sunMAX™

DATASHEET

UBIQUITI® NETWORKS

sunMAX™ Residential Solar Solution

The sunMAX Residential Solar Solution provides a complete product solution including hardware and software. The sunMAX hardware offers advantages such as simplified installations, optimal performance using microinverters, railless mounting, and integrated equipment kits. The sunMAX software makes it easier to sell and design systems, includes mobile tools to assist with installation, and provides remote monitoring (and shutoff) capabilities.

sunMAX Hardware

- Designed to Use Microinverters on Each Solar Panel
  - Maximizes the power output of each panel individually
  - Increased safety
- AC Cabling with Built-In Connectors
  - No wiring; simply plug one panel into the next
  - Increased safety
- Railless Mounting System
  - Integrated mounting system clamps directly onto roof mounts
  - No need to install rails or racks on top of the mounts
- Wireless Monitoring Gateway
  - Wirelessly communicates status and performance of each panel to the sunMAX cloud-based monitoring software
- Integrated Equipment Kit
  - Pre-assembled into 8 sub-assemblies, compared to more than 20 part numbers for the typical residential solar project

sunMAX Software

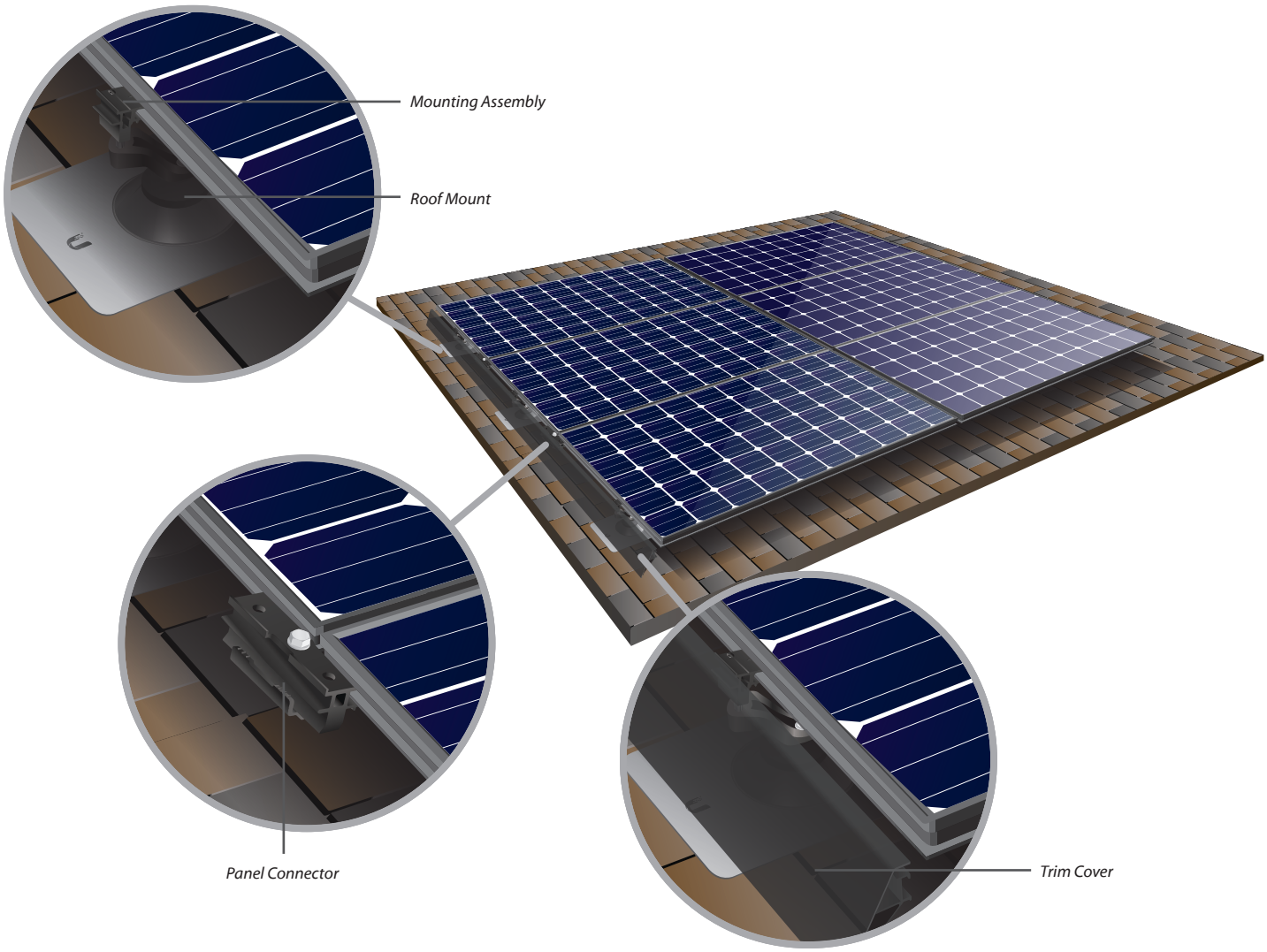
- Design
  - Design a system for the customer's roof
  - Create a customer proposal
  - Generate a complete bill of materials for ordering equipment
- Install
  - Mobile apps for equipment setup and configuration
  - Scan QR codes on each panel for faster integration
- Monitor
  - Desktop apps to monitor the status and performance of the system, panel by panel

