SOLAR'S MOST TRUSTED

REC

# REC N-PEAK 3 BLACK SERIES

## PREMIUM FULL BLACK MONO N-TYPE SOLAR PANELS

MONO N-TYPE: THE MOST EFFICIENT C-SI TECHNOLOGY

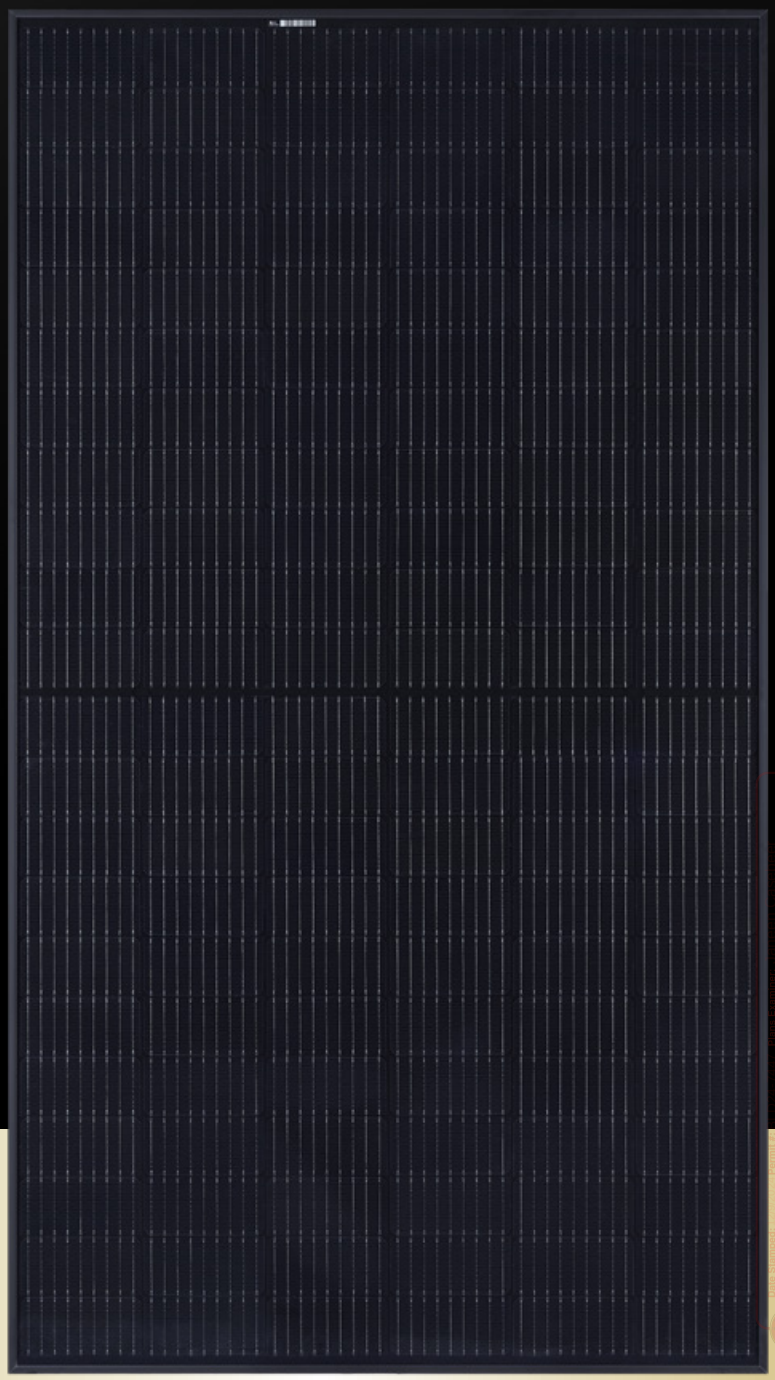
NO LIGHT INDUCED DEGRADATION

SUPER-STRONG FRAME UP TO 7000 PA SNOW LOAD

FLEXIBLE INSTALLATION OPTIONS

FEATURING REC'S PIONEERING TWIN DESIGN

BIFACIAL CELLS CAN PRODUCE ENERGY FROM BOTH SIDES



400 WP POWER

PRODUCT REC 25 YEAR ProTrust WARRANTY PERFORMANCE LABOR

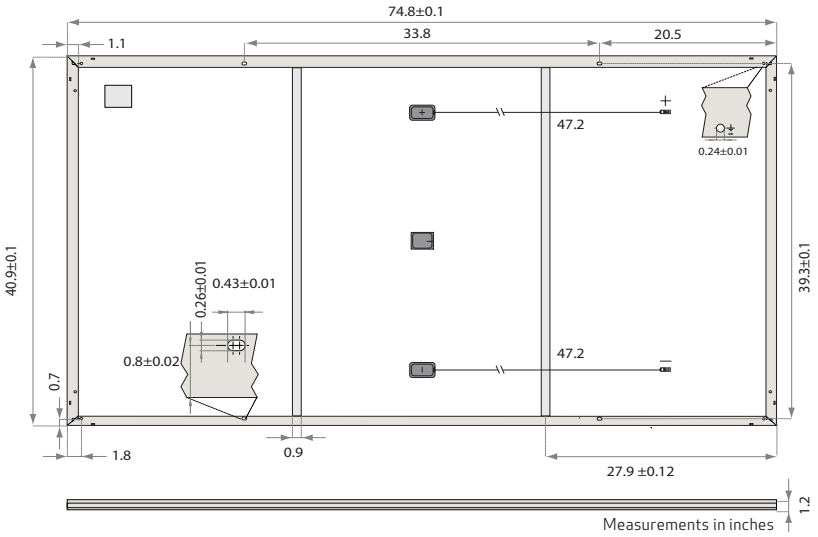
ELIGIBLE

REC
SOLAR'S MOST TRUSTED

# REC N-PEAK 3 BLACK SERIES
## PRODUCT SPECIFICATIONS

### GENERAL DATA

| | |
|---|---|
| Cell type: | 132 half-cut mono c-Si n-type cells<br>6 strings of 22 cells in series |
| Glass: | 0.13 in solar glass with anti-reflective surface treatment<br>in accordance with EN 12150 |
| Backsheet: | Highly resistant polymer (black) |
| Frame: | Anodized aluminum (black)<br>with silver support bars |
| Junction box: | 3-part, 3 bypass diodes, lead-free<br>IP68 rated, in accordance with IEC 62790 |
| Connectors: | Stäubli MC4 PV-KBT4/KST4 (12 AWG)<br>in accordance with IEC 62852, IP68 only when connected |
| Cable: | 12 AWG PV wire, 47.2 + 47.2 in<br>in accordance with EN 50618 |
| Dimensions: | 74.8 x 40.9 x 1.2 in (19.7 sq-ft) |
| Weight: | 48.0 lbs |
| Origin: | Made in Singapore |



Measurements in inches

### ELECTRICAL DATA — Product Code*: RECxxxNP3 Black

| | | |
|---|---|---|
| STC | | |
| Power Output - $P_{MAX}$ (Wp) | 390 | 400 |
| Watt Class Sorting - (W) | 0/+10 | 0/+10 |
| Nominal Power Voltage - $V_{MPP}$ (V) | 36.8 | 37.6 |
| Nominal Power Current - $I_{MPP}$ (A) | 10.60 | 10.64 |
| Open Circuit Voltage - $V_{OC}$ (V) | 44.8 | 45.0 |
