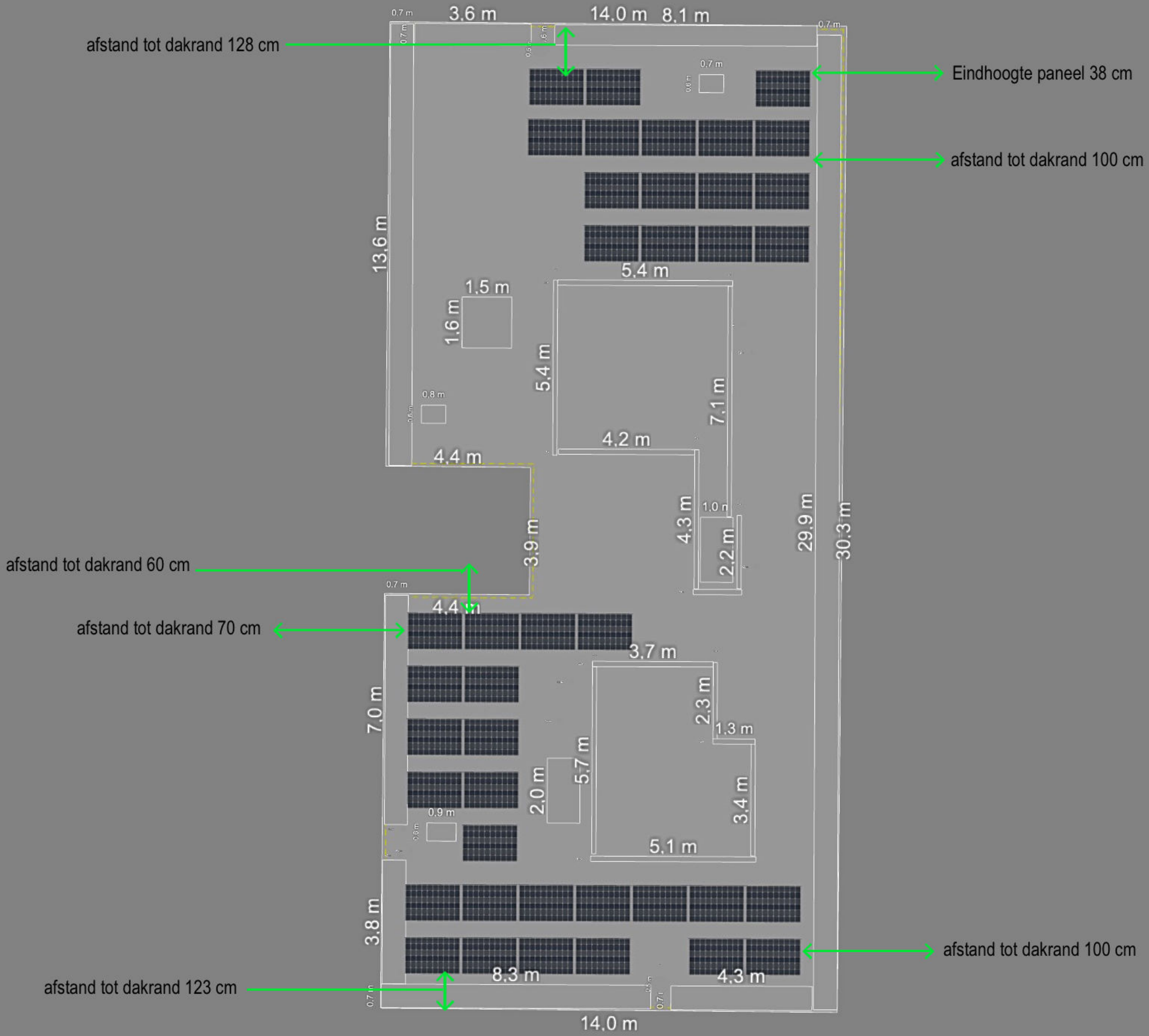
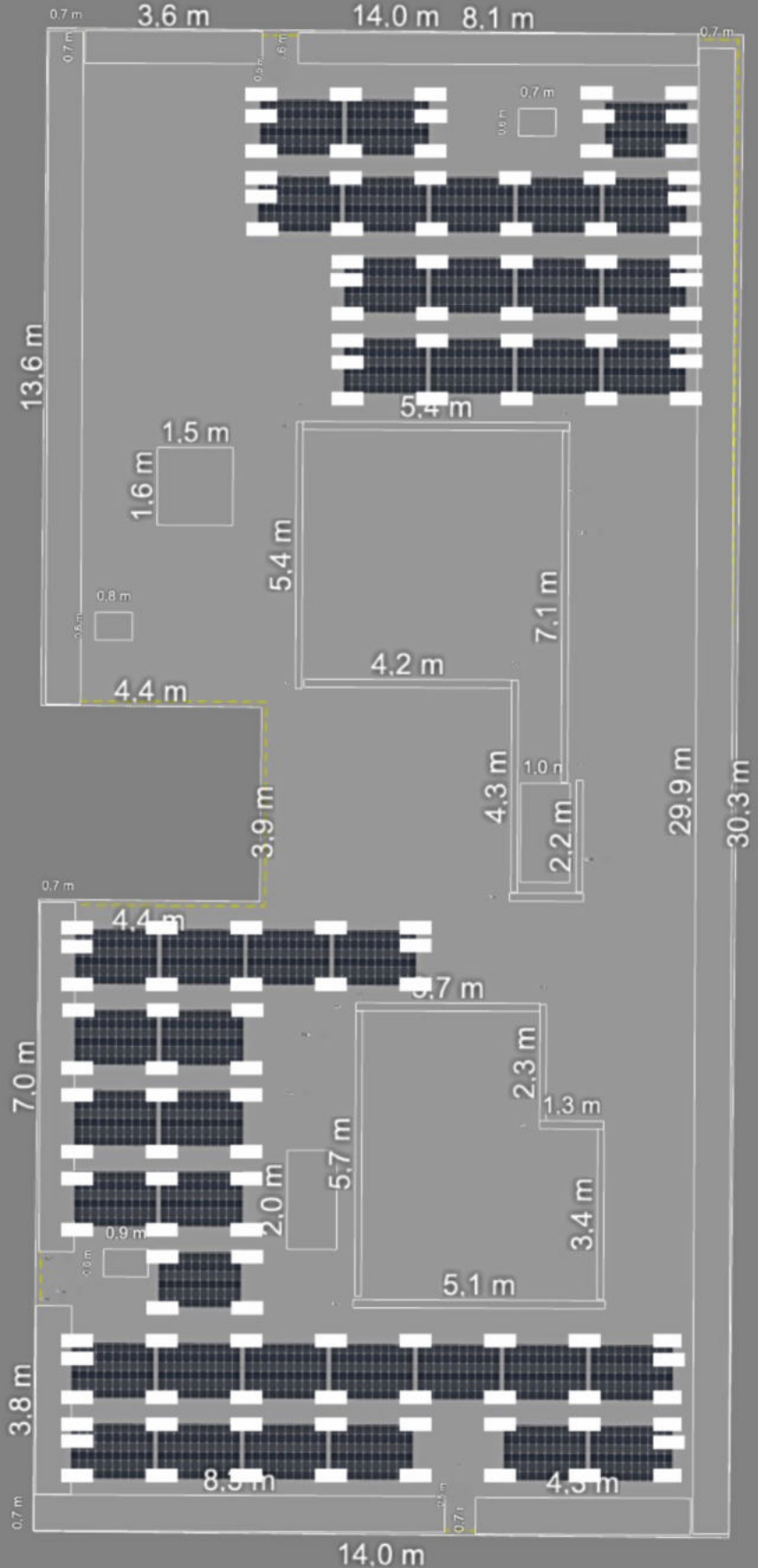
Vergunningsaanvraag VvE Hoge Rijndijk