Mounting and Trim Components

Part Number	Description
SM-SP-260-DC	Solar Panel
SM-RM-C-10	Residential Mount System, Composition
SM-RM-T-10	Residential Mount System, Tile
SM-MA-10	Mounting Assembly
SM-PC-10	Panel Connector
SM-CM-10	Connector Mount
SM-TC-2P-5	Trim Cover Kit, 2-Panel Portrait
SM-TC-1P-5	Trim Cover Kit, 1-Panel Portrait
SM-TC-L-5	Trim Cover Kit, Landscape

Landscape 3x3 Install

6-Panel Array Example - Portrait Mode (Top View)

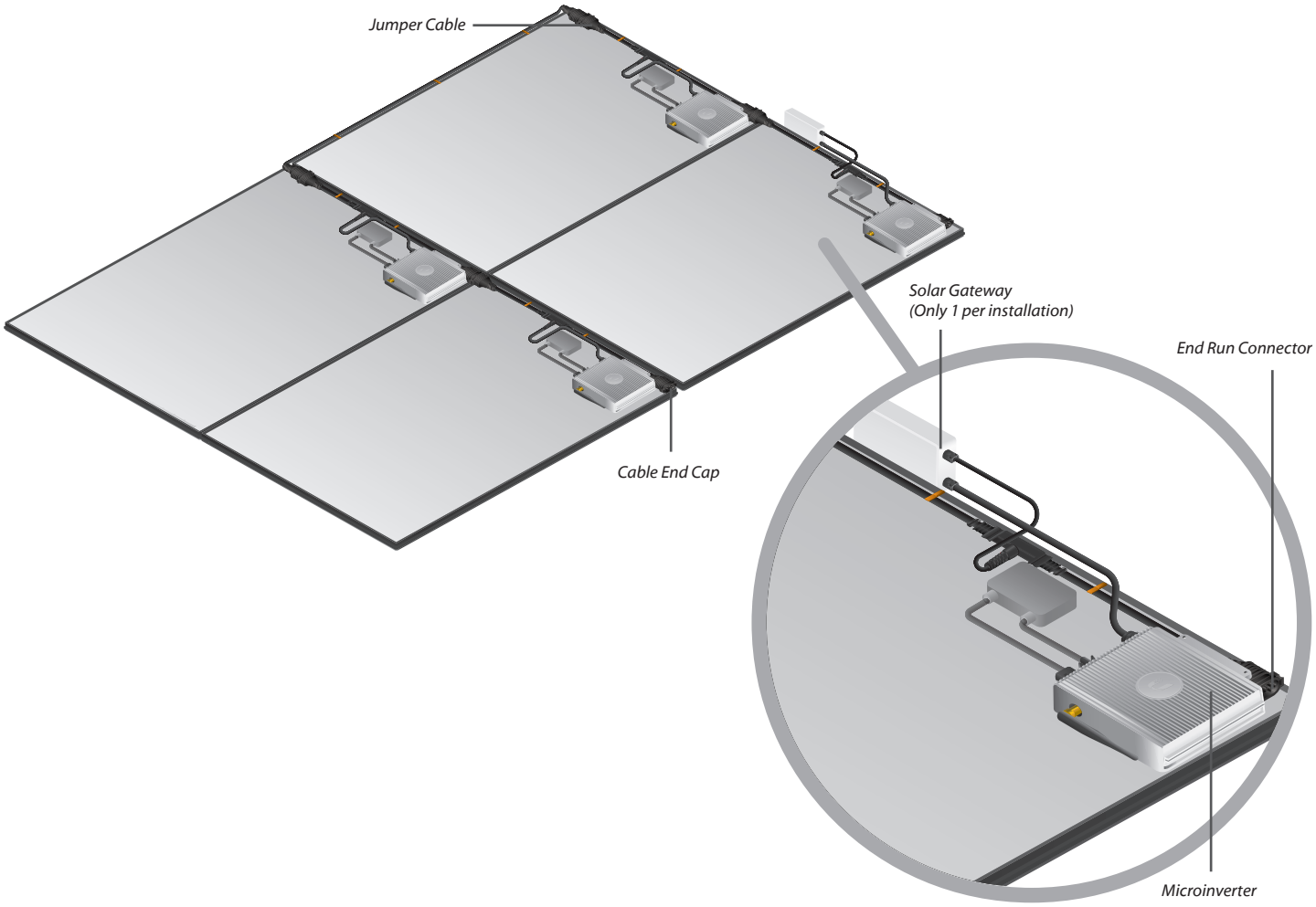


Bottom View of Panel Assembled with Microinverter

Wiring and Mechanical Components

Part Number	Description
SM-SP-260-DC	Solar Panel
SM-MI-250	Microinverter
SM-JC-4C-5	Jumper Cable
SM-EC-NA	End Run Connector
SM-SG	Solar Gateway
SM-YC-P4-5	Y-Cable, Portrait
SM-YC-L4-5	Y-Cable, Landscape

4-Panel Array Example - Portrait Mode (Bottom View)



Software

The sunMAX solution includes software designed for service providers to perform the tasks necessary to design, install, and monitor solar installations.