| Short Circuit Current - $I_{SC}$ (A) | 11.31 | 11.39 |
| Panel Efficiency (%) | 19.5 | 20.3 |
| NMOT | | |
| Power Output - $P_{MAX}$ (Wp) | 295 | 302 |
| Nominal Power Voltage - $V_{MPP}$ (V) | 34.4 | 35.2 |
| Nominal Power Current - $I_{MPP}$ (A) | 8.56 | 8.59 |
| Open Circuit Voltage - $V_{OC}$ (V) | 41.9 | 42.1 |
| Short Circuit Current - $I_{SC}$ (A) | 9.13 | 9.20 |

Values at standard test conditions (STC: air mass AM 1.5, irradiance 1000 W/m², temperature 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 20°C, windspeed 1 m/s). * Where xxx indicates the nominal power class ($P_{MAX}$) at STC above.

### CERTIFICATIONS

| | |
|---|---|
| IEC 61215:2016, IEC 61730:2016, UL 61730 | |
| IEC 62804 | PID |
| IEC 61701 | Salt Mist |
| IEC 62716 | Ammonia Resistance |
| UL 61730 | Fire Type Class 2 |
| UL 790 | Fire Class Type C |
| IEC 62782 | Dynamic Mechanical Load |
| IEC 61215-2:2016 | Hailstone (1.37in) |

ISO 14001, ISO 9001, IEC 45001, IEC 62941

### TEMPERATURE RATINGS*

| | |
|---|---|
| Nominal Module Operating Temperature: | 44.3°C (±2°C) |
| Temperature coefficient of $P_{MAX}$: | -0.34 %/°C |
| Temperature coefficient of $V_{OC}$: | -0.26 %/°C |
| Temperature coefficient of $I_{SC}$: | 0.04 %/°C |

*The temperature coefficients stated are linear values

### MAXIMUM RATINGS

| | |
|---|---|
| Operational temperature: | -40 ... +185°F |
| 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)

### 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% |

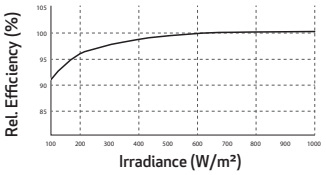
The REC ProTrust Warranty is only available on panels purchased through an REC Certified Solar Professional installer. Warranty conditions apply. See www.recgroup.com for more details.

