



Battery Systems

Battery System - Group 1

Model	SigenStor EC 10.0 + BAT 30.0(27.12kWh,314Ah) (v1)
Manufacturer	Sigenergy
Quantity	1
Battery Inverter	
Type of coupling	DC intermediate circuit coupling
Nominal output	10 kW
Battery	
Manufacturer	Sigenergy
Model	SigenStor BAT 10.0 (314) (v1)
Quantity	3
Battery Energy	27.1 kWh
Battery Type	Lithium iron phosphate

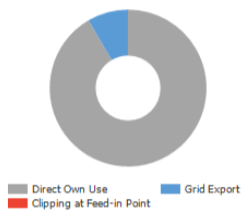
Simulation Results

Results Total System

PV System

PV Generator Output	11.39 kWp
Spec. Annual Yield	1,085.57 kWh/kWp
Performance Ratio (PR)	91.80 %
Yield Reduction due to Shading	0.1 %
PV Generator Energy (AC grid) with battery	12,174 kWh/Year
Direct Own Use	11,149 kWh/Year
Clipping at Feed-in Point	0 kWh/Year
Grid Export	1,025 kWh/Year
Own Power Consumption	91.6 %
CO ₂ Emissions avoided	4,529 kg / year

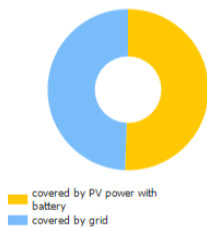
PV Generator Energy (AC grid) with battery



Appliances

Appliances	22,000 kWh/Year
Standby Consumption (Inverter)	21 kWh/Year
Total Consumption	22,021 kWh/Year
covered by PV power with battery	11,149 kWh/Year
covered by grid	10,872 kWh/Year
Solar Fraction	50.6 %

Total Consumption



Battery System

Charge at beginning	27 kWh
Battery Charge (PV System)	3,561 kWh/Year
Battery Energy for the Covering of Consumption	3,355 kWh/Year
Battery discharge into the grid	0 kWh/Year
Losses due to charging/discharging	221 kWh/Year
Losses in Battery	13 kWh/Year
Cycle Load	1.7 %
Service Life	>20 Years

Level of Self-sufficiency

Total Consumption	22,021 kWh/Year
covered by grid	10,872 kWh/Year
Level of Self-sufficiency	50.6 %

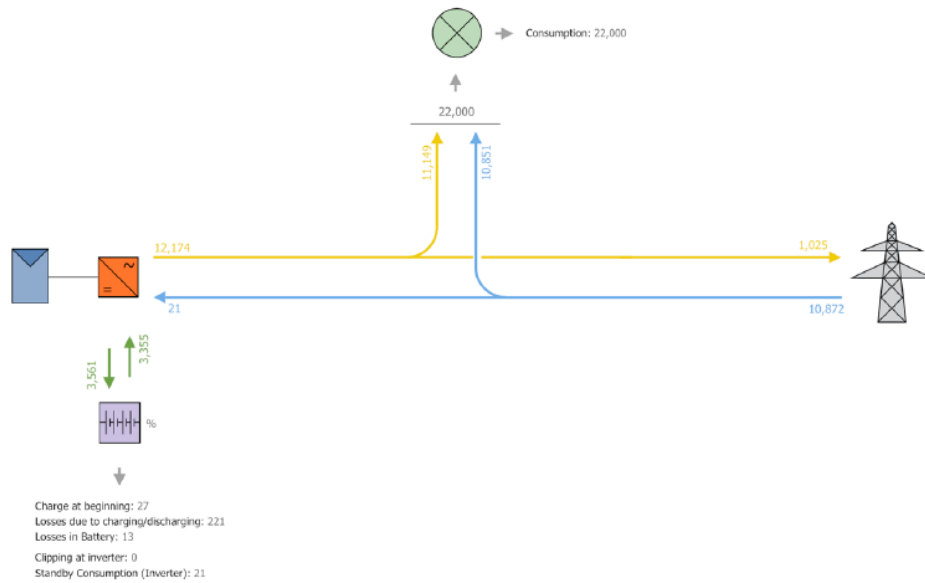
Hugh-11.39kWAiko495-Sig10kWTP-3xSig10

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Energy Flow Graph

Project: Hugh-11.39kWAiko495-Sig10kWTP-3xSig10



All values in kWh
Small deviations in the totals can occur due to rounding
created with PV*SOL