The software allows service providers to input location information and design a matching solar power system on their roof. It also is designed to view and order from a list of solar components, and generate and receive a signature on a proposal.

The mobile app for iOS and Android is designed specifically for solar installers to enable them to provision devices and set up service for a new customer. Provisioning can be done using a mobile device to scan product QR codes.

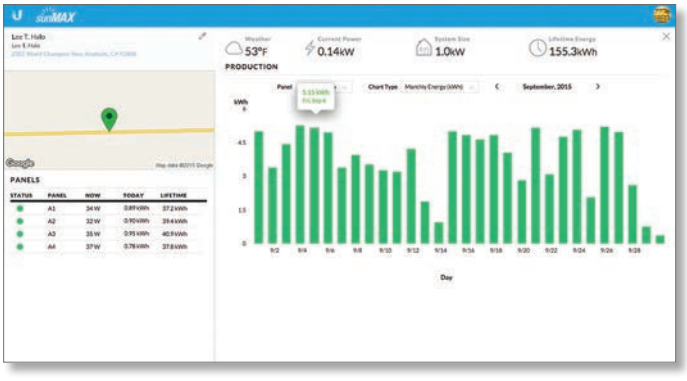
The monitoring functionality of the software allows both customers and service providers to monitor their solar energy systems. Service providers can see a list of all customer sites and get details on any specific location. Detailed and downloadable reports are available. Energy production, energy savings, and weather information is displayed.

Design

Use the browser-based software to determine the materials required for your solar installation.

Install

Use the mobile app to scan product QR codes and provision devices.



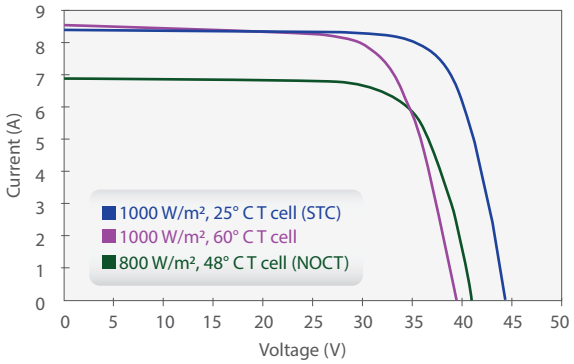
Monitor

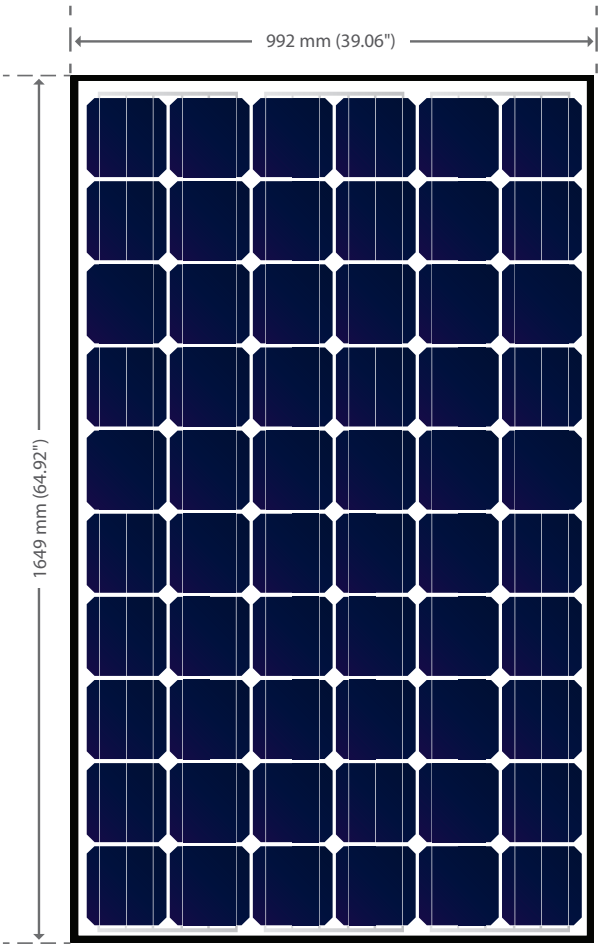
Use the browser-based software to review energy production and savings.

Solar Panel

Model: SM-SP-260-DC

Ubiquiti Networks sunMAX Solar Panels can be installed in landscape, portrait, or a combination of both. The Solar Panel includes holes to mount the Microinverter (SM-MI-250) and cabling to connect it. The panels are also ready to receive sunMAX Jumper Cables (SM-JC) to connect power from adjacent columns or rows. Panels are mounted using sunMAX Mounting Assemblies (SM-MA) and interlocked using the sunMAX Panel Connectors (SM-PC).