### DELIVERY INFORMATION

| | |
|---|---|
| Panels per pallet: | 33 |
| Panels per 40 ft GP/high cube container: | 792 (24 pallets) |
| Panels per 53 ft truck: | TBD |

### LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:




Available from:

Specifications subject to change without notice.

Ref: Rev 1.1 - 11.22

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 Solar PTE. LTD.**
20 Tuas South Ave. 14
Singapore 637312
post@recgroup.com


REC

# Powerwall 3

## Power Everything

—

Powerwall 3 is a fully integrated solar and battery system, designed to accelerate the transition to sustainable energy. Customers can receive whole home backup, cost savings, and energy independence by producing and consuming their own energy while participating in grid services. Once installed, customers can manage their system using the Tesla App to customize system behavior to meet their energy goals.

Powerwall 3 achieves this by supporting up to 20 kW DC of solar and providing 11.5 kW AC of continuous power per unit. It has the ability to start heavy loads rated up to 185 LRA, meaning a single unit can support the power needs of most homes. Powerwall 3 is designed for fast and efficient installations, modular system expansion, and simple connection to any electrical service.

2024

# Powerwall 3 Technical Specifications

## System Technical Specifications

| | |
|---|---|
| **Model Number** | 1707000-xx-y |
| **Nominal Grid Voltage (Input & Output)** | 120/240 VAC |
| **Grid Type** | Split phase |
| **Frequency** | 60 Hz |
| **Overcurrent Protection Device** | 60 A<br>*See Powerwall 3 Installation Manual for fuse requirements if using 60 A fuse for overcurrent protection* |
| **Solar to Battery to Home/Grid Efficiency** | 89% [1,2] |
| **Solar to Home/Grid Efficiency** | 97.5% [3] |
| **Supported Islanding Devices** | Gateway 3, Backup Switch, Backup Gateway 2 |
| **Connectivity** | Wi-Fi (2.4 and 5 GHz), Ethernet, Cellular (LTE/4G [4]) |
| **Hardware Interface** | Dry contact relay, Rapid Shutdown (RSD) certified switch and 2-pin connector, RS-485 for meters |
| **AC Metering** | Revenue Grade (+/- 0.5%, ANSI C12.20) |
| **Protections** | Integrated arc fault circuit interrupter (AFCI), Isolation Monitor Interrupter (IMI), PV Rapid Shutdown (RSD) using Tesla Mid-Circuit Interrupters |
| **Customer Interface** | Tesla Mobile App |
| **Warranty** | 10 years |

## Battery Technical Specifications

| | |
|---|---|
| **Nominal Battery Energy** | 13.5 kWh AC [2] |
| **Maximum Continuous Discharge Power** | 11.5 kW AC |
| **Output Power Factor Rating** | 0 - 1 (Grid Code configurable) |
| **Maximum Continuous Charge Current / Power** | 20.8 A AC / 5 kW |
| **Maximum Output Fault Current** | 10 kA |
| **Load Start Capability** | 185 LRA |
| **Power Scalability** | Up to 4 Powerwall 3 units supported |

## Solar Technical Specifications

| | |
|---|---|
| **Maximum Solar STC Input** | 20 kW |
| **Withstand Voltage** | 600 V DC |
| **PV DC Input Voltage Range** | 60 — 550 V DC |
| **PV DC MPPT Voltage Range** | 60 — 480 V DC |
| **MPPTs** | 6 |
| **Maximum Current per MPPT ($I_{mp}$)** | 13 A [5] |
| **Maximum Short Circuit Current per MPPT ($I_{sc}$)** | 15 A [5] |

[1] Typical solar shifting use case.

[2] Values provided for 25°C (77°F), at beginning of life. 3.3 kW charge/discharge power.

[3] Tested using CEC weighted efficiency methodology.

[4] The customer is expected to provide internet connectivity for Powerwall 3; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

[5] Where the DC input current exceeds the MPPT rating, a jumper can be used to combine two MPPTs into a single input to intake DC current up to 26 A $I_{MP}$ / 30 A $I_{SC}$.

# Powerwall 3 Technical Specifications

## Environmental Specifications

| | |
|---|---|
| **Operating Temperature** | –20°C to 50°C (–4°F to 122°F) [6] |
| **Operating Humidity (RH)** | Up to 100%, condensing |
| **Storage Temperature** | –20°C to 30°C (–4°F to 86°F), up to 95% RH, non-condensing, State of Energy (SOE): 25% initial |
| **Maximum Elevation** | 3000 m (9843 ft) |
| **Environment** | Indoor and outdoor rated |
| **Enclosure Rating** | NEMA 3R |
| **Ingress Rating** | IP67 (Battery & Power Electronics)<br>IP55 (Wiring Compartment) |
| **Pollution Rating** | PD3 |
| **Operating Noise @ 1 m** | < 50 db(A) typical<br>< 62 db(A) maximum |