Figure: Energy flow

Hugh-11.39kWAiko495-Sig10kWTP-3xSig10



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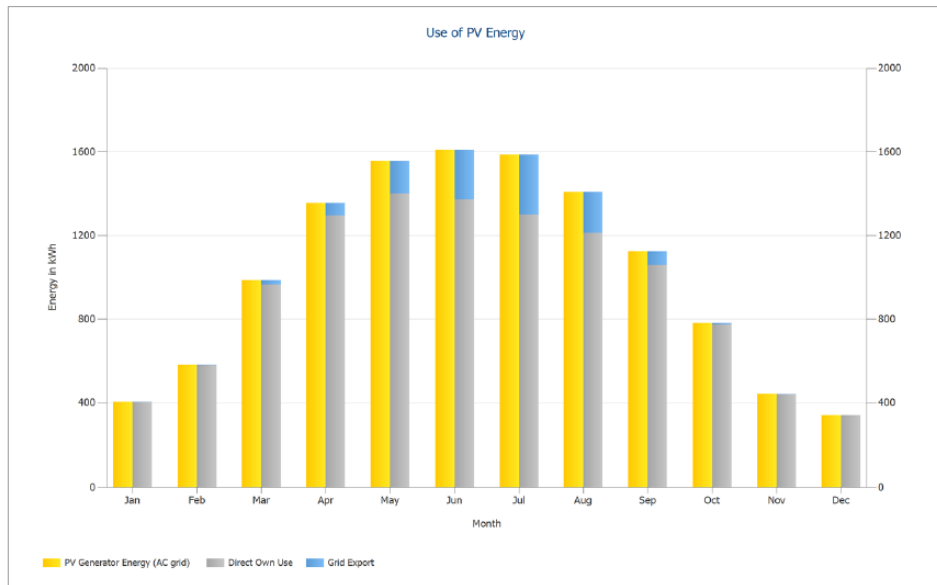