Solar Panel Specifications

SM-SP-260-DC		
Dimensions		1649 x 992 x 40 mm (65 x 39 x 1.57")
Weight		19.8 kg (43.65 lb)
Number of Cells		60 pcs, 6x10 Connected In Series
Cell Type and Size		3 Busbar Multi-Crystalline (156 x 156 mm)
Temperature Coefficient of Voltage (β)		-0.34 ± 0.01 % / °C
Temperature Coefficient of Current (α)		+0.07 ± 0.02 % / °C
Temperature Coefficient of Power (γ)		-0.46 ± 0.02 % / °C
Normal Operating Cell Temperature (NOCT)		47 °C ± 2°
Efficiency Reduction at 200 W/m², 25° C		<5%
Mechanical Load*		±2400 Pa, +5400 Pa
Hailstone Impact Resistance		25 mm @ 80 km/h
Junction Box / Cable		IP65 and IP67 Rated; 4.0mm² Universal PV Wire, MC4+ Style Connectors
Basic Structure	Front	3.2 mm Tempered Solar Glass; With AR Coating
	Back	Composite Film
	Frame	Anodized Aluminum Alloy
Certifications and Standards		IEC 61215, IEC 61730, UL1703, ULC/ORD-C1703-01 CAN/CSA-C61215-08 CAN /CSA-C22.2 No. 61730 Application Class A, Safety Class II

* Refer to panel installation instructions for maximum loading conditions

Characteristic	Units	C60Q260M
Nominal Power	Watts	260
Voltage Voc	Volts	37.6
Current Isc	Amps	9.0
Voltage Vmp	Volts	30.6
Current Imp	Amps	8.5

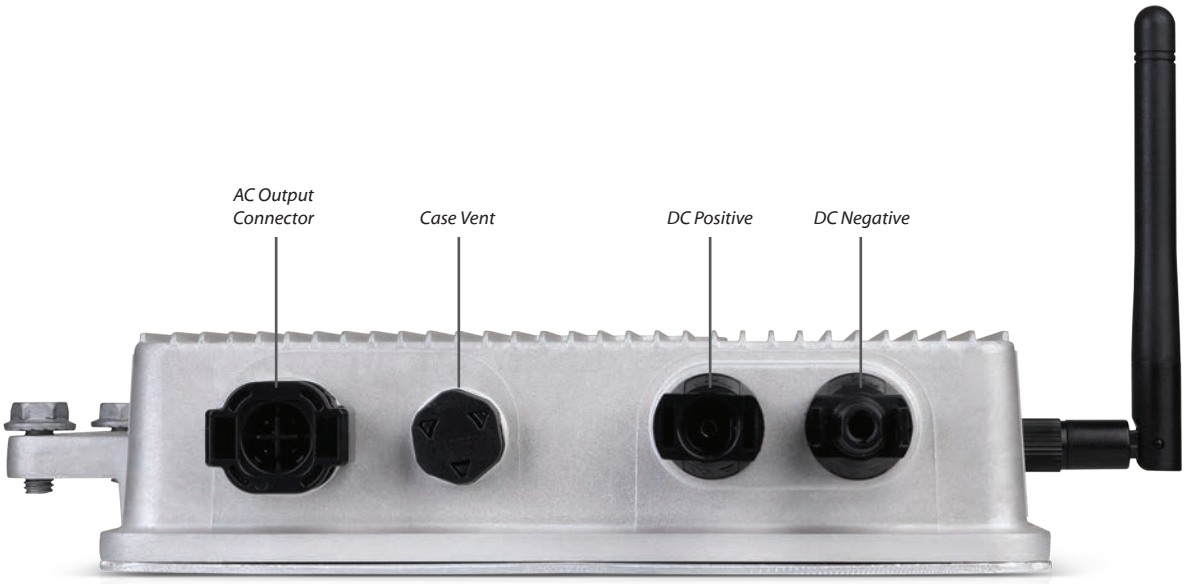
Microinverter

Model: SM-MI-250

Ubiquiti Networks sunMAX Microinverter integrates into the sunMAX Solar Panel as an independent power generation unit. The Microinverter converts the DC power from the solar panel into AC power that can be connected directly into your home. Ubiquiti's cloud-based sunMAX software provides monitoring capability for desktops and mobile devices.

The Microinverter provides multiple benefits including:

- Maximizes power for individual solar panels
- Eliminates high-voltage DC wiring for a safer solar installation
- Lower installation cost
- Higher overall system reliability



Microinverter Specifications

SM-MI-250	
Dimensions	198 x 231 x 43.1 mm (7.80 x 9.09 x 1.70")
Weight	1.5 kg (3.31 lb)
Cooling	Natural Convection
Enclosure Environmental Rating	NEMA 3R
Compatibility	Compatible with 260W or Less PV Panels
Communication	Bluetooth Low Energy (BLE)
Integrated Ground	The DC circuit meets the requirements for ungrounded PV arrays in NEC 690.35. Equipment ground is provided in the cable. No additional GEC or ground is required.
Certifications and Standards	IUL1741/IEEE1547, FCC Part 15 Class B, CAN/CSA-C22.2 NO. 0-M91, 0.4-04, and 107.1-01

