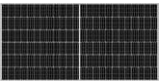





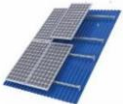


## Angebot für 6,16kWp + 7,1kwh Speicher

Pos	Artikel	Referenz Bild	Beschreibung	Stk/Set	Gesamtpreis
1	Solar Panele		Leistung 440W N-Type 108 Zellen monokristalline Halbzellen Größe: 1726*1134*35mm Gewicht: 24.0 kg 25 Jahre Garantie	14	
2	Combine Box		2 inputs 2 outputs	1	
3	Hybrid Solar Inverter Growatt SPH6000-TL3-BH-UP		Leistung: 6kW Ausgang: 380V 50HZ 3 Phasen Stromwandler inkludiert	1	
4	Dyness Tower BDU + Base		à 96V (3,55kWh) 10 Jahre Garantie	2	
5	PV Kabel		1*6mm <sup>2</sup>	200	
6	MC4 Verbinder		Leistung: 30A/1000VDC	15	
7	Befestigung		Befestigungsstruktur für 14 Stk. 440W Dach Installation Ziegel	1	
8	Montage/ Abnahme		Aufbau; Montage; Durchführung; Verkabelung; Inbetriebnahme inkl. Elektro Installation	1	Optional 3.500,-
Setpreis Netto				€	11.400,-
Sonderaktion				€	-1.900,-
Gesamtpreis neu				€	9.500,-

### Bemerkungen:

Montage/Abnahme Kosten in Höhe von € 3.500,- Netto sind nicht im Gesamtpreis enthalten.

Zahlung: 50% bei Bestellung 50% bei Abholung/Zustellung, innerhalb 2 Wochen, Montagetermin nach Absprache

### ROWA Sonnenenergie

Kürschnergasse 2/ 2. Stock, 1210 Wien  
+43 681 817 733 62, office@rowa-sonnenenergie.at

[www.rowa-sonnenenergie.at](http://www.rowa-sonnenenergie.at)

# SPH 4000~10000TL3 BH-UP

- 100% three-phase imbalance output
- Smart phase-level power export limitation
- Wide battery voltage 100-550V
- UPS function, 10ms transition
- Scalable system configuration
- VPP interface ready
- DC/AC type II SPD
- 1.5 DC/AC Ratio



**GROWATT**

P O W E R  
- I N G O  
T O M O -  
R R O W O

Datasheet	SPH 4000TL3 BH-UP	SPH 5000TL3 BH-UP	SPH 6000TL3 BH-UP	SPH 7000TL3 BH-UP	SPH 8000TL3 BH-UP	SPH 10000TL3 BH-UP
Input data(PV)						
Max. recommended PV power (for module STC)	6000W	7500W	9000W	10500W	12000W	15000W
Max. DC voltage	1000					
Start voltage	120V					
MPP voltage range	120V-1000V/600V					
No. of MPP trackers	2					
No. of PV strings per MPP tracker	1					
Max. input current per MPP tracker	13,5A					
Max. short-circuit current per MPP tracker	16,9A					
Output data(AC)						
AC nominal power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Nominal AC voltage (range*)	230V/400V (310~476V)					
AC grid frequency (range)	50Hz/60Hz (45Hz-55Hz/55Hz-65Hz)					
Max. output current	6,1A	7,6A	9,1A	10,6A	12,1A	15,2A
Adjustable power factor	0,8leading...0,8lagging					
THDi	<3%					
AC grid connection type	3W+N+PE					
Battery data (DC)						
Battery voltage range	100~550V					
Max charging and discharging current	25A					
Continuous charging and discharging power	4000W	5000W	6000W	7000W	8000W	10000W
Type of battery	Lithium battery					
Backup power(AC)						
Max. AC output power	4000W	5000W	6000W	7000W	8000W	10000W
Max. AC apparent power	4000VA	5000VA	6000VA	7000VA	8000VA	10000VA
Max. output current	6,1A	7,6A	9,1A	10,6A	12,1A	15,2A
Nominal AC output voltage	230V/400V					
Nominal AC output frequency	50/60HZ					
THDv	<3%					
Switch time	<10ms					
Efficiency						
MAX. efficiency	97,6%	97,8%	98,0%	98,2%	98,2%	98,2%
European efficiency	97,0%	97,2%	97,3%	97,4%	97,4%	97,5%
Protection devices						
DC switch	Yes					
DC reverse polarity protection	Yes					
AC/DC surge protection	Type II					
Battery reverse protection	Yes					
AC short-circuit protection	Yes					
Ground fault monitoring	Yes					
Grid monitoring	Yes					
Anti-islanding protection	Yes					
Residual-current monitoring unit	Yes					
Insulation resistance monitoring	Yes					
General data						
Dimensions (W / H / D)	505/453/198mm					
Weight	30kg					
Operating temperature range	-25 °C ... +60 °C					
Nighttime power consumption	<13W					
Topology	Transformerless					
Cooling	Natural					
Protection degree	IP65					
Relative humidity	0~100%					
Altitude	3000m					
DC connection	H4 / MC4 (Optional )					
AC connection	Connector					
Display	LCD+LED					
Interfaces: RS485/CAN/USB	Yes					
Monitor : RF/WIFI/GPRS	Optional					
Warranty: 5 years / 10 years	Yes / Optional					
CE, IEC62109, IEC 62040, VDE-AR-N 4105, VDE 0126, UTE C 15-712, C10/C11 , EN50549, CEI 0-21 , CEI 0-16, IEC62116, IEC61727, AS/NZS 4777 , G98, TOR Erzeuger						