Figure: Use of PV Energy

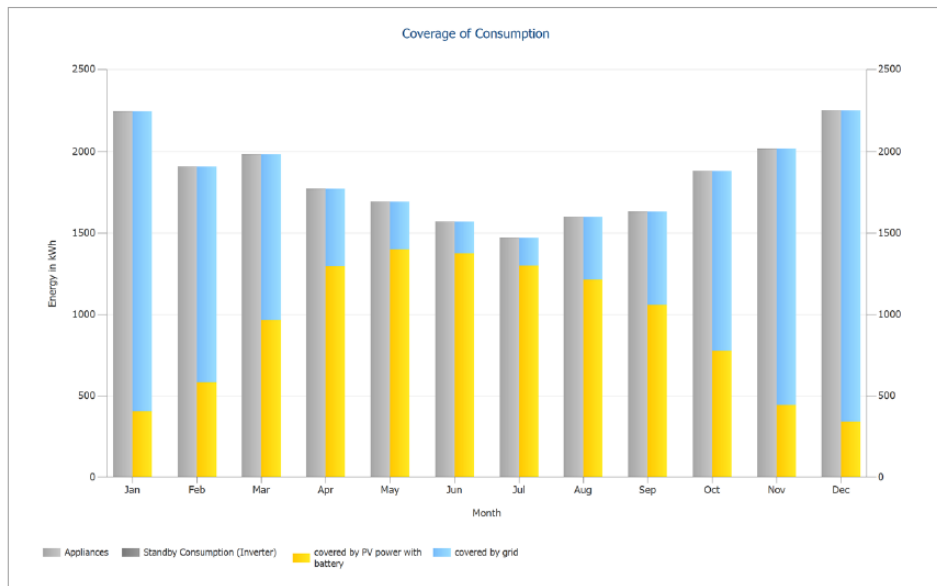


Figure: Coverage of Consumption

Hugh-11.39kWAiko495-Sig10kWTP-3xSig10

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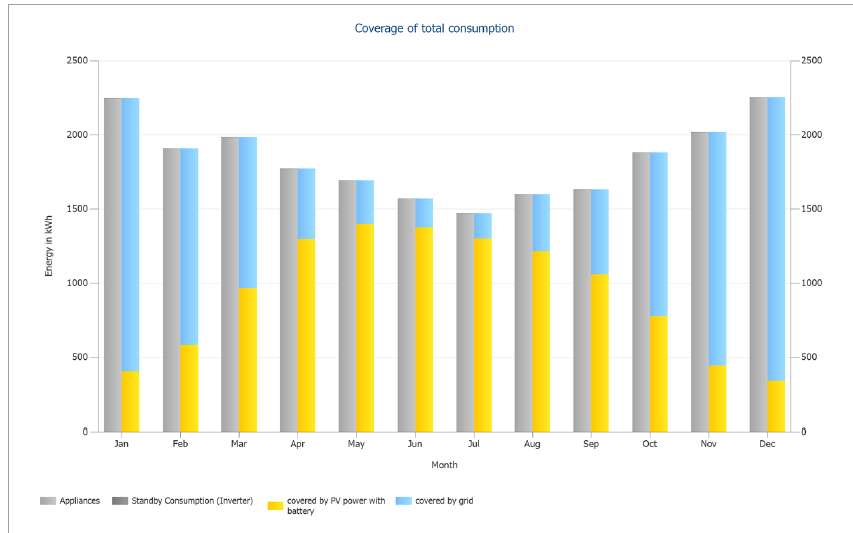