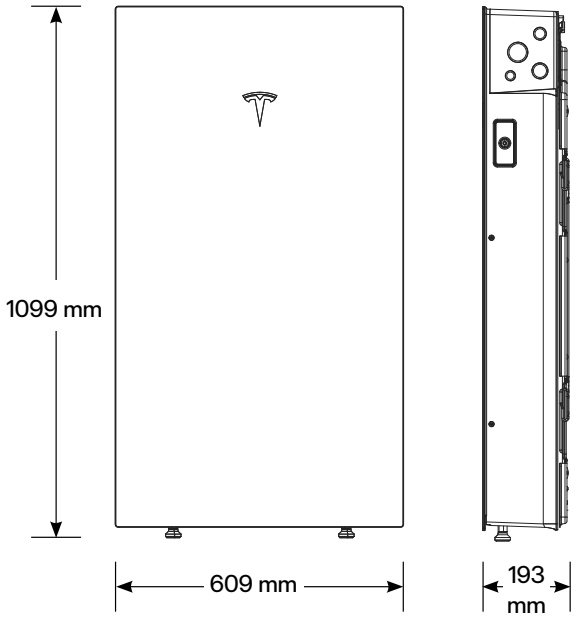
[6] Performance may be de-rated at operating temperatures above 40°C (104°F).

## Compliance Information

| | |
|---|---|
| **Certifications** | UL 1741, UL 9540, UL 9540A, UL 3741, UL 1741 PCS, UL 1741 SA, UL 1741 SB, UL 1973, UL 1699B, UL 1998, CSA C22.2 No. 0.8, CSA C22.2 No. 107.1, CSA C22.2 No. 330, CSA 22.3 No. 9, IEEE 1547, IEEE 1547A, IEEE 1547.1, CA Rule No.21 |
| **Grid Connection** | United States and Canada |
| **Emissions** | FCC Part 15 Class B, ICES 003 |
| **Environmental** | RoHS Directive 2011/65/EU |
| **Seismic** | AC156, IEEE 693-2005 (high) |
| **Fire Testing** | Meets the unit level performance criteria of UL 9540A |

## Mechanical Specifications

| | |
|---|---|
| **Dimensions** | 1099 x 609 x 193 mm (43.25 x 24 x 7.6 in) |
| **Weight** | 130 kg (287 lb) |
| **Mounting Options** | Floor or wall mount |



# Solar Shutdown Device Technical Specifications

—

The Solar Shutdown Device is a Mid-Circuit Interrupter (MCI) and is part of the PV system rapid shutdown (RSD) function in accordance with Article 690 of the applicable NEC. When paired with Powerwall 3, solar array shutdown is initiated by any loss of AC power.

## Electrical Specifications

| Model | MCI-1 | MCI-2 |
|---|---|---|
| Nominal Input DC Current Rating ($I_{MP}$) | 13 A | 13 A |
| Maximum Input Short Circuit Current ($I_{SC}$) | 19 A | 17 A |
| Maximum System Voltage (PVHCS) | 600 V DC | 1000 V DC [7] |

[7] Maximum System Voltage is limited by Powerwall to 600 V DC.

## RSD Module Performance

| | |
|---|---|
| Maximum Number of Devices per String | 5 |
| Control | Power Line Excitation |
| Passive State | Normally Open |
| Maximum Power Consumption | 7 W |
| Warranty | 25 years |

## Environmental Specifications

| | | |
|---|---|---|
| Operating Temperature | -40°C to 50°C<br>(-40°F to 122°F) | -45°C to 70°C<br>(-49°F to 158°F) |
| Storage Temperature | –30°C to 70°C<br>(–22°F to 158°F) | –30°C to 70°C<br>(–22°F to 158°F) |
| Enclosure Rating | NEMA 4X / IP65 | |

## Mechanical Specifications

| | | |
|---|---|---|
| Electrical Connections | MC4 Connector | |
| Housing | Plastic | |
| Dimensions | 125 x 150 x 22 mm<br>(5 x 6 x 1 in) | 173 x 45 x 22 mm<br>(6.8 x 1.8 x 1 in) |
| Weight | 350 g (0.77 lb) | 120 g (0.26 lb) |
| Mounting Options | ZEP Home Run Clip<br>M4 Screw (#10)<br>M8 Bolt (5/16")<br>Nail / Wood screw | Wire Clip |

## Compliance Information

| | |
|---|---|
| Certifications | UL 1741 PVRSE, UL 3741,<br>PVRSA (Photovoltaic Rapid Shutdown Array) |
| RSD Initiation Method | External System Shutdown Switch or<br>Powerwall 3 Enable Switch |

## UL 3741 PV Hazard Control (and PVRSA) Compatibility

See Powerwall 3 Installation Manual

# Backup Switch

The Tesla Backup Switch controls connection to the grid in a Powerwall system, and can be easily installed behind the utility meter or in a standalone meter panel downstream of the utility meter.
The Backup Switch automatically detects grid outages, providing a seamless transition to backup power. It communicates directly with Powerwall, allowing home energy usage monitoring from any mobile device with the Tesla app.