\* The AC Voltage Range may vary depending on specific country grid standard.





# Tower

ENERGY STORAGE SOLUTIONS

**Safe and Reliable • Quick Installation • IP54 Protection • Flexible Expansion**

## Features and advantages



**IP54**

Floor-standing  
outdoor solutions



**Pile Up Design**

Wireless connection  
Easy to install



**Expandable**

From 7.1kWh to 21.3kWh



**High Voltage**

High system Efficiency



**Wide Compatibility**

Matching with leading  
inverter brands



**Self-adoption**

Automatic configuration

## Technical Parameters

Model	Tower T7	Tower T10	Tower T14	Tower T17	Tower T21
Module Number	2	3	4	5	6
Nominal Capacity	37Ah	37Ah	37Ah	37Ah	37Ah
Nominal Battery Energy	7.10kWh	10.66kWh	14.21kWh	17.76kWh	21.31kWh
Nominal Voltage	192V	288V	384V	480V	576V
Maximum Continuous Discharge Power <sup>[2]</sup>	4.26kW	6.39kW	8.52kW	10.65kW	12.78kW
Maximum Continuous Charge Power <sup>[2]</sup>	4.26kW	6.39kW	8.52kW	10.65kW	12.78kW
Dimension[W*D*H]	19.8*15.0*27.6 inch	19.8*15.0*35.4 inch	19.8*15.0*43.3 inch	19.8*15.0*51.2 inch	19.8*15.0*59.1 inch
Net Weight	105kg	146kg	187kg	228kg	269kg
Depth of Discharge	100%				
Charging Temp. Range	0~50°C				
Discharging Temp. Range	-10~50°C				
Communication	CAN				
Warranty	10 Years				
Warranty Document Supplied	Yes				
Calendar Life <sup>[1]</sup>	≥6000 Cycles				
Protection Level	IP54				
Color	White				
Alarms	Overcharge/Overdischarge/Overcurrent/Overtemperature/Short Circuit				
Pros	Can be used in both off-grid and hybrid setups, compact design, modular expansion				
Battery Module Type	HV9637				
Module Connection Method	Series				
Compatible Inverters	Goodwe/Solis/Hoymiles/Sermatec/ATESS/Sinexcel/Luxpower/Sunways, more brands will be announced				
Certification	TUV/CE/IEC62619/IEC 62040/UN38.3/CEC Accredited/UL1973				