Figure: Coverage of total consumption

Plans and parts list

Circuit Diagram

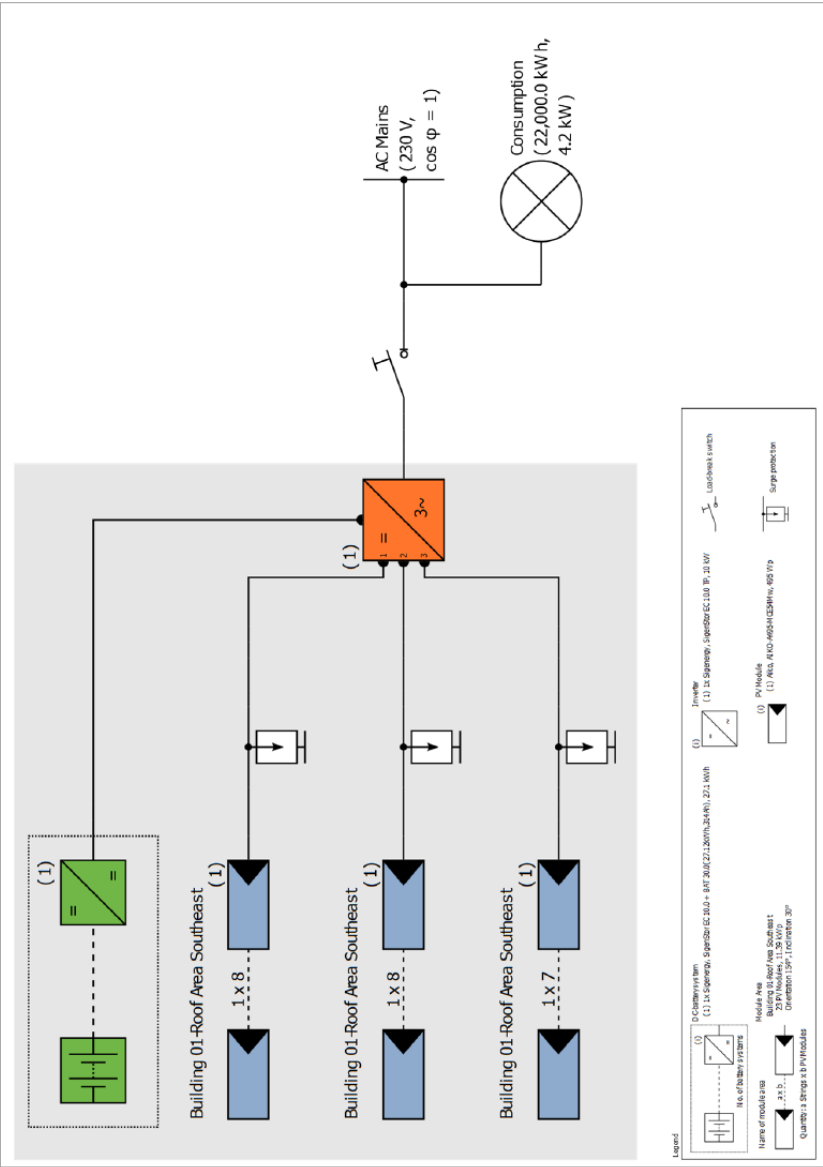


Figure: Circuit Diagram

Hugh-11.39kWAiko495-Sig10kWTP-3xSig10

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Overview plan

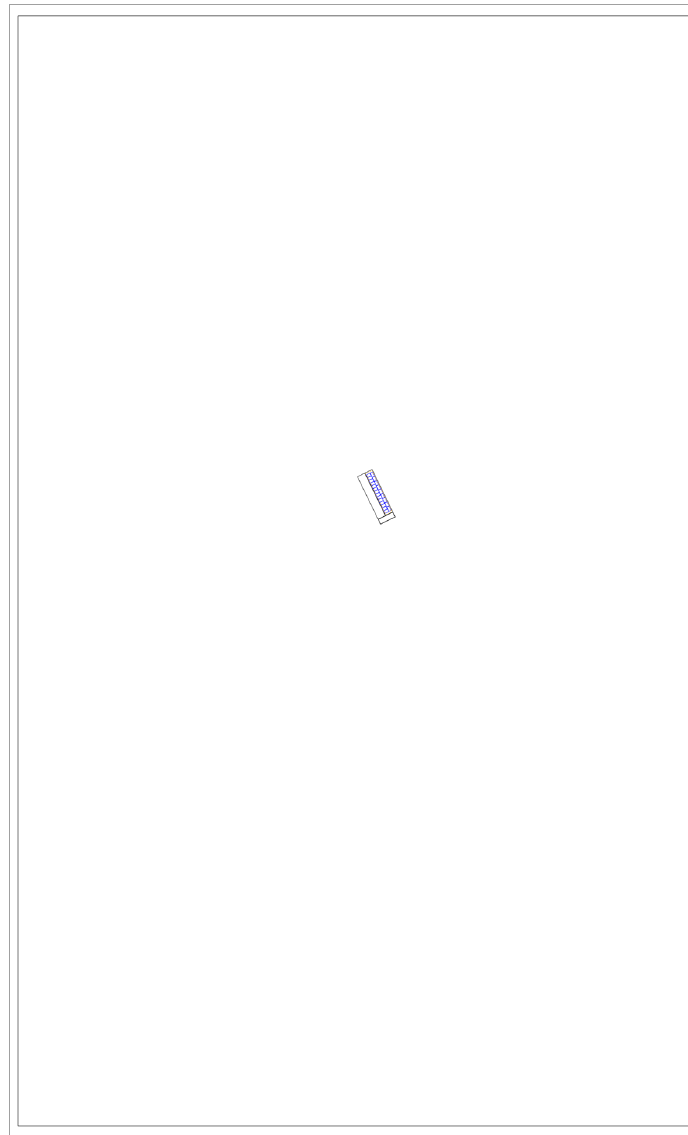


Figure: Overview plan

Dimensioning Plan

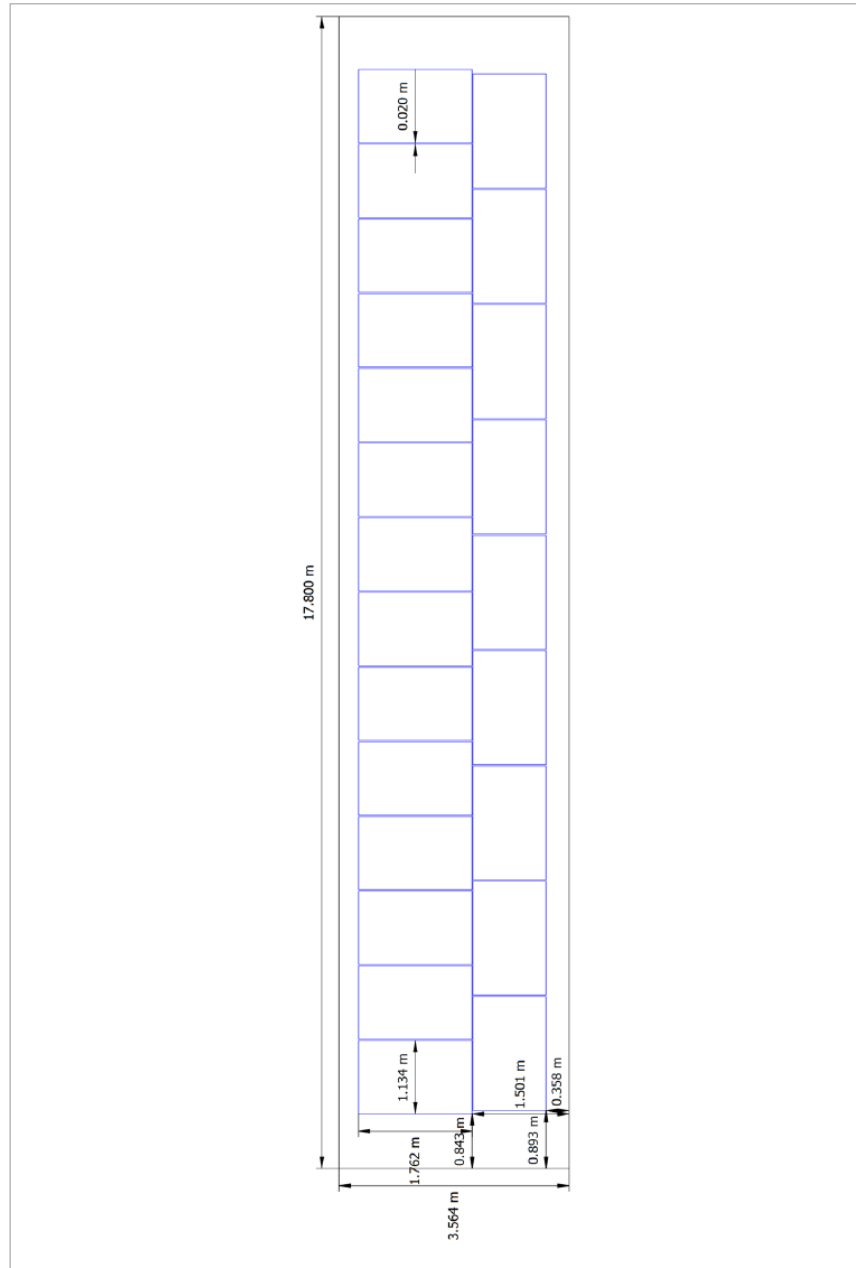


Figure: Building 01 - Roof Area Southeast

String Plan

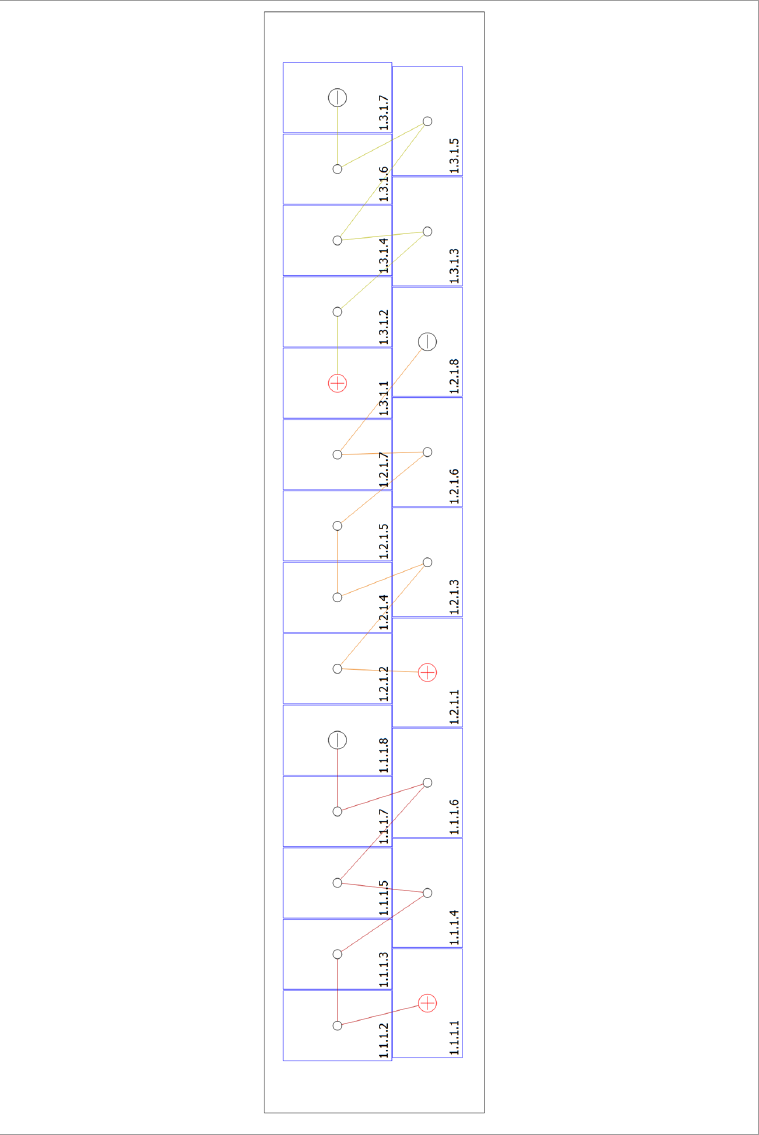


Figure: Building 01 - Roof Area Southeast

Hugh-11.39kWAiko495-Sig10kWTP-3xSig10

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Parts list

Parts list

#	Type	Item number	Manufacturer	Name	Quantity	Unit
1	PV Module		Aiko	AIKO-A495-MCE54Mw	23	Piece