## Performance Specifications

| | |
|---|---|
| **Model Number** | 1624171-xx-y |
| **Continuous Load Rating** | 200 A, 120/240 V split phase |
| **Maximum Supply Short Circuit Current** | 22 kA with breaker [9] |
| **Communication** | CAN |
| **AC Meter** | +/- 0.5% |
| **Expected Service Life** | 21 years |
| **Warranty** | 10 years |

[9] Breaker maximum supply short circuit current rating must be equal to or greater than the available fault current.

## Environmental Specifications

| | |
|---|---|
| **Operating Temperature** | –40°C to 50°C (–40°F to 122°F) |
| **Storage Temperature** | –40°C to 85°C (–40°F to 185°F) |
| **Enclosure Rating** | NEMA 3R |
| **Pollution Rating** | PD3 |

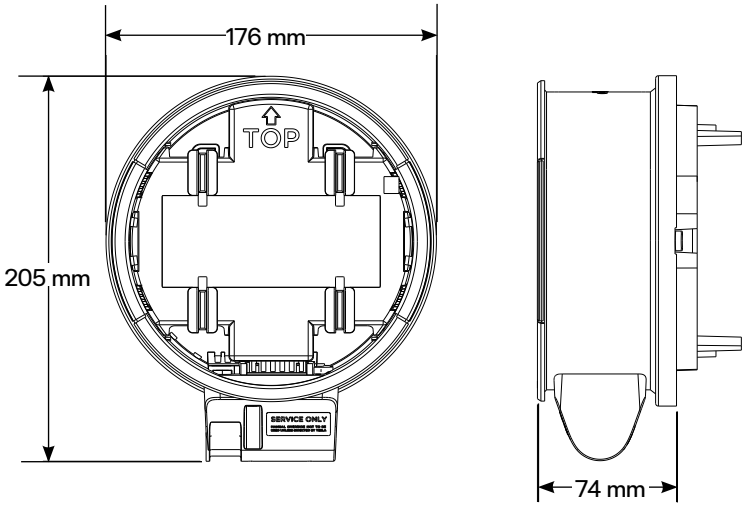
## Compliance Information

| | |
|---|---|
| **Safety Standards** | USA: UL 414, UL 414 SB, UL 2735, UL 916, CA Prop 65 |
| **Emissions** | FCC Part 15, Class B, ICES 003 |

## Mechanical Specifications

| | |
|---|---|
| **Dimensions** | 176 x 205 x 74 mm (6.9 x 8.1 x 2.9 in) |
| **Weight** | 2.8 lb |
| **Meter and Socket Compatibility** | ANSI Type 2S, ringless or ring type |
| **External Service Interface** | Contactor manual override [10]<br>Reset button |
| **Conduit Compatibility** | 1/2-inch NPT |

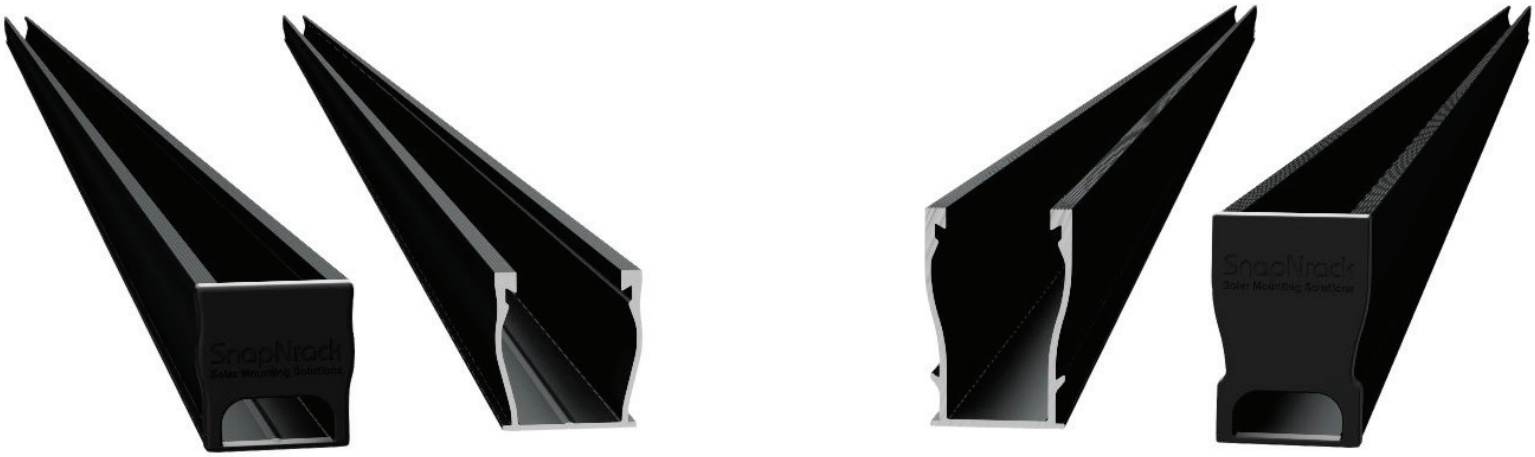
[10] Manually overrides the contactor position during a service event.