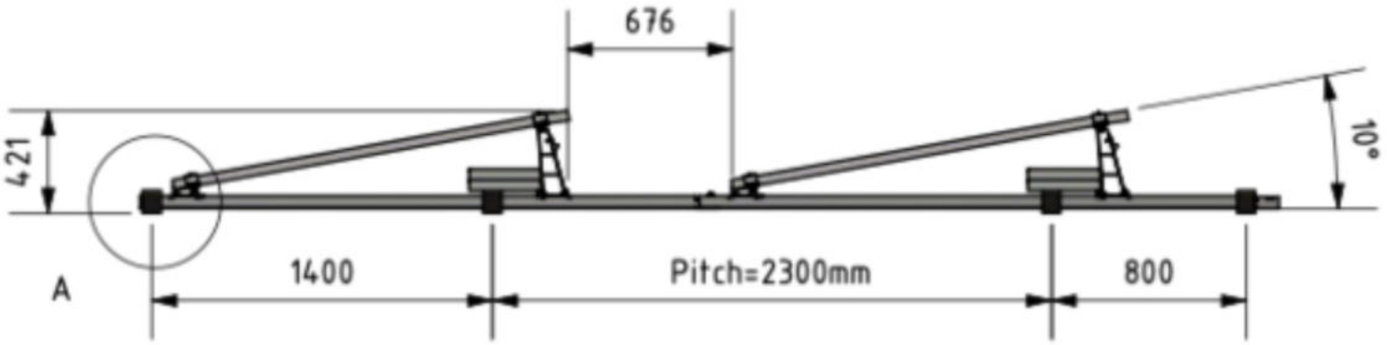
Project: VvE Hoge Rijndijk 96

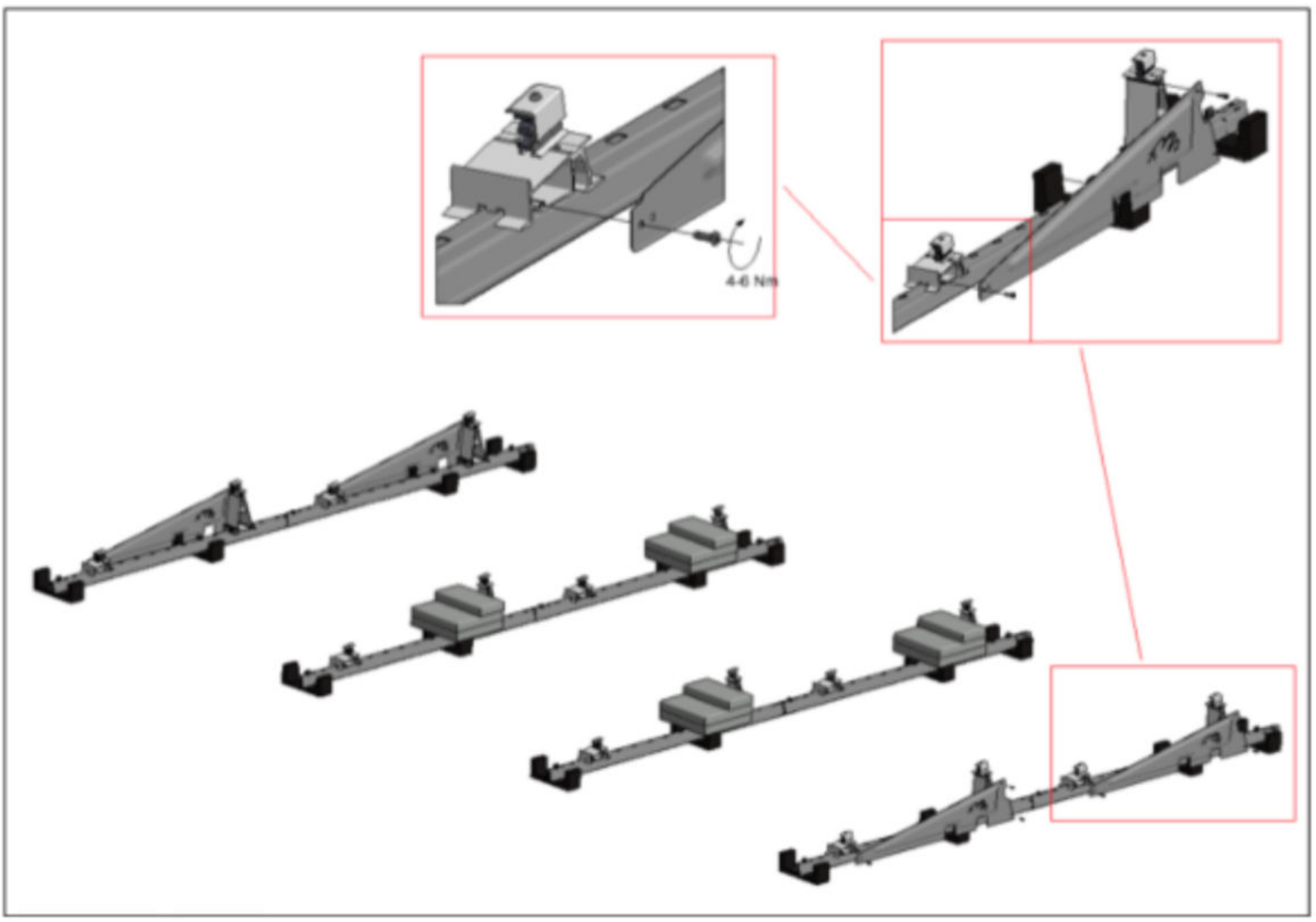
Behoort bij beschikking van
Burgemeester en Wethouders
van Leiden
Z/23/3594194
8158755 OLO