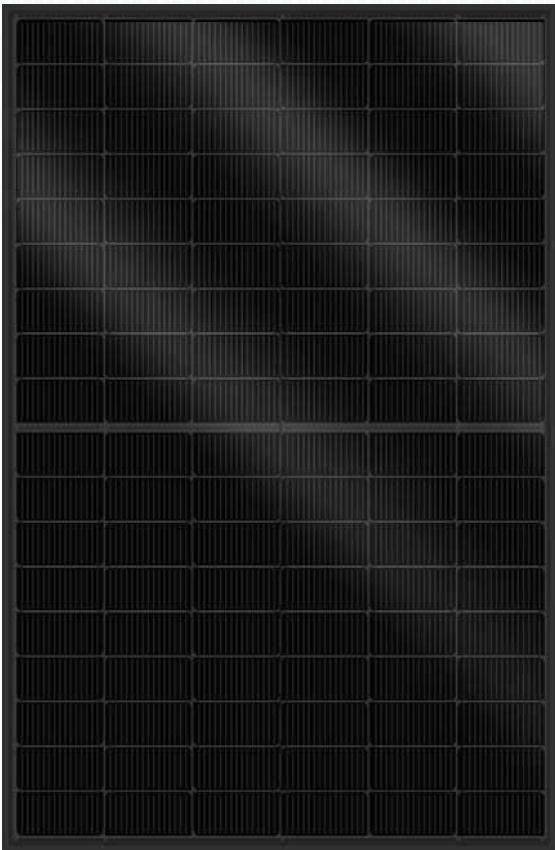
<sup>[1]</sup>Test conditions:0.2C Charging/Discharging,@25°C,80% DOD

<sup>[2]</sup>Maximum Continuous Discharge/Charge Power when communicate with inverter is 0.6C





**GreensunSolar**



**N-Type**

**GSM-M10/108H**  
**420-440W**

**N-Type TOPCON**  
**All Black**

**Mono Silicon PV Module**

**440W**

Maximum Power  
Output

**22.53%**

Maximum Module  
Efficiency

**0~+5W**

Power Output  
Guarantee



**N-type Topcon technology for lower LCOE**

The lower temperature coefficient and better low irradiance performance of Topcon technology can effectively reduce LCOE.



**Ultra-low Degradation, longer warranty, higher output**

- First-year degradation 1% and annual degradation at 0.4%
- Up to 25 years product warranty and 30 years power warranty



**PID Resistance**

Excellent Anti-PID performance guarantee via optimized mass-production process and materials control.



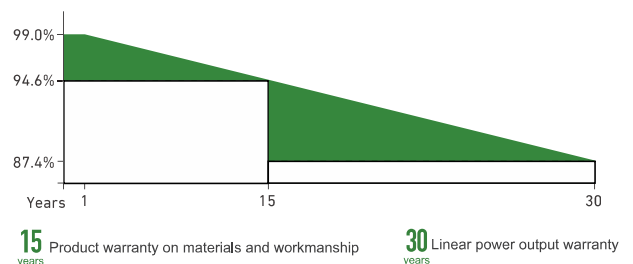
**Universal solution for residential and C&I application**

- Easy for integration, designed for compatibility with existing mainstream inverters and diverse mounting systems
- Perfect size and low weight for handling and installation
- Most valuable solution on low load capacity rooftops (weight similar to backsheet version)
- Mechanical performance up to 5400 Pa positive load and 4000 Pa negative load

**Delivers Reliable Performance Over Time**

- manufacturer of crystalline silicon photovoltaic modules
- Fully automatic facility and world-class technology
- Rigorous quality control to meet the highest standard: ISO9001:2015, ISO14001: 2015 and OHSAS: 18001 2007
- Tested for harsh environments (salt mist, ammonia corrosion and sand blowing test: IEC 61701, IEC 62716, DIN EN 60068-2- 68)
- Long term reliability tests
- 2x100% EL inspection ensuring defect-free modules