SnapNrack™
Solar Mounting Solutions

UR-40
UR-60

# Ultra Rail



## The Ultimate Value in Rooftop Solar

- Industry leading Wire Management Solutions
- Mounts available for all roof types
- Single Tool Installation
- All SnapNrack Module Clamps & Accessories are compatible with both rail profiles

## Start Installing Ultra Rail Today

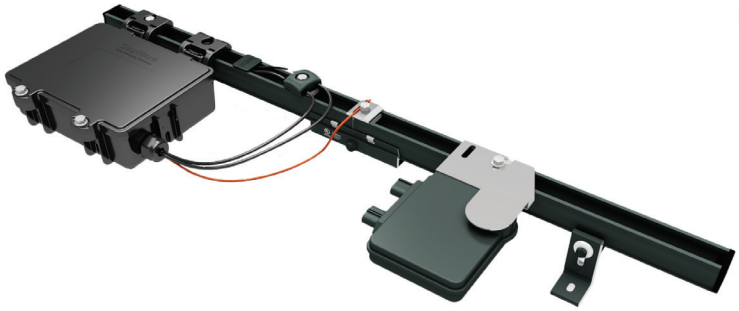
| | |
|---|---|
| **RESOURCES** | snapnrack.com/resources |
| **DESIGN** | snapnrack.com/configurator |
| **WHERE TO BUY** | snapnrack.com/where-to-buy |

# SnapNrack Ultra Rail System

**A sleek, straightforward rail solution for mounting solar modules on all roof types. Ultra Rail features two rail profiles; UR-40 is a lightweight rail profile that is suitable for most geographic regions and maintains all the great features of SnapNrack rail, while UR-60 is a heavier duty rail profile that provides a larger rail channel and increased span capabilities. Both are compatible with all existing mounts, module clamps, and accessories for ease of install.**

## The Entire System is a Snap to Install

- New Ultra Rail Mounts include snap-in brackets for attaching rail
- Compatible with all the SnapNrack Mid Clamps and End Clamps customers love
- Universal End Clamps and snap-in End Caps provide a clean look to the array edge

## Unparalleled Wire Management

- Open rail channel provides room for running wires resulting in a long-lasting quality install
- Industry best wire management offering includes Junction Boxes, Universal Wire Clamps, MLPE Attachment Kits, and Conduit Clamps
- System is fully bonded and listed to UL 2703 Standard

## Heavy Duty UR-60 Rail

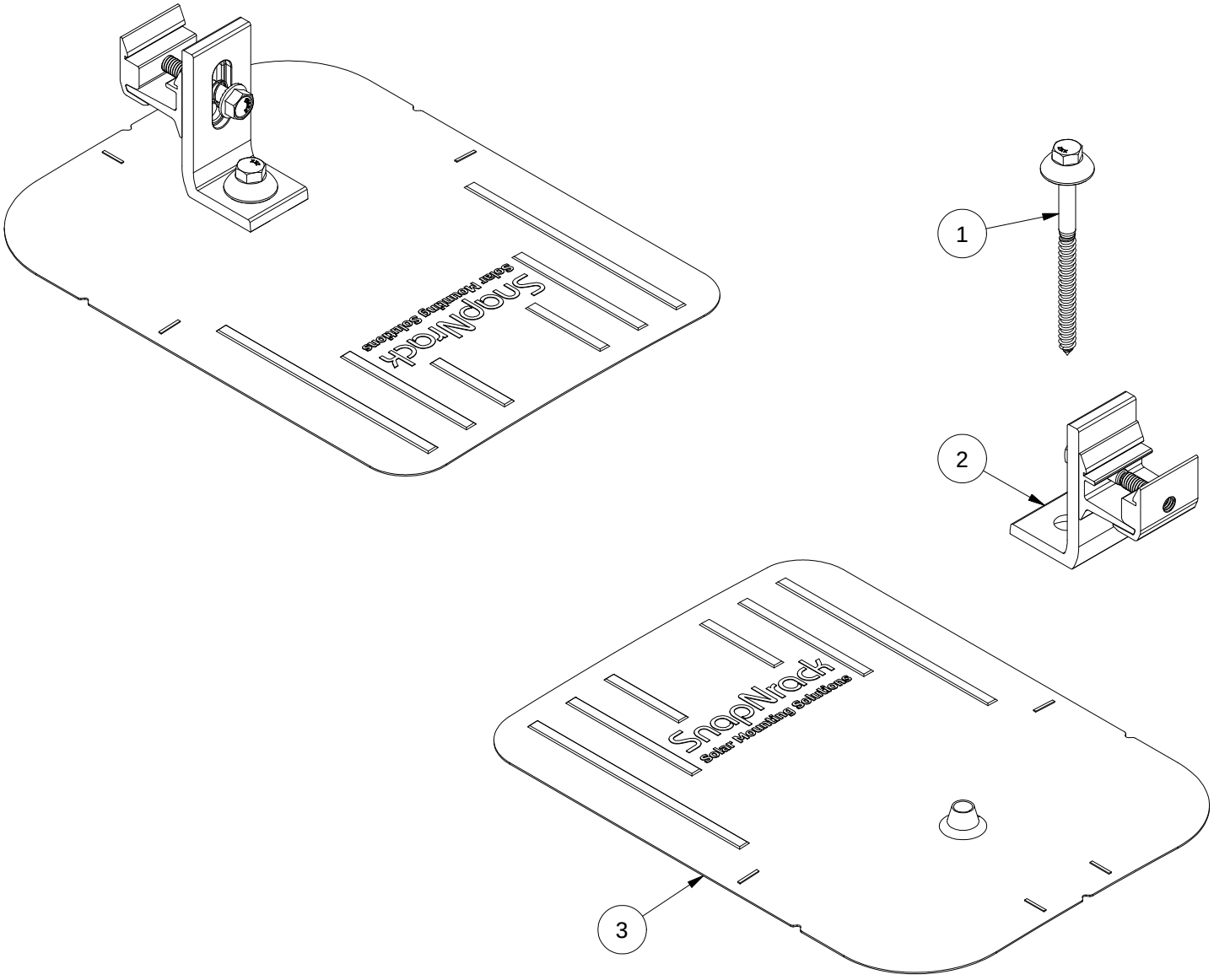
- UR-60 rail profile provides increased span capabilities for high wind speeds and snow loads
- Taller, stronger rail profile includes profile-specific rail splice and end cap
- All existing mounts, module clamps, and accessories are retained for the same great install experience