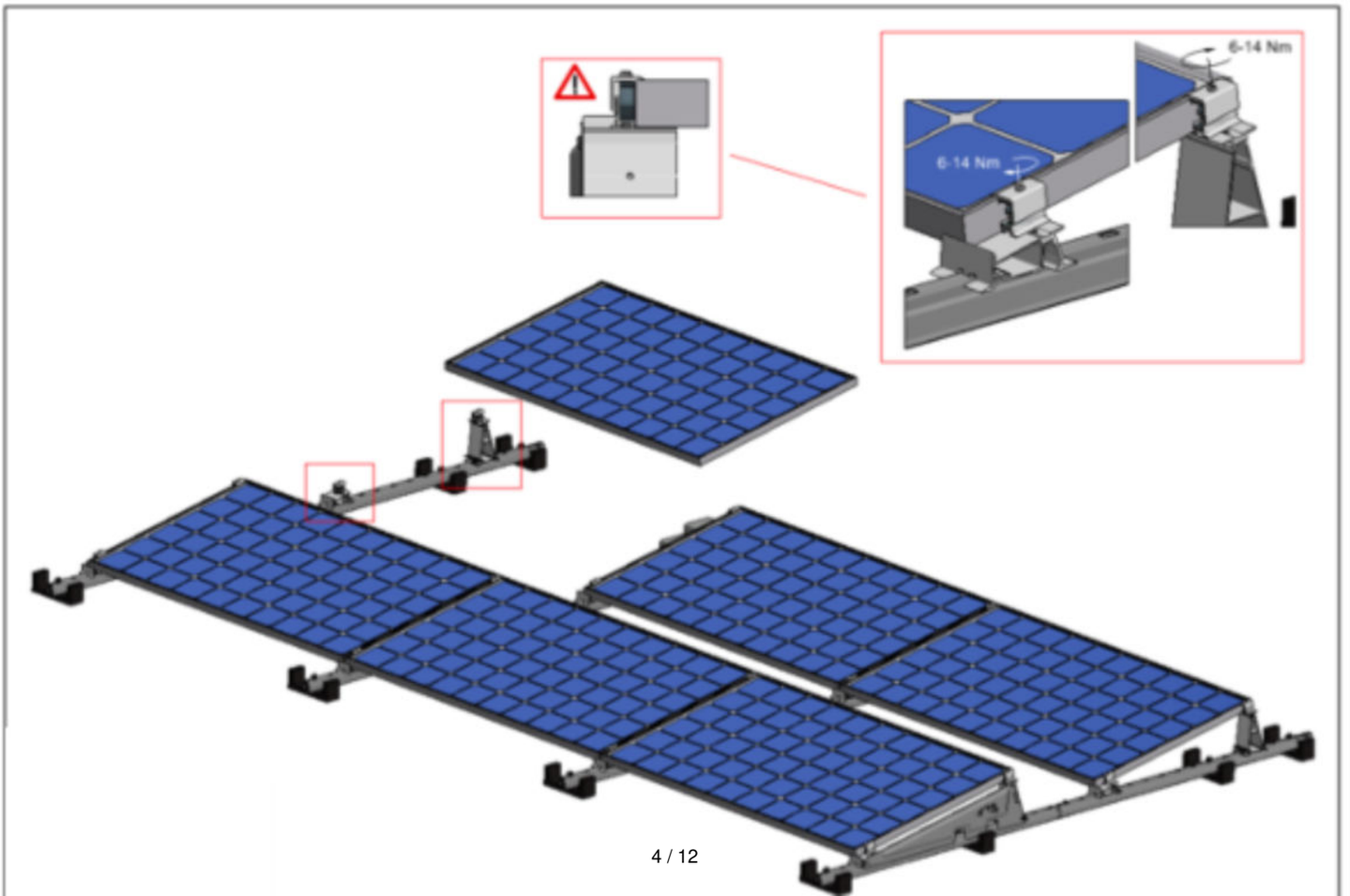

afstand tot dakrand 128 cm
Eindhoogte paneel 38 cm
afstand tot dakrand 100 cm
afstand tot dakrand 60 cm
afstand tot dakrand 70 cm
afstand tot dakrand 123 cm
afstand tot dakrand 100 cm
0,7 m
3,6 m
14,0 m
8,1 m
13,6 m
5,4 m
1,5 m
1,6 m
0,8 m
7,1 m
4,2 m
4,4 m
3,9 m
4,3 m
1,0 m
2,2 m
29,9 m
30,3 m
3,7 m
7,0 m
2,3 m
1,3 m
5,7 m
2,0 m
3,4 m
0,9 m
5,1 m
3,8 m
8,3 m
4,3 m
14,0 m