DC Input Data	
Max. Input Power	260W
Max. Input DC Voltage	45V
Peak Power Tracking Voltage	23-32V
Min./Max. Start Voltage	24-45V
Max. DC Short Circuit Current	9A

Efficiency	
CEC Weighted Efficiency	95%
Peak Inverter Efficiency	95.5%
Nighttime Power Consumption	120 mW

AC Output Data	
Peak Output Power	250W
Rated (Continuous) Output Power	250W
Nominal Output Current	1.05A
Nominal Voltage/Range	240V (211-264V)
Nominal Frequency/Range	60 Hz (59.3-60.5 Hz)
Power Factor	> 0.95
Maximum Units Per 20A Branch Circuit	16

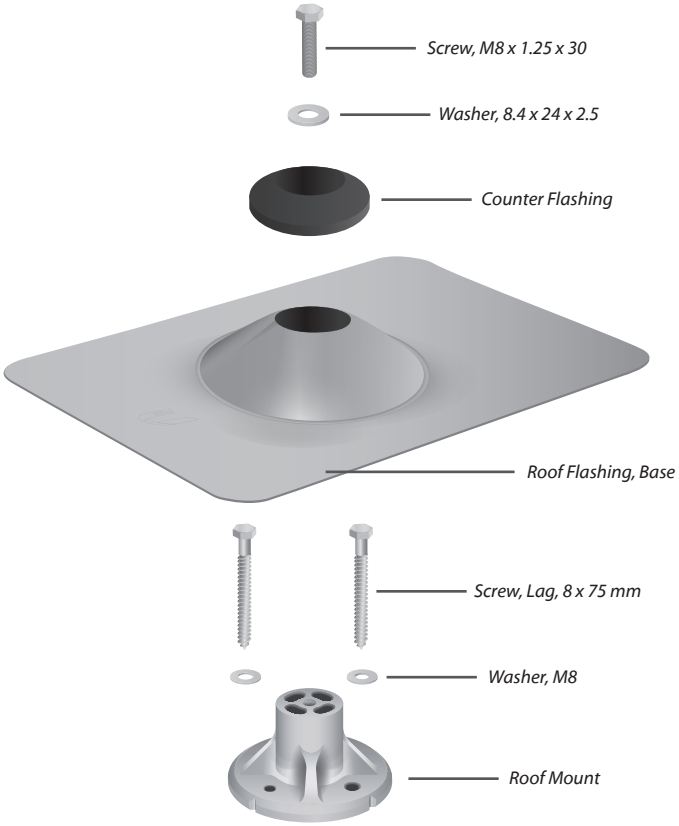
Residential Mount Kit (Composition)