**Linear Performance Warranty**



First-year degradation **1%** and annual degradation at **0.4%**

## Electrical Specification (STC\*)

Maximum Power	P <sub>max</sub> [W]	420	425	430	435	440
Maximum Power Voltage	V <sub>mp</sub> [V]	31.51	31.70	31.88	32.07	32.26
Maximum Power Current	I <sub>mp</sub> [A]	13.33	13.41	13.49	13.57	13.65
Open Circuit Voltage	V <sub>oc</sub> [V]	38.11	38.30	38.49	38.68	38.87
Short Circuit Current	I <sub>sc</sub> [A]	14.07	14.15	14.23	14.31	14.39
Module Efficiency	[%]	21.51	21.76	22.02	22.27	22.53
Power Output Tolerance	[W]	0~+5				

\* Irradiance 1000W/m<sup>2</sup>, Module Temperature 25°C, Air Mass 1.5

## Electrical Specification (NOCT\*)

Maximum Power	P <sub>max</sub> [W]	316	320	323	327	331
Maximum Power Voltage	V <sub>mp</sub> [V]	29.34	29.50	29.63	29.78	29.92
Maximum Power Current	I <sub>mp</sub> [A]	10.76	10.83	10.91	10.98	11.06
Open Circuit Voltage	V <sub>oc</sub> [V]	36.20	36.38	36.56	36.74	36.92
Short Circuit Current	I <sub>sc</sub> [A]	11.36	11.42	11.49	11.55	11.62

\* Irradiance 800W/m<sup>2</sup>, Ambient Temperature 20°C, Wind Speed 1m/s

## Mechanical Data

Number of Cells	108 Cells (6×18)
Dimensions of Module L*W*H (mm)	1722×1134×30mm
Weight (kg)	22.0 kg
Front Side Glass	High transparency solar glass 3.2mm
Backsheet	Black
Frame	Black , anodized aluminium alloy
J-Box	IP68 Rated
Cable	4.0mm <sup>2</sup> (0.006 inches <sup>2</sup> ), 300mm (11.8 inches)
Number of diodes	3
Wind/ Snow Load	4000Pa/ 5400Pa*
Connector	MC Compatible

\* For more details please check the installation manual

## Temperature Ratings

Nominal Operating Cell Temperature (NOCT)	45±2°C
Temperature Coefficient of I <sub>sc</sub>	+0.040%/°C
Temperature Coefficient of V <sub>oc</sub>	-0.240%/°C
Temperature Coefficient of P <sub>MAX</sub>	-0.300%/°C

## Maximum Ratings

Operational Temperature	-40~+85°C
Maximum System Voltage	1500V DC
Max Series Fuse Rating	20A

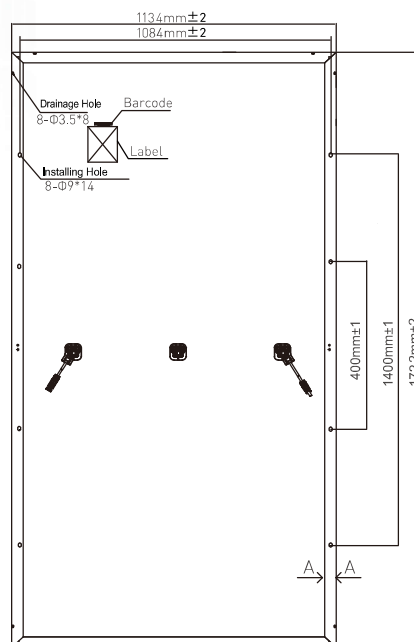
## Packaging Configuration

Module per box	37 pieces
Module per 40' container	962 pieces

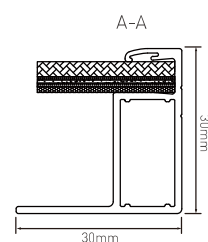
## Optional

Connector	 MC Original
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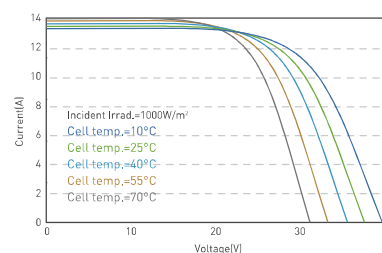
## Module Dimension



Back View



I-V Curve at Different Temperature (420W)



I-V/P-V Curve at Different Irradiation (420W)