120 x valk ballast


676
421
10°
A
1400
Pitch=2300mm
800

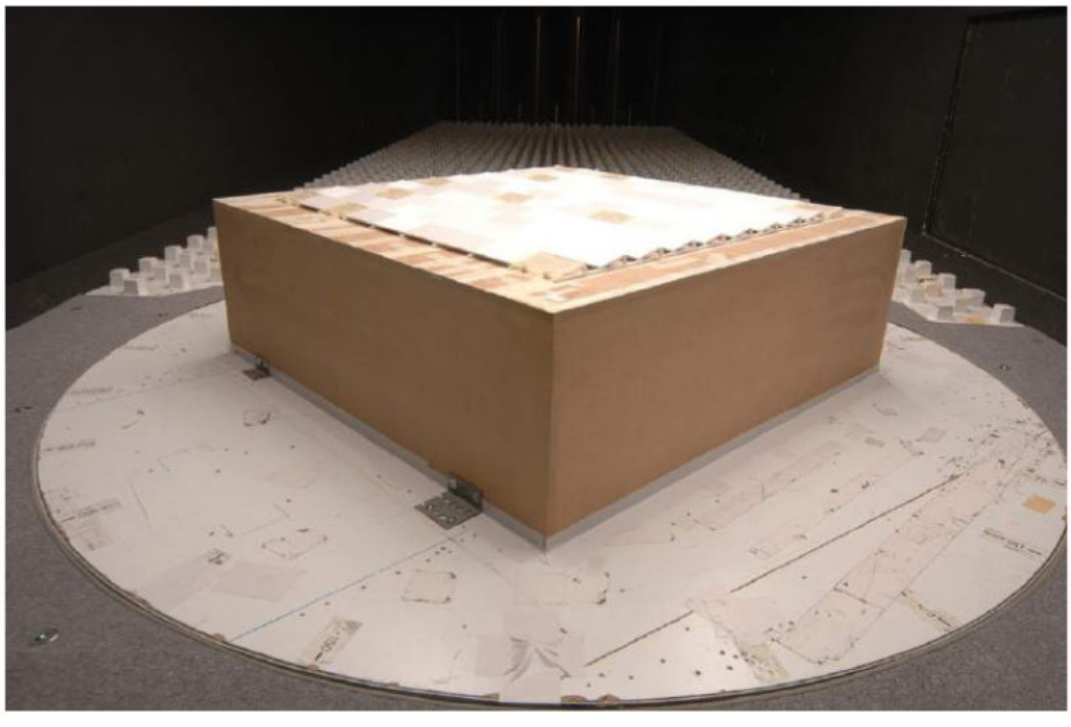

4-6 Nm


6-14 Nm
6-14 Nm

Certificaat

betreft:	Windtunnelonderzoek windbelasting zonne-energiesystemen
datum:	13 maart 2017
referentie:	MvU/W 15328-1-NO
van:	ir. G.M. van Uffelen, Peutz bv
aan:	Van der Valk Solar Systems

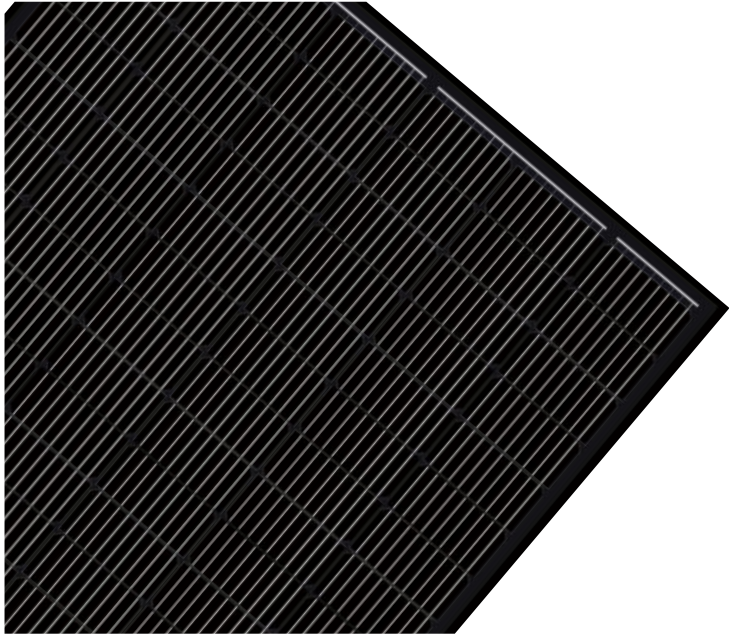
Van der Valk Solar Systems heeft de resultaten van het windtunnelonderzoek verwerkt in een rekentool. Hun interpretatie en toepassing zijn door ons gecontroleerd en zijn in overeenstemming met ons rapport W 15325-1E-RA-002 d.d. 5 december 2016 bevonden.



Conform: CUR Aanbeveling 103: 2005
NEN 7250: 2014
NEN-EN 1990: 2011
NEN-EN 1991-1-4: 2011

Mook,

RESUN SOLAR



Power output

21.25%
The Highest Efficiency

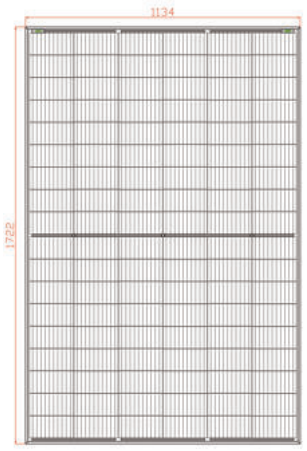
0~+5W
Tolerance

RS8V-M

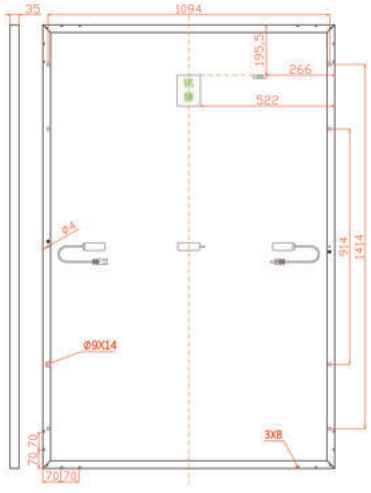
RESUN
RESUN SOLAR ENERG Y CO.,LTD.