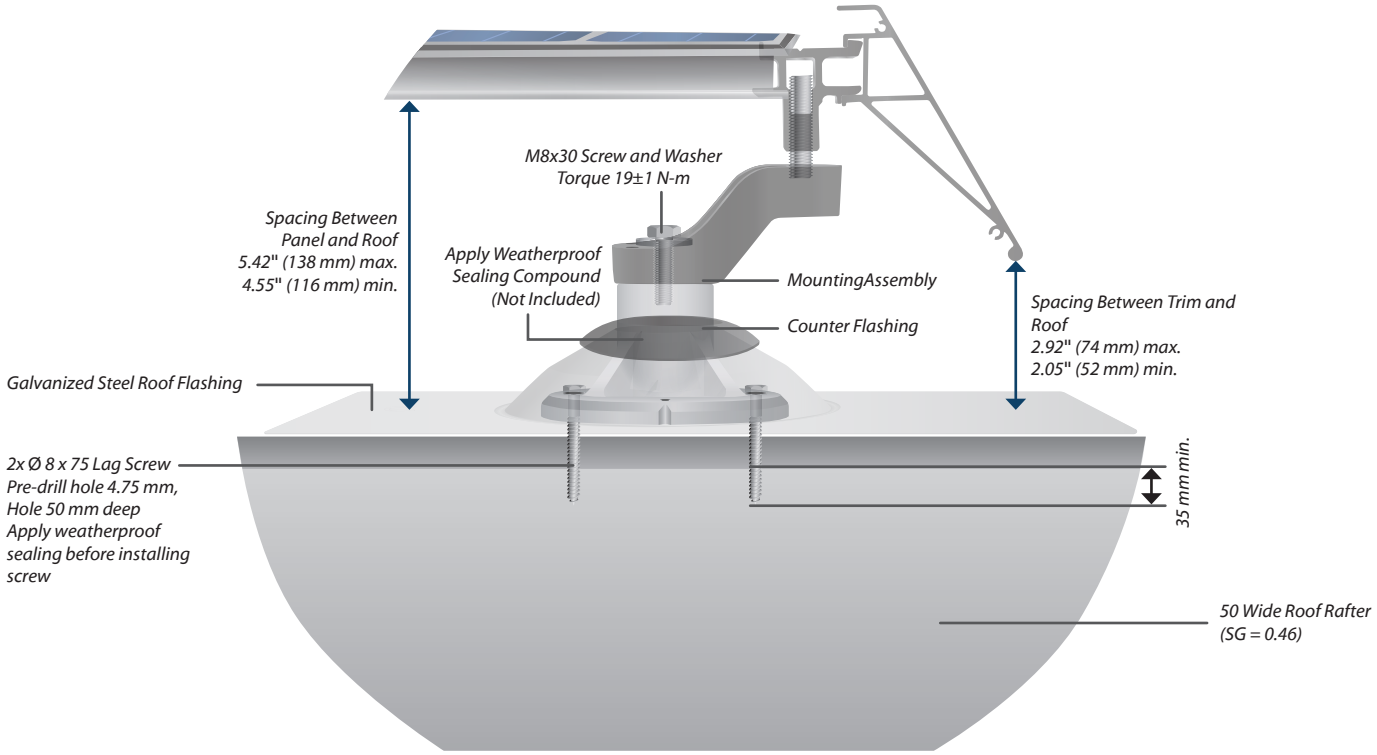
Model: SM-RM-C-10

The Ubiquiti Networks sunMAX Residential Mount System is the structural mount between the roof structure and the solar panel. The mount uses roof flashing to ensure a watertight roof connection.

The Residential Mount System is sold in bulk with a quantity of 10 mounting kits. Below are the components of each kit:

Part Name	Ubiquiti P/N	Subassy. Qty.
Roof Mount	312-00082	10
Washer, M8	323-01005	20
Screw, Lag, 8 x 75 mm	321-00279	20
Roof Flashing, Base	313-00271	10
Screw, M8 x 1.25 x 30	321-00864	10
Washer, 8.4 x 24 x 2.5	323-00026	10
Counter Flashing	311-00767	10





Mounting System Specifications

SM-RM-C	
Allowable Roof Slope	9.5 to 45° (2:12 to 12:12)
Maximum Mount Span	Up to 1220 mm (48")
Maximum Cantilever	400 mm (15 ¾") Portrait, 500 mm (19 11⁄16") Landscape
Building Height	< 18.3 m (< 60')
Maximum Windspeed	240 km/h (150 mph)*
Panel Orientation	Landscape and Portrait
Wind Exposure	Category B, C, D
Maximum Ground Snow Load	3590 Pa (75 psf)
System Dead Load	11.6 kg (25 lbs) Per Mount
Height Adjustability	0-21 mm (0 - 0.83")
Panel Connectors	2 or 4-Way Integrated Grounding Couplers
Cables Support Clips	Black UV-Resistant Polycarbonate
Trim Skirt	Available in 3 Different Lengths
Cabling	IP67 Rated UL and NEC Compliant Connectors
Component Materials	Aluminum and Steel
Component Finishes	Black Coatings
Hardware	Geomet-Plated Steel
Certifications	UL2703
Withdrawal Force within Dry Douglas Fir (SG=.46) with 35 mm Rafter Penetration	11,800 N (2650 lbs)
Maximum Side Load	1000 N (224 lbs)
Flashings	IBC Compliant Flashings, Galvanized Steel
Lag Screws	(2) Steel 8 x 75 mm
UL2703 Fire Classification	Class A

* See Installation instructions for restrictions.

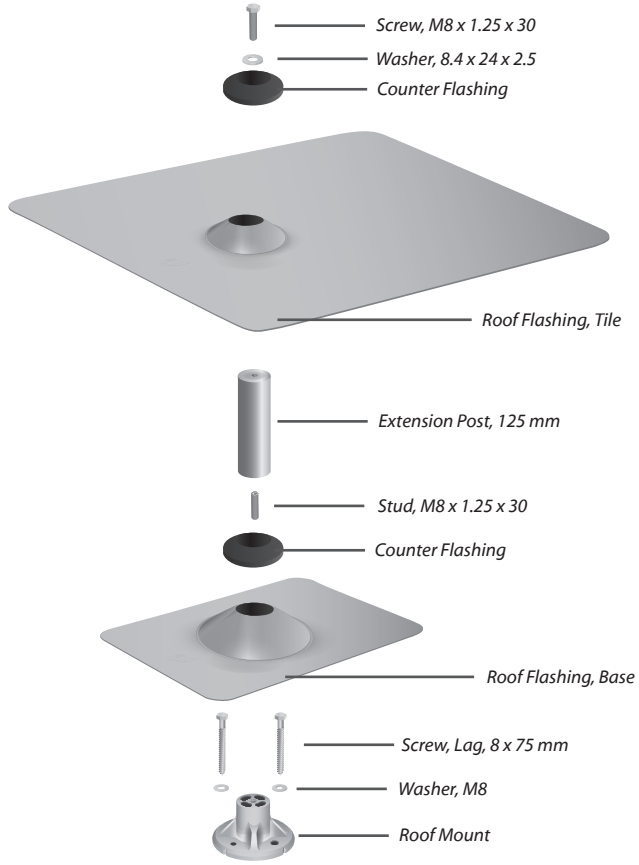
Residential Mount Kit (Tile)

