Type 6			
Features				
Communication (Inverter To ECU) ⁽⁴⁾	Encrypted ZigBee			
Isolation Design	High Frequency Transformers, Galvanically Isolated			
Energy Management	Energy Management Analysis (EMA) system			
Warranty ⁽⁵⁾	10 Years Standard ; 25 Years Optional			
Compliance				
Safety and EMC Compliance	UL1741; CSA C22.2 No. 107.1-16; UL1741SA; UL1741SB; IEEE1547; Rule 21; SRD-V2.0; FCC Part15; ICES-003; NEC2014&NEC2017&NEC2020 Section 690.11 DC Arc-Fault circuit Protection; NEC2014&NEC2017&NEC2020 Section 690.12 Rapid Shutdown of PV systems on Buildings			

(1) Nominal voltage/frequency range can be extended beyond nominal if required by the utility.
(2) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.
(3) The inverter may enter to power de-grade mode under poor ventilation and heat dissipation installation environment.
(4) Recommend no more than 80 inverters register to one ECU for stable communication.
(5) To be eligible for the warranty, APsystems microinverters need to be monitored via the EMA portal. Please refer to our warranty T&Cs available on usa.APsistemas.com.

© All Rights Reserved
Specifications subject to change without notice please ensure you are using the most recent update found at web : usa.APsistemas.com

APsystems
8627 N. Mopac Expy, Suite 150, Austin, TX 78759
apsistemas.com



(INFO WITHHELD)
PHONE: (INFO WITHHELD)
LICENSE NO. (INFO WITHHELD)

CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.

GRID-TIED SYSTEM 11.64KW DC
(INFO WITHHELD FOR PUBLIC SAMPLE)

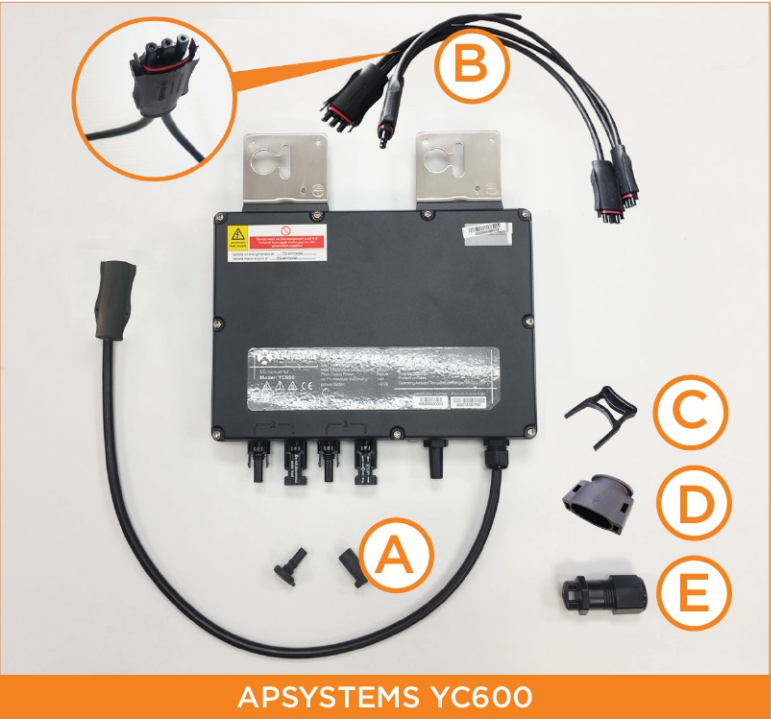
INVERTER DATASHEET

PROJECT NO: GSD-20250815-SCM
DRAWN BY: SCM
DATE: 8/15/2025

PV-12B

APsystems Accessories

The APsystems microinverter solution includes a full range of certified products and accessories to suit any PV application. Contact your APsystems distributor, or see our full catalog online at [APsystems.com](https://www.apsystems.com).