GLOBAL PROFESSIONAL PV PRODUCTS INTEGRATED SOLUTIONS SUPPLIER

Dimension of PV Modules Unit: mm

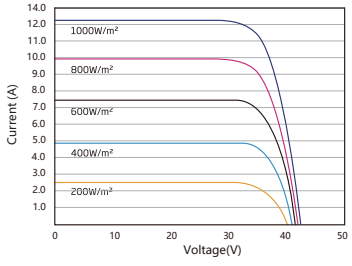


Front View

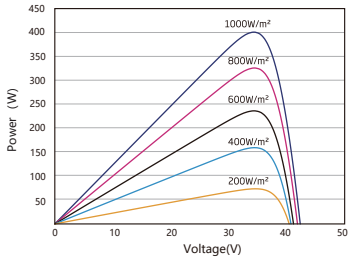


Back View

I-V CURVES OF PV MODULE(400 W)



P-V CURVES OF PV MODULE(400W)



ELECTRICAL DATA(STC)

Rated Power in Watts-Pmax(Wp)	400W	405W	410W	415W
Open Circuit Voltage-Voc(V)	37.07	37.23	37.32	37.45
Short Circuit Current-Isc(A)	13.79	13.87	13.95	14.02
Maximum Power Voltage-Vmp(V)	31.01	31.21	31.45	31.61
Maximum Power Current-Imp(A)	12.90	12.98	13.04	13.13
Module Efficiency (%)	20.48%	20.74%	21.00%	21.25%

STC: Irradiance 1000 W/m², Cell Temperature 25°C, Air Mass AM1.5 according to EN 60904-3.

ELECTRICAL DATA(NOCT)

Maximum Power-Pmax (Wp)	302W	306W	310W	314W
Open Circuit Voltage-Voc (V)	34.88	35.12	35.23	35.37
Short Circuit Current-Isc (A)	11.03	11.10	11.16	11.22
Maximum Power Voltage-Vmp(V)	29.26	29.47	29.72	29.89
Maximum Power Current-Imp(A)	10.32	10.38	10.43	10.50

NOCT: Irradiance at 800 W/m², Ambient Temperature 20°C, Wind Speed 1 m/s.

MECHANICAL DATA

Solar cells	Mono-crystalline 182*91mm,9/10/11 Bus bars
Cell configuration	108cells(6*18)
Module dimensions	1722*1134*35mm
Weight	22kg
Front Cover	3.2mm Tempered Glass
J-BOX	IP68,3 diodes
Cable	4mm²(IEC)/12AWG(UL),350mm(+)/450mm(-)(or customized)
Connectors	MC4 or MC4 Com
Standard Packaging	31pcs/pallet

TEMPERATURE & MAXIMUM RATINGS

Nominal Operating Cell Temperature (NOCT)	45℃±2℃
Temperature Coefficient of Voc	- 0.32%/℃
Temperature Coefficient of Isc	0.05%/℃
Temperature Coefficient of Pmax	- 0.35%/℃
Operational Temperature	- 40~+85℃
Maximum System Voltage	1500V(IEC)/1500V
Max Series Fuse Rating	25A
Limiting Reverse Current	25A

PACKAGING CONFIGURATION

Number of modules per container	806pcs
Package	31pcs/pallet
Package Number	26pallets

A: Room 606,No.13,Yongshang Garden,Jingfeng Road,Mudu Town,Wuzhong District,Suzhou,Jiangsu Province,China
F:+86512-66292101 T:+86512-66293858
W:www.resunsolar.com E:info @resunsolar.com

Sunny Tripower Smart Energy

5.0 / 6.0 / 8.0 / 10.0

The beating heart of every home

SMA Smart Connected

SMA ShadeFix
STRING LEVEL OPTIMIZATION

Store energy
- Three-phase / DC-coupled
- Integrated battery-backup function
- Fast charging
- Compatible with high-voltage batteries from leading manufacturers

Smart and effective
- Smart energy management with the Sunny Home Manager
- Maximum energy yield thanks to SMA ShadeFix

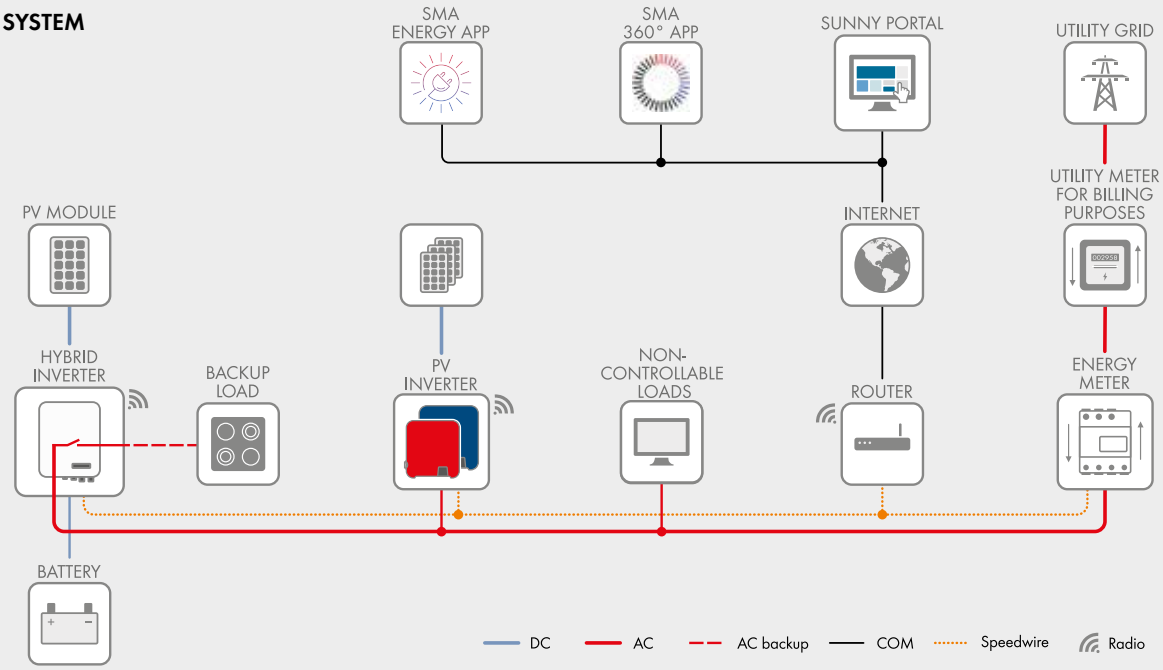
Connect to the grid easily
- Intuitive commissioning via app
- Quick and easy to install thanks to external terminals
- Compact design means minimum space requirements

