



## UTILITY POWER RACK 5000 / 5500

UPR-5000 / UPR-5500



### Reduced risk

- Design based on more than 10 GW of field-proven Sunny Central inverters in North America
- Optimally suited to extreme ambient conditions

### Turnkey solution

- Plug and play concept simplifies field integration
- Completely pre-assembled for easy setup and commissioning

### Cost-effective

- Transformer optimized for PV use with robust optional feature set
- Design life of 25 years and the industry's #1 service team minimize OPEX considerations

### Flexible

- Suitable for 34.5 kV
- Compatible with 1,500 VDC Sunny Central or Sunny Central Storage inverters in both 2500-EV(-US) and 2750-EV(-US) versions

## UTILITY POWER RACK 5000 / 5500

The most cost-effective, turnkey solution for the North American utility PV market

The Utility Power Rack (UPR) is the ideal medium voltage solution for power plants utilizing SMA's state-of-the-art inverter technology. It can be integrated with two Sunny Central 2500-EV(-US) or 2750-EV(-US) solar inverters or Sunny Central Storage inverters. It provides up to 5,000 kVA or 5,500 kVA of power with one 4-winding medium voltage transformer, compactly integrated on a 36' x 8' 6" steel platform. This turnkey solution offers integrators simplified field integration, reduced labor costs and quick commissioning. Designed for maximum flexibility and individually configured to meet the unique needs of any power plant, SMA's Utility Power Rack offers a multitude of configurable options to address the needs of both utility-scale PV and storage plants.

# UTILITY POWER RACK

## 5000 / 5500

Technical data	Utility Power Rack 5000 for 2 x SC 2500-EV(-US) or 2 x SCS 2500-EV(-US)	Utility Power Rack 5500 for 2 x SC2750-EV(-US) or 2 x SCS2750-EV(-US)
<b>Utility Power Rack</b>		
Oil containment	None / Yes	● / ○
Transportation shrink wrap protection	None / Yes	● / ○
Seismic site class D, Ss = 2.15g	None / Yes	● / ○
Warranty	1 / 5 years	● / ○
<b>MV Transformer input</b>		
Rated power (25 °C / 50 °C)	2 x 2500 kVA / 2250 kVA	2 x 2750 kVA / 2500 kVA
Nominal AC low voltage	550 V	600 V
Grid frequency	60 Hz	
Maximum AC current at nominal voltage	2 x 2624 A	2 x 2646 A
BIL	30 kV	
<b>MV Transformer output</b>		
Standard nominal voltage	34.5 kV	
BIL (Coil) at standard nominal voltage	Reference Options Matrix	
BIL (Circuit) at standard nominal voltage	Reference Options Matrix	
MV transformer no load taps	Reference Options Matrix	
Nominal current at standard nominal voltage (A)	75.4	83.6
Transformer cooling type	KNAN	
Maximum winding and top oil temperature rise	Reference Options Matrix	
Vector group (Dyy / YNdd / YNyy) <sup>5</sup>	● / ○ / ○	
System impedance (Z)	Reference Options Matrix	
MV connection	600 A, dead front, loop feed bushings	
MV fusing	Reference Options Matrix	
MV disconnect	Reference Options Matrix	
No load losses	Reference Options Matrix	
Load losses (at 85 °C)	Reference Options Matrix	
DOE Efficiency	○	
<b>MV Transformer protection rating and ambient conditions</b>		
Operating temperature (Pnom) <sup>3</sup>	-25 °C to 40 °C	
Temperature (standby)	-40 °C to 60 °C	
Temperature (storage)	-40 °C to 70 °C	
Standard operating altitude	Reference Options Matrix	
Snow load, maximum (psf)	40	
Wind load, maximum (mph)	Reference Options Matrix	
<b>MV Transformer compliance and certificates</b>		
Without / Seismic rating according ICC-ES-AS156, Site class D, Ss = 2.15g	● / ○	
Standards	ANSI/IEEE C57.12, ULXLPH	
<b>MV Transformer features</b>		
Without / with tracker power provisions <sup>4</sup>	● / ○	
Transformer protection alarms (Temp / Pressure / Liquid Level / Analog Temperature)	Reference Options Matrix	
Bus bar connection	Included (Reference Page 3)	
Tank large pressure relief device	Reference Options Matrix	
Liquid level / Thermometer / Combined overpressure/vacuum gauges	Reference Options Matrix	
Warranty	1 year / 5 year	
<b>General data</b>		
Dimensions without oil containment (W / H / D, inches) <sup>1</sup>	30' / 9' 6" / 8' 8"	30' / 9' 6" / 8' 8"
Weight (lbs / kg) <sup>2</sup>	54,000 / 24,500	54,000 / 24,500
Dimensions with oil containment (W / H / D, inches) <sup>1</sup>	36' / 10' 0" / 8' 8"	36' / 10' 0" / 8' 8"
Weight (lbs / kg) <sup>2</sup>	58,000 / 26,310	58,000 / 26,310
Color	Reference Options Matrix	
Delivery Terms: FCA-Origin	●	
<p>● Standard features   ○ Optional features   – Not available</p>		
Type designation	UPR-5000	UPR-5500