# Quality. Innovative. Superior.

SnapNrack Solar Mounting Solutions are engineered to optimize material use and labor resources and improve overall installation quality and safety.

**877-732-2860** **www.snapnrack.com** **contact@snapnrack.com**

| DESCRIPTION: | DRAWN BY: | SnapNrack® |
|---|---|---|
| SNAPNRACK, ULTRA RAIL COMP KIT | mwatkins | |
| PART NUMBER(S): | REVISION: | 595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA<br>PHONE (415) 580-6900 • FAX (415) 580-6902 |
| SEE BELOW | C | THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY. ANY REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF SUNRUN SOUTH LLC. |




| PARTS LIST | | | |
|---|---|---|---|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 242-92266 | SNAPNRACK, UMBRELLA LAG, TYPE 3, 4IN, SS |
| 2 | 1 | 242-01219, 242-01220 | SNAPNRACK, ULTRA RAIL UMBRELLA L FOOT, SILVER / BLACK |
| 3 | 1 | 232-01375, 232-01376, 232-01377 | SNAPNRACK, COMP FLASHING, 9IN X 12IN, SILVER / BLACK |

| | |
|---|---|
| MATERIALS: | 6000 SERIES ALUMINUM, STAINLESS STEEL, RUBBER |
| DESIGN LOAD (LBS): | 802 UP, 1333 DOWN, 356 SIDE |
| ULTIMATE LOAD (LBS): | 2005 UP, 4000 DOWN, 1070 SIDE |
| TORQUE SPECIFICATION: | 12 LB-FT |
| CERTIFICATION: | UL 2703, FILE E359313; WIND-DRIVEN RAIN TEST FROM UL SUBJECT 2582 |
| WEIGHT (LBS): | 0.79 - 1.03 |

DESCRIPTION:

SNAPNRACK, ULTRA RAIL COMP KIT

DRAWN BY:

mwatkins

REVISION:

C

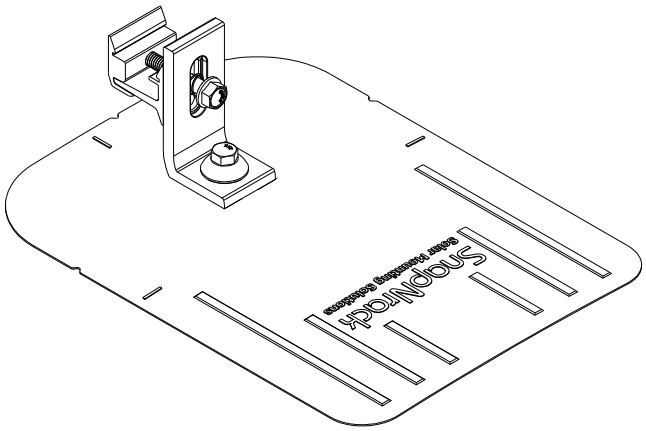
PART NUMBER(S):