Convenient all round
- Full-scale professional support for solar power professionals
- Automated service thanks to SMA Smart Connected
- Warranty extension from 5 to 10 years – free of charge

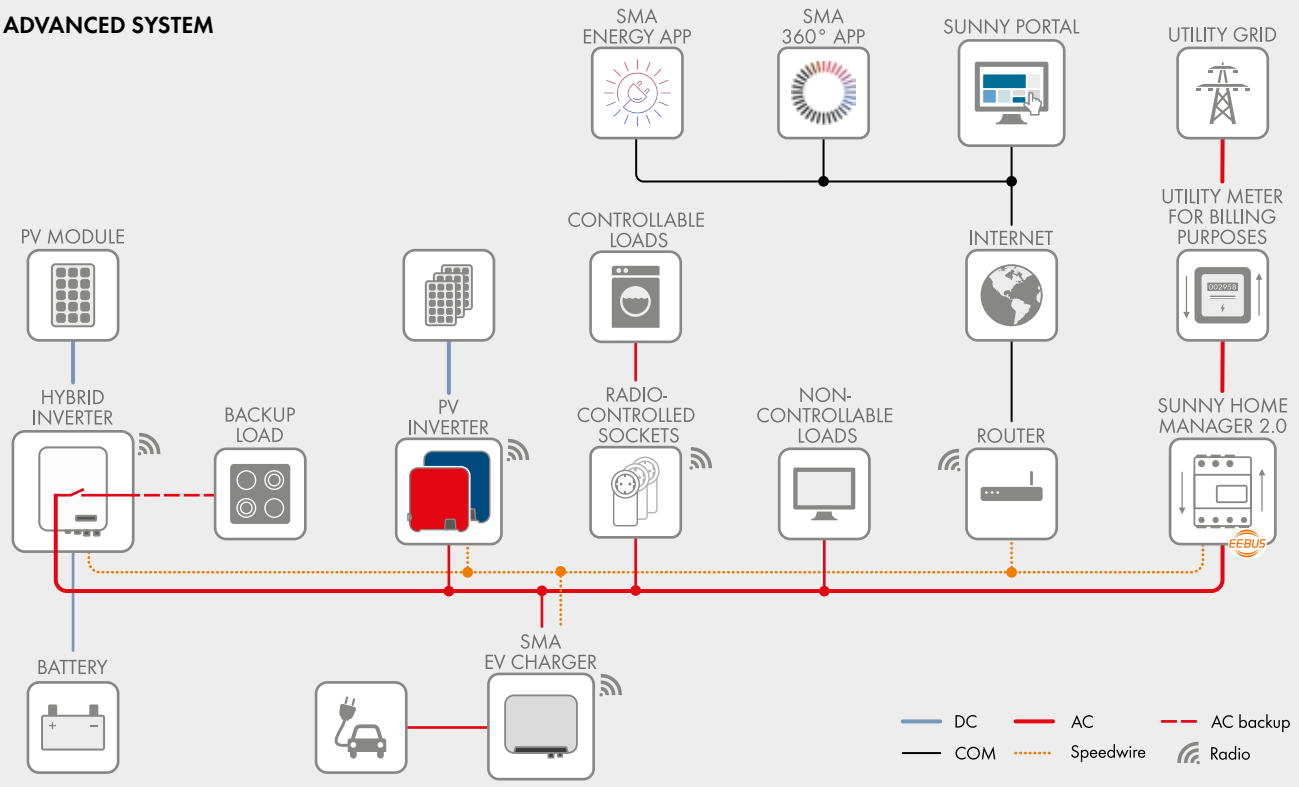
The Sunny Tripower Smart Energy hybrid inverter is the two-in-one system for supplying solar power at home.

With this, SMA has combined smart technology and integrated services to create a compact, space-saving system, drawing on more than 30 years of experience in storage. With Sunny Tripower Smart Energy, users can easily and conveniently generate, use and store solar power. It is possible to make additions to the system at any time, incorporating e-mobility or heat pumps. The integrated battery-backup function safeguards the household electricity supply even in the event of a grid failure. That makes domestic PV systems comprehensive, smart energy systems with solar energy self-sufficiency of up to 100 percent.

BASIC SYSTEM



ADVANCED SYSTEM



Functions of the basic system with SMA Energy Meter

- Maximum system yield and reduced electricity procurement costs thanks to dynamic limits on grid feed-in of between 0% and 100%*
- Reliable supply for selected loads even in the event of grid failure thanks to integrated automatic backup power supply
- Flexible battery use via PV inverter installed in parallel thanks to DC and AC charging
- Easy commissioning via 360° APP and intuitive installation wizard

* Does not apply to multiple inverters in one system

Functions of the advanced system with Sunny Home Manager 2.0

- Basic system functions
- Increased energy self-sufficiency, ideally matched to your specific installation site and usage by means of artificial intelligence
- Smart combination with heat pumps
- Smart combination with electric vehicles
- Maximum energy use thanks to forecast-based charging
- Visualization of energy consumption
- Dynamic limits on grid feed-in of between 0% and 100% with multiple SMA inverters