Model: SM-RM-T-10

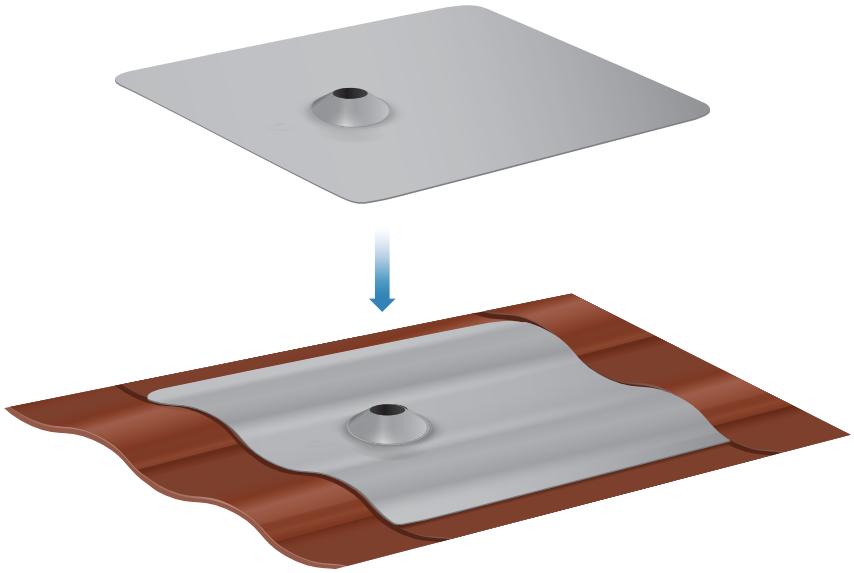
The Ubiquiti Networks sunMAX Residential Mount System is the structural mount between roof structure and panel hardware. Tile roof version can do either flat tile or shaped tile by forming the upper flashing. The mount has two roof flashings (one above and one below the tile) to assure a watertight connection.

The Residential Mount Kit is sold in bulk with a quantity of 10 mounting kits. Below are the components of each kit:

Level	Part Name	Ubiquiti P/N	Subassy. Qty.
2	Extension Post, 125 mm	315-00024	10
2	Stud, M8 x 1.25 x 30	321-00240	10
2	Roof Flashing, Tile	313-00272	10
2	Counter Flashing	311-00767	20
2	Roof Mount	312-00082	10
2	Washer, M8	323-01005	20
2	Screw, Lag, 8 x 75 mm	321-00279	20
2	Roof Flashing, Base	313-00271	10
2	Screw, M8 x 1.25 x 30	321-00864	10
2	Washer, 8.4 x 24 x 2.5	323-00026	10



Form Roof Flashing to Tile



Mounting System Specifications

SM-RM-T-10	
Allowable Roof Slope	0-45° (12/12)
Maximum Mount Span	Up to 1220 mm (48")
Maximum Cantilever	400 mm Portrait, 500 mm Landscape
Building Height	< 18.3 m (< 60')
Maximum Windspeed	240 km/h (150 mph) on 5/12 Roof
Maximum Wind Load	±2400 Pa (50 psf) Perpendicular to Panel
Panel Orientation	Landscape and Portrait
Wind Exposure	Category B, C, D
Maximum Ground Snow Load	3590 Pa (75 psf)
System Dead Load	11.6 kg (25 lbs) Per Mount
Height Adjustability	0-21 mm
Panel Connectors	2 or 4-Way Integrated Grounding Couplers
Cables Support Clips	Black UV-Resistant Polycarbonate
Trim Skirt	Optional
Cabling	IP67 Rated UL and NEC Compliant Connectors
Component Materials	Aluminum and Steel
Component Finishes	Black Coatings
Hardware	Geomet-Plated Steel
Certifications	UL2703
Withdrawal Force within Dry Douglas Fir (SG=.46) with 35 mm Rafter Penetration	11,800 N (2650 lbs)
Maximum Side Load	1000 N (224 lbs)
Flashings	IBC-Compliant Flashings for Composite and Flat or Curved Tile Roofs
Tile Standoff	125 mm
Lag Screws	(2) Steel 8 x 75 mm

Solar Gateway

Model: SM-SG

The Ubiquiti Networks sunMAX Solar Gateway communicates with all Microinverters in an array using Bluetooth and then broadcasts data via Ethernet.

Solar Gateway Specifications

SM-SG	
Dimensions	206 x 87 x 54 mm (8.11 x 3.43 x 2.13") Excludes Approx. 550 mm (21.65") Cable Length
Weight	0.37 kg (0.82 lb)
Enclosure Characteristics	Polycarbonate, UV-Resistant, IP65
Shock and Vibration	IEC 68-2-6
Processor	MediaTek SoC
Memory	256 MB
Storage	1 GB Flash
Networking Interface	(1) 10/100/1000 Mbps RJ45 Ethernet Port
Management Interface	None
LEDs	3 LEDs: Power, Web Connectivity, and Microinverter Connectivity
Button	Factory Reset Button
Max. Power Consumption (HW)	7W
Power Source	AC
Power Supply	90-264 VAC, 47-63 Hz
ESD/EMP Protection	Rating for ESD (± 24KV)
Operating Temperature	-20 to 50° C (-4 to 122° F)
Operating Humidity	5 to 95% Noncondensing
Certifications	FCC/CE/IC/UL

Mounting Assemblies

Model: SM-MA-10

The Ubiquiti Networks sunMAX Mounting Assembly is used to support panels off roof mounts. Mounting assemblies are always located along the horizontal edges of panels. Typically there is at least one mounting assembly at the top and bottom of each panel. Sold in quantities of 10.