A	MC4 DC Connector Cap - M	Sealing cap for DC Connector - Male (purchase w/ F)	2060401006
	MC4 DC Connector Cap - F	Sealing cap for DC Connector - Female (purchase w/ M)	2060402006
B	Y3 Bus Cable - 2m	Y3 Trunk cable for YC600/QS1 - 2m (12AWG, TC-ER cULus, 2M, BK-RD-GN)	2322301303
	Y3 Bus Cable - 4m	Y3 Trunk cable for YC600/QS1 - 4m (12AWG, TC-ER cULus, 4M, BK-RD-GN)	2322401303
		E489601 (UL) Type TC-ER 3C/12AWG 90C Wet or Dry 600V --- c(UL) Type CIC 90C 600V FT4 Dir Bur Sun Res -40C Cold Bend Hwatek	
C	YC600-QS1 AC Cable Unlocking Tool	Unlocks the inverter and the AC bus	2352000001
D	YC600-QS1 Conn Cap	Protects an unused connector on the AC Bus	2061702007
E	YC600-QS1 AC Bus End Cap	Waterproofs the end of the AC bus	2060700007
F	DC Extension Cable	2m DC Extension Cable (MC4)	2310360214
	AC Connector - M	AC Cable Connector - Male	2300531032
	AC Connector - F	AC Cable Connector - Female	2300532032



The ECU-R is the information gateway designed for residential and commercial applications that do not require consumption monitoring. It collects and transfers module performance data giving you comprehensive monitoring and control over each individual module, optimizing the performance of your solar array.



The ECU-C, designed from the ground up as a multi-featured gateway for residential and commercial applications, offers advanced functionality for more data-centric installations, with consumption and production monitoring, contact and relay ports, and high-frequency metering.

(INFO WITHHELD)	
PHONE: (INFO WITHHELD)	
LICENSE NO. (INFO WITHHELD)	
CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.	
GRID-TIED SYSTEM 11.64KW DC	(INFO WITHHELD FOR PUBLIC SAMPLE)
ACCESSORIES	
PROJECT NO: GSD-20250815-SCM	
DRAWN BY: SCM	
DATE: 8/15/2025	
PV-13	



Certificate of Compliance

Certificate: 80069963 **Master Contract:** 259077
Project: 80106790 **Date Issued:** 2021-12-15
Issued to: Altenergy Power System Inc.
No.1 Yatai Road
Jiaxing, Zhejiang, 314050
CHINA
Attention: Kevin Lu

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by: *Magic Zhang*
Magic Zhang

PRODUCTS

CLASS - C531109 - POWER SUPPLIES - Distributed Generation Power Systems Equipment
CLASS - C531189 - POWER SUPPLIES - Distributed Generation-Power Systems Equipment - Certified to U.S. Standards

Grid Support Utility Interactive Microinverter, Models DS3-H, DS3, DS3-L and DS3-S, rack mounted.

For details related to rating, size, configuration, etc., reference should be made to the CSA Certification Record, Certificate of Compliance Annex A, or the Descriptive Report.

APPLICABLE REQUIREMENTS

- CSA-C22.2 No.107.1-16 - Power Conversion Equipment
- *UL Std No. 1741-Third Edition - Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources (Third Edition, Dated September 28, 2021)



Certificate: 80069963 **Master Contract:** 259077
Project: 80106790 **Date Issued:** 2021-12-15

**Note:* Conformity to UL 1741(Third Edition, Dated September 28, 2021) includes compliance with applicable requirements of IEEE 1547-2003 (R2008), IEEE 1547.1-2005(R2011), California Rule 21 and Supplement SA8-SA18.

**Note:* This product is PV Rapid Shut Down Equipment and conforms with NEC-2014, NEC-2017 and NEC-2020 Article 690.12 and CEC-2018, CEC-2021 Sec 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer’s instructions.

Notes:

Products certified under Class C531109 have been certified under CSA’s ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca



(INFO WITHHELD)	
PHONE: (INFO WITHHELD)	
LICENSE NO. (INFO WITHHELD)	
CONFIDENTIAL: THE INFORMATION CONTAINED IN THIS DRAWING SET IS CONFIDENTIAL AND SHALL NOT BE DISCLOSED IN FULL OR IN PART TO ANYONE EXCEPT THOSE INVOLVED IN THE DESIGN AND INSTALLATION OF THE PV SYSTEM REPRESENTED IN THIS PLAN.	
GRID-TIED SYSTEM 11.64KW DC	(INFO WITHHELD FOR PUBLIC SAMPLE)
RAPID SHUTDOWN	
PROJECT NO: GSD-20250815-SCM	
DRAWN BY: SCM	
DATE: 8/15/2025	
PV-14	