Technical data	Sunny Tripower 5.0 Smart Energy	Sunny Tripower 6.0 Smart Energy	Sunny Tripower 8.0 Smart Energy	Sunny Tripower 10.0 Smart Energy
Input (PV DC)				
Max. PV array power	7500 Wp	9000 Wp	12000 Wp	15000 Wp
Max. usable input power (P_{DC} max) at input A / input B	4500 W / 4500 W	5400 W / 5400 W	7200 W / 7200 W	6000 W / 12000 W
Max. input voltage	1000 V	1000 V	1000 V	1000 V
MPP voltage range	210 V to 800 V	250 V to 800 V	330 V to 800 V	280 V to 800 V
Rated input voltage	600 V			
Min. input voltage / initial input voltage	150 V / 180 V			
Max. usable input current at input A / input B	12.5 A / 12.5 A			12.5 A / 25 A
Max. DC short-circuit current at input A / input B	20 A / 20 A			20 A / 40 A
Number of independent MPP inputs / strings per MPP input	2/A: 1; B: 1			2/A: 1; B: 2
Battery connection				
Battery type	Lithium-ion[1]			
Voltage range	150 V to 600 V			
Max. charging current / max. discharging current	30 A[2] / 30 A[2]			
Number of connectable batteries	1			
Max. charging power / max. discharging power[3]	7500 W / 6000 W	9000 W / 7200 W	10600 W / 10600 W	
AC connection				
Rated power (at 230 V, 50 Hz)	5000 W	6000 W	8000 W	10000 W
Max. apparent AC power	5000 VA	6000 VA	8000 VA	10000 VA
Nominal AC voltage	3 / N / PE; 220 V / 380 V 3 / N / PE; 230 V / 400 V 3 / N / PE; 240 V / 415 V			
AC voltage range	156 V to 277 V			
AC grid frequency / range	50 Hz / 45 Hz to 55 Hz			
Rated grid frequency / rated grid voltage	50 Hz / 230 V			
Rated output current	3 x 7.3 A	3 x 8.7 A	3 x 11.6 A	3 x 14.5 A
Max. output current	3 x 7.6 A	3 x 9.1 A	3 x 12.1 A	3 x 15.2 A
Power factor at rated power / adjustable displacement power factor	1 / 0.8 overexcited to 0.8 underexcited			
Feed-in line conductors / connection line conductors	3 / 3			
Efficiency				
Max. efficiency / European efficiency	98.2 % / 97.3 %	98.2 % / 97.5 %	98.2 % / 97.8 %	98.1 % / 97.5 %
Output (AC backup) during on-grid mode				
Max. connectable power for backup load	13800 W			
Max. output current for backup load	3 x 20 A			
Output (AC backup) during off-grid mode				
Rated power 1~/3~ (at 230 V, 50 Hz)	1660 W / 5000 W	2000 W / 6000 W	2660 W / 8000 W	3330 W / 10000 W
Max. apparent AC power	5000 VA	6000 VA	8000 VA	10000 VA
Output power / output apparent power < 5 min	6000 W / 6000 VA	7200 W / 7200 VA	12000 W / 12000 VA	
Output power / output apparent power < 10 s	10000 W / 10000 VA		12000 W / 12000 VA	
Nominal AC voltage	3 / N / PE; 230 V / 400 V			
AC grid frequency	50 Hz			
Switching time to backup operation	30 ms to 10 s (adjustable)			
Protective devices				
Input-side disconnection point (PV DC)	●			
Ground fault monitoring / grid monitoring	● / ●			
DC reverse polarity protection / AC short circuit current capability / galvanically isolated	● / ● / –			
All-pole-sensitive residual-current monitoring unit	●			
Protection class (according to IEC 61140)	I			
Overvoltage category (according to IEC 60664-1) grid/battery/PV	III/II/II			
SPD	DC type II / AC type II			
General data				
Dimensions (W/H/D)	500 mm / 598 mm / 173 mm (19.7 inch / 23.5 inch / 6.8 inch)			
Weight	30 kg (66 lbs)			
Operating temperature range	-25°C to +60°C (-13°F to +140°F)			
Noise emission, typical	30 dB(A)			
Self-consumption (night)	44 W			
Topology / cooling method	Transformerless/convection			
Degree of protection (according to IEC 60529) / climate category (according to IEC 60721-3-4)	IP65/4K26			
Max. permissible value for relative humidity (non-condensing)	100 %			
Equipment				
PV connection / BAT connection	SUNCLIX / MC4, incl. MC4 battery cable, 3 m			
AC terminals	AC CONNECTOR (5 x 1.5 to 10 mm²)			
Display via smartphone, tablet, laptop	●			
Number of interfaces: Wi-Fi/Ethernet/BAT-CAN	1 / 2 / 1			
Number of digital inputs / outputs	5 / 1			
Communication protocols	Modbus (SMA, Sunspec), Speedwire/Webconnect			
Shade management: SMA ShadeFix (integrated)	●			
Warranty: 5/10 years	● / ●[4]			
Certificates and approvals (more available upon request)	CE, CEI0-21 int./ext., C10/11 int./ext., EN50549-1, G98/G99, IEC 62109-1/2, NA/EEA-NE7, NRS 097-2-1, RD1699/413, TOR generator type A, VDE126-1-1, VDE AR-E2510-2, VDE-AR-N4105			
Country availability of SMA Smart Connected	AT, BE, CH, DE, ES, GB, LU, NL, IT, UK, ZA			
Model type number	STP5.0-3SE-40	STP6.0-3SE-40	STP8.0-3SE-40	STP10.0-3SE-40

● Standard features ○ Optional – Not available Information refers to nominal conditions Provisional data as of April 2023 1) See "List of Approved Batteries" at www.SMA-Solar.com
2) U_{PV} < 700V and U_{BAT} >220 V 3) Depending on battery connected 4) When device is registered via the SMA product registration page (sma-service.com). The conditions of the SMA limited factory warranty apply. You can find additional information at SMA-Solar.com

Sunny Tripower Smart Energy

SMA ShadeFix – Intelligent energy yield optimization

Established product features and integrated software solutions will provide yield optimization throughout the system's entire service life. Even in the shade. SMA ShadeFix is a proprietary inverter software that optimizes energy yield in nearly every situation. SMA Smart Connected inverter monitoring offers enhanced safety by detecting errors at an early stage and automatically reporting them to the installer.