# Tracker Auxiliary Rack and Bus Bar for UTILITY POWER RACK XXXX

Technical data	Utility Power System Bus Bar for Utility Power Rack XXXX
<b>Electrical</b>	
Short circuit current rating	75 kA
Maximum AC voltage	600 V
Grid frequency	60 Hz
Maximum AC current	3300 A
<b>Ambient conditions</b>	
Operating temperature	-25 °C to 50 °C
Temperature (standby)	-40 °C to 60 °C
Temperature (storage)	-40 °C to 70 °C
Snow load, maximum (psf)	40
Wind load, maximum (mph)	130
<b>Compliance and certificates</b>	
Without / Seismic rating according ICC-ES-AS156, Site class D, Ss =2.15g	● / ○
Type rating	Type 3R
<b>Features</b>	
Equipment grounding conductors and hardware	●
Transformer protection alarm connection cable	●
<b>General data</b>	
Material	Non-ferrous stainless steel
● Standard features ○ Optional features	

Technical data	Utility Power System Tracker Auxiliary Rack for Utility Power Rack XXXX
<b>Electrical</b>	
Short circuit current rating	10 kA
Output voltage	480 VAC 3-phase 4 wire
Grid frequency (Hz)	60 Hz
Output Power (kW)	10 / 20 / 30
Distribution Circuits	Up to 12 x 20 ampere 3-phase
<b>Ambient conditions</b>	
Operating temperature	-25 °C to 50 °C
Temperature (standby)	-40 °C to 60 °C
Temperature (storage)	-40 °C to 70 °C
Standard operating altitude	1,000 m / 2,000 m with derating (3,280 ft / 6,562 ft with derating)
Snow load, maximum (psf)	40
Wind load, maximum (mph)	130
<b>Compliance</b>	
Seismic rating according ICC-ES-AS156	Site class D, Ss =2.15g
Type rating	Type 3R
<b>Features</b>	
Tool-free connection to SMA MV Transformer	●
Array Technologies compatibility	○
AC over-voltage protection	●
<b>General data</b>	
Dimensions (W / H / D, inches) <sup>1</sup>	40" x 94.5" (142.5" w/ ATI gps option) x 36"
Weight (lbs / kg) <sup>2</sup>	1,764 lbs / 800 kg
Color	RAL 9016 Traffic White
● Standard features ○ Optional features – Not available	
Type designation	UPSYS-TAR-US-2.0

# Options Matrix for Medium Voltage Transformer for UTILITY POWER RACK XXXX

Feature	Standard Version	Optional	Heavy Duty Technical Package
<b>5-step tap changer</b>		○	●
Current limiting fuses	●		●
<b>Pressure relief valve</b>		○	●
Color - White		○	●
Color - Munsell Green	●		
<b>On/off load break switch</b>		○	●
Vacuum switch		○	●
<b>Cabinet ground straps</b>		○	●
90 mph wind rating	●		
High wind rating 140 mph		○	●
SMA alarm cable connector	●		●
Touch up paint		○	●
FR3	●		●
Pressure gauge	●		●
Temperature gauge with alarm	●		●
<b>Liquid level gauge with alarm</b>		○	●
<b>Pressure switch (alarm contacts)</b>		○	●
Top oil sampling valve		○	●
Vector group Y-D		○	
Vector group Y-Y		○	
Temperature transducer		○	
Pressure transducer		○	
Tracker auxiliary supply		○	
<b>Electrostatic shield winding</b>		○	●
IR window		○	
Visible window for load break switch		Future	
1,000 m / 2,000 m altitude with derating (3,280 ft / 6,562 ft altitude with derating)	●		
2,000 m altitude without derating		○	

**SMA highly recommends the addition of BOLDED options**

Design	Standard Version	Heavy Duty Technical Package
Average winding rise (K)	75 above 40°C ambient	65 above 50°C ambient
BIL	Per ANSI - See table below	See table below
Losses	Optimized - See table below	See table below
Impedance in %	5.0 - 8.5	5.4 - 6.6
Bushings	AL or CU	CU
Duty Cycle	PV profile	24/7/365

#### BIL Per ANSI

MV(kV)	12	12.47	13.8	20.6	22.86	24.9	27.6	34.5
Pri BIL (kV)	95	95	95	125	125	125	125	150
Sec BIL (kV)	30							

#### BIL for Heavy Duty Technical Package

MV(kV)	12	12.47	13.8	20.6	22.86	24.9	27.6	34.5
Pri Coil BIL (kV)	95	95	95	150	150	150	200	200
Pri Accessory BIL (kV)	95	95	95	150	150	150	150	150
Sec BIL (kV)	30							

#### Optimized Losses for Standard Version (Average)

25°C Rating	5000 kVA	5500 kVA
NLL @ 20°C	5,500 W	5,700 W
LL @ 85°C	40,000 W	41,000 W

#### Losses for Heavy Duty Technical Package (Average)

25°C Rating	5000 kVA	5500 kVA
NLL @ 20°C	6,000 W	6,200 W
LL @ 85°C	38,000 W	39,000 W

- 1) Maximum dimensions, can vary by configuration
- 2) Maximum weight, can vary by configuration
- 3) Project sites with ambient temperature greater than 40° C will require Heavy Duty Technical Package load profile and temperature ratings
- 4) Tracker Auxiliary Rack mounted off platform by customer and priced separately
- 5) The combination of UPR-5500, Heavy Duty, and YNyy is not available