SM-MA-10	
Dimensions	53.6 x 104.9* x 104.4 mm (2.11 x 4.13 x 4.11")
Weight	0.23 kg (0.52 lb)

Panel Connectors

Model: SM-PC-10

The Ubiquiti Networks sunMAX Panel Connector is used to connect adjacent panels structurally and electrically bond them together. There is always one at the top and the bottom of every panel that is side-by-side. Sold in quantities of 10.

SM-PC-10	
Dimensions	125 x 50.3 x 43.3 mm (4.92 x 1.98 x 1.70")
Weight	0.35 kg (0.78 lb)

Connector Mounts

Model: SM-CM-10

The Ubiquiti Networks sunMAX Connector Mount is used to connect panels side-by-side (one on bottom and one on top) structurally in locations where the Mounting Assembly would coincide with a Panel Connector location. The Connector Mount is used in place of a Mounting Assembly and Panel Connector in that location. Sold in quantities of 10.

SM-CM-10	
Dimensions	125 x 96* x 104.4 mm (4.92 x 3.78 x 4.11")
Weight	0.39 kg (0.86 lb)

* Adjustable height dimension ±12 mm

Jumper Cables (4-Conductor)

Model: SM-JC-4C-5

The Ubiquiti Networks sunMAX Jumper Cable connects power cables on panels from adjacent rows (portrait) or columns (landscape). Sold in quantities of 5.

SM-JC-4C-5	
Dimensions	1275 mm (50.20")
Weight	0.36 kg (0.79 lb)
Cable	12 AWG, 4-Conductor

Y-Cable Kit, Portrait (4 Conductor)

Model: SM-YC-P4-5

The Ubiquiti Networks sunMAX Y-Cable (Portrait) connects panels and devices such as the Solar Gateway and Microinverter in a portrait-panel configuration. Sold in quantities of 5.

SM-YC-P4-5	
Dimensions	1030 mm with 500 mm drop (40.55" with 19.69" drop)
Weight	0.37 kg (0.82 lb)
Cable	12 AWG, 4 Conductor

Y-Cable Kit, Landscape (4 Conductor)

Model: SM-YC-L4-5

The Ubiquiti Networks sunMAX Y-Cable (Landscape) connects panels and devices such as the Solar Gateway and Microinverter in a landscape-panel configuration. Sold in quantities of 5.

SM-YC-L4-5	
Dimensions	1688 mm with 920 mm drop (66.46" with 36.22" drop)
Weight	0.68 kg (1.50 lb)
Cable	12 AWG, 4 Conductor

End Run

Model: SM-EC-NA

The Ubiquiti Networks sunMAX End Run Kit connects to the open-ended Y-cable in your solar array to the house-side wiring that feeds into the electrical panel on the outside of your home. The End Run Kit also includes a cabling end cap and a grounding kit (nut and bolt).

SM-EC-NA	
Dimensions	320 x 50 x 37 mm (12.60 x 1.97 x 1.46")
Weight	200 g (7 oz)

Cable Support Clips Kit

Model: SM-CC-50

The Ubiquiti Networks Cable Support Clips hook and snap onto the solar panel's edge from underneath to support and secure Jumper Cables and Y-Cables.

SM-CC-50	
Dimensions	68 x 25 x 14 mm (2.68 x 0.98 x 0.55")
Weight	5 g (0.18 oz)

Trim Cover Kits

The Trim Cover Kit is used to enhance the visual appearance along the entire front edge of an array and also helps to ease installation of the panels.

Trim Cover Kit, Landscape

Model: SM-TC-L-5

The SM-TC-L Trim Cover Kit is used for installations using the landscape orientation. One cover kit is used per column in a landscape installation. Sold in quantities of 5.

SM-TC-L-5	
Dimensions	128.2 x 33.3 x 1659 mm (5.05 x 1.31 x 65.31")
Weight	2.61 kg (5.75 lb)

Trim Cover Kit, 2-Panel Portrait

Model: SM-TC-2P-5

The SM-TC-2P Trim Cover Kit spans the width of two panels installed in a portrait installation. It is best to use these whenever possible and use the single-panel version only as needed. Sold in quantities of 5.

SM-TC-2P-5	
Dimensions	128.2 x 33.3 x 2006 mm (5.05 x 1.31 x 78.98")
Weight	3.20 kg (7.05 lb)

Trim Cover Kit, 1-Panel Portrait

Model: SM-TC-1P-5

The SM-TC-1P Trim Cover Kit is used in portrait installations with an odd number of columns. Typically two-panel versions are used to cover as much as possible and the single-panel version is used at the end. Sold in quantities of 5.

SM-TC-1P-5	
Dimensions	128.2 x 33.3 x 1003 mm (5.05 x 1.31 x 39.49")
Weight	1.61 kg (3.55 lb)