SMA Smart Connected – Proactive communication in the event of faults

SMA Smart Connected* allows you to monitor your inverter via the SMA Sunny Portal for free. If an inverter fails, SMA will proactively inform the system operator and the installer. This saves valuable working time and costs.

With SMA Smart Connected, the installer benefits from rapid diagnostics by SMA. This allows the installer to rectify the fault quickly and offer customers a range of additional and highly attractive services.

* For details, see document "Description of Services - SMA SMART CONNECTED"

Meer dan een omvormer.

Sunny Boy

3.0 / 3.6 / 4.0 / 5.0 AV-41

SMA ShadeFix SMA Smart Connected SMA Arc-fix

Ontdek nu

Totaaloplossing voor 100% comfort met Sunny Boy 3.0–5.0 AV-41

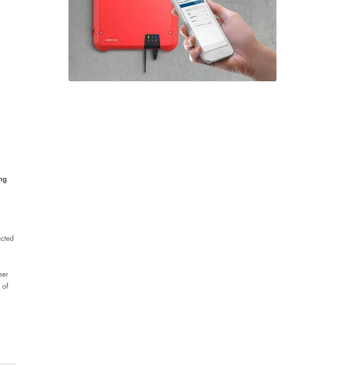
Via de geïntegreerde Webuser Interface voor eenvoudige inbedrijfstelling via een smartphone of tablet en de SMA Smart Connected service, biedt deze omvormer een maximaal comfort voor eigenaars en installateurs.

Dubbel zo geruststellend

Vijf jaar extra volledige garantie op uw omvormer thuis* - gratis.

*De algemene voorwaarden gelden

Meer informatie



Snelle en efficiënte installatie

Met zijn verminderd gewicht kan de Sunny Boy eenvoudig en plaatsbesparend worden geïnstalleerd. De Sunny Boy kan snel in bedrijf worden gesteld via een smartphone of tablet dankzij de geïntegreerde Webuser Interface.

- Montage door één persoon dankzij gering gewicht van 17,5 kg
- Minimaal ruimtegebruik dankzij compact ontwerp
- Snelle installatie dankzij externe aansluitingen
- Intuïtieve inbedrijfstelling en opvolging via een smartphone of tablet

Intelligent optimaliseren | Flexibel uitbreidbaar | Veilige werking

Intelligent zonnestroom opwekken

Gevestigde productkenmerken zoals SMA ShadeFix en SMA Smart Connected zijn aangevuld met geïntegreerde TS4-R communicatie voor paneeloptimalisatie. Hierdoor vormt schaduw op een zonnepaneel geen probleem. Bij lichte schaduwvorming zorgt het geïntegreerde schaduwbeheer SMA ShadeFix voor een maximale opbrengst. Bij grotere schaduwvorming of complexe dakstructuren maken gemakkelijk en selectief te installeren TS4-R optimizers grote opbrengsten mogelijk.

- Geïntegreerde TS4-R communicatie voor paneelmonitoring
- Geïntegreerd schaduwbeheer SMA ShadeFix
- Automatische monitoring door SMA dankzij SMA Smart Connected
- Kosteloos online opvolgen via Sunny Portal en Sunny Places
- Dynamische vermogensregeling betekent direct gebruik van overtollige energie, minder stroom van het net

Investeringszekerheid

Met SMA Smart Connected biedt SMA een kostelooze en automatische monitoring van de omvormer aan, die de installateur in staat stelt om de klant een snelle en nauwkeurige service te bieden. Wanneer zich in de omvormer een fout voordoet, krijgt de installateur van ons onmiddellijk de diagnose. Hij kan de fout dan snel oplossen en er wordt bespaard op waardevolle werkuren en op kosten voor de analyse. Als een vervanging van de omvormer nodig is, stuurt SMA op zeer korte tijd kosteloos een vervangtoestel.

SMA Smart Connected - Veilige investering inbegrepen

zo werkt het

SMA Smart Connected

SMA Smart Connected activeren

Bij de aanmelding van de installatie bij Sunny Portal activeert de installateur SMA Smart Connected en profiteert hij van de automatische omvormer monitoring door SMA.

Automatische omvormer monitoring door SMA

SMA neemt de omvormer monitoring voor zijn rekening met SMA Smart Connected. SMA controleert de afzonderlijke omvormers automatisch en continu op opvallende gebeurtenissen tijdens de werking. Daarmee profiteert iedere klant van de jarenlange ervaring van SMA.

Proactieve communicatie bij storingen

Na de diagnose en analyse van een storing informeert SMA de installateur en eigenaar hierover onmiddellijk via e-mail. Zo is iedereen optimaal voorbereid op het verhelpen van de storing. Dat beperkt de uitvaltijd en bespaart tijd en geld. Op basis van de regelmatige prestatierapporten worden bovendien waardevolle conclusies over het hele systeem getrokken.

Vervangingsservice

Als een vervangende omvormer nodig is, levert SMA binnen 1 tot 3 werkdagen na de storingsdiagnose automatisch een nieuwe omvormer. De installateur kan de eigenaar actief benaderen en de omvormer vervangen.

3D Overzicht – Thuis-installatie

Schakelplan – systeemopbouw

Schaduwbeheer eenvoudig uitleggen aan uw klant

Contactgegevens verdelers

Bent u installateur of ontwerper van zonnestroominstallaties? Neem contact op met een SMA distributeur.

SMA distributeurs

Sunny Design

Ontwerp uw zonnestroominstallatie op maat in slechts enkele klikken op Sunny Design.

Sunny Design

SMA partner installateurs

Voor huiseigenaars en zelfstandigen: zoek nu uw gespecialiseerde SMA-vakman in uw buurt.

Installateur nu opzoeken