2	Inverter		Sigenergy	SigenStor EC 10.0 TP	1	Piece
3	Battery System		Sigenergy	SigenStor EC 10.0 + BAT 30.0(27.12kWh,314Ah)	1	Piece
4	Components			Load-break switch	1	Piece
5	Components			Surge protection	3	Piece

Screenshots, 3D Design Environment



Figure: Screenshot02

Configuration



Figure: Screenshot01

Neostar 3S54

AIKO-Axxx-MCE54Mb

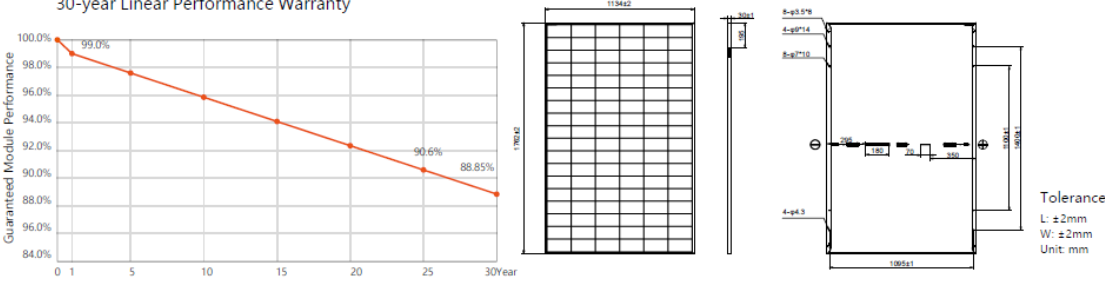
495W
Output

24.8%
Efficiency

1%
First-year Degradation

0.35%
Annual Degradation from Year 2-30

30-year Linear Performance Warranty



Electrical Characteristics (STC: AM1.5 1000W/m² 25°C NOCT: AM1.5 800W/m² 20°C 1m/s)														Power Binning Tolerance:0~+3%	
Module Type	AIKO-A465-MCE54Mb	AIKO-A470-MCE54Mb	AIKO-A475-MCE54Mb	AIKO-A480-MCE54Mb	AIKO-A485-MCE54Mb	AIKO-A490-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb	AIKO-A495-MCE54Mb
Test Conditions	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC
P _{max} [W]	465	352	470	356	475	360	480	364	485	367	490	371	495	375	495
V _{oc} [V]	40.60	38.52	40.70	38.61	40.80	38.71	40.90	38.80	41.00	38.90	41.10	38.99	41.20	39.09	41.20
V _{mp} [V]	34.20	32.45	34.30	32.54	34.40	32.64	34.50	32.73	34.60	32.83	34.70	32.92	34.80	33.02	34.80
I _{sc} [A]	14.69	11.87	14.72	11.89	14.76	11.93	14.80	11.96	14.84	11.99	14.88	12.02	14.92	12.06	14.92
I _{mp} [A]	13.60	10.87	13.71	10.96	13.81	11.04	13.92	11.13	14.02	11.21	14.13	11.29	14.23	11.37	14.23
Module Efficiency	23.3%		23.5%		23.8%		24.0%		24.3%		24.5%		24.8%		24.8%