SEE BELOW

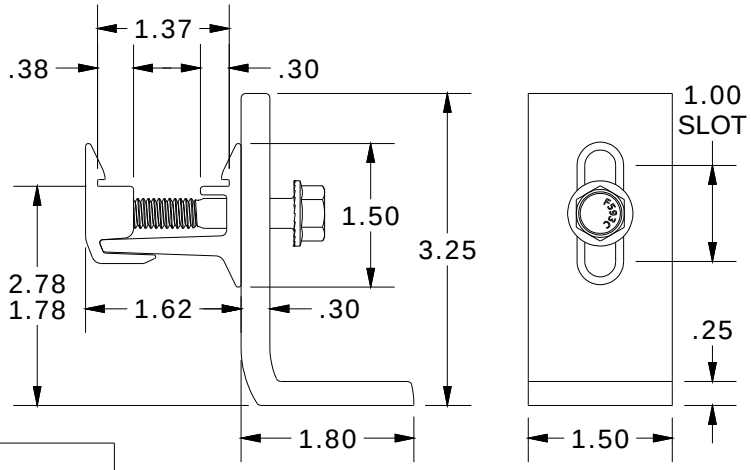
SnapNrack®

595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA
PHONE (415) 580-6900 • FAX (415) 580-6902

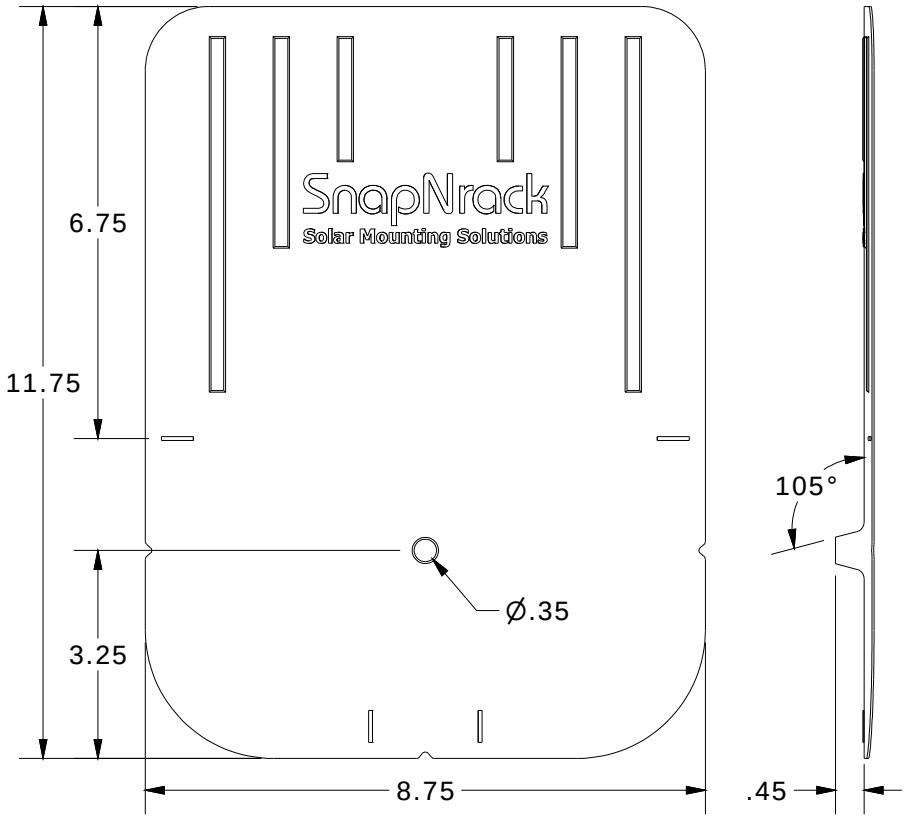


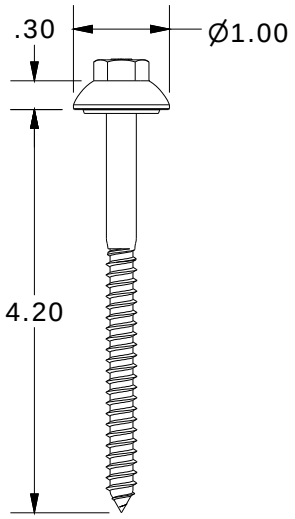



| UMBRELLA L FOOT PROPERTIES | |
|---|---|
| SKU | DESCRIPTION |
| 242-01219 | ULTRA RAIL UMBRELLA L FOOT, SILVER |
| 242-01220 | ULTRA RAIL UMBRELLA L FOOT, BLACK |




| COMP FLASHING PROPERTIES | |
|---|---|
| SKU | DESCRIPTION |
| 232-01375 | COMP FLASHING, 9" X 12", BLACK ALUM |
| 232-01376 | COMP FLASHING, 9" X 12", SILVER ALUM |
| 232-01377 | COMP FLASHING, 9" X 12", BLACK GALVALUME |




ALL DIMENSIONS IN INCHES