Product Specification	
Cell Type	N-Type BC
Glass	3.2mm tempered glass
Backsheet	High weather resistant backsheet
Frame	Black anodized aluminum
Cable	4mm²(IEC) 12AWG(UL) ±1200mm
No. of Cells	108(6*18)
Junction Box	IP68, 3 bypass diodes
Connector	PV-KST4-EVO 2A/6I/ PV-KBT4-EVO 2A/6I from Staubli Electrical Connectors AG
Weight	20.6kg±3%
Dimension	1762*1134*30mm
Package Detail	37pcs per pallet / 222pcs per 20'GP / 962pcs per 40'HC

Temperature Ratings (STC)	
Temperature Coefficient of I _{sc}	+ 0.05%/ °C
Temperature Coefficient of V _{oc}	- 0.22%/ °C
Temperature Coefficient of P _{max}	- 0.26%/ °C

Installation Guide	
T _{g8} max	70°C
Module Operation Temperature	-40°C - +85°C
Maximum Series Fuse Rating	25A
Protection Class	ClassII
P _{max} and V _{oc} and I _{sc} Tolerance	±3%
Maximum System Voltage	DC1500V
Maximum Static Loading	Front 5400Pa Back 2400Pa
Hail Test	40 mm diameter hail at 27.5 m/s
Fire Rating	IEC Class C



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*AIKO reserves right to update the specification without notice
V2.1_202502_DsDr_EN
* AU Market Only



Sigen Energy Controller

5.0 – 25.0 kW Three Phase

- EMS inside for precise control
- On & off-grid compatibility
- DC ground-fault protection
- DC/AC ratio up to 1.6
- Multi-source black start
- IP66 system protection rating

Sigen Energy Controller 5.0–25.0 kW Three Phase

SigenStor EC	5.0 TP	6.0 TP	8.0 TP	10.0 TP	12.0 TP	15.0 TP	17.0 TP	20.0 TP	25.0 TP	Units	
DC Input (from PV)											
Max. PV power	8000	9600	12800	16000	19200	24000	27200	32000	40000	W	
Max. DC input voltage					1100						V
Nominal DC input voltage					600						V
Start-up voltage					180						V
MPPT voltage range					160 ~ 1000						V
Number of MPP trackers	2			3			4				
Number of PV strings per MPPT					1						
Max. input current per MPPT					16						A
Max. short-circuit current per MPPT					20						A
AC Output (on-grid)											
Nominal output power	5000	6000	8000	10000	12000	15000	17000	20000	25000	W	
Max. output apparent power	5500	6600	8800	11000	13200	16500	18700	22000	27500	VA	
Nominal output current	7.6	9.1	12.2	15.2	18.2	22.8	25.8	30.4	38.0	A	
Max. output current	8.4	10.0	13.4	16.7	20.1	25.1	28.4	33.4	41.8	A	
Nominal output voltage					380 / 400						V
Nominal grid frequency					50 / 60						Hz
Power factor					0.8 leading ~ 0.8 lagging						
Total current harmonic distortion					THDi < 2%						
Efficiency											
Max. efficiency	98.1%	98.2%	98.3%	98.3%	98.3%	98.3%	98.3%	98.3%	98.3%		
European efficiency	96.1%	96.6%	97.1%	97.5%	97.7%	97.9%	97.9%	97.9%	98.0%		
AC Output (backup)											
Peak output power (10 seconds)	7500	9000	12000	15000	18000	22500	25500	30000	30000	W	
Nominal output voltage					380 / 400						V
Nominal output frequency					50 / 60						Hz
Power factor					0.8 leading ~ 0.8 lagging						
Total voltage harmonic distortion					THDv < 2%						
Disruption time of backup switch ¹					0						ms
Battery Connection											
Battery module models					SigenStor BAT 5.0 / 8.0						
Number of modules per controller					1 ~ 6						pcs
Battery module voltage range					600 ~ 900						V
Protection											
Safety protection feature	DC ground fault protection, Arc fault circuit interrupter, DC reverse polarity protection, Insulation monitoring, Residual current monitoring, Type II DC/AC surge protection, Anti-islanding protection, AC overcurrent/overvoltage/short-circuit protection.										
General Data											
Dimensions (W / H / D)					700 / 300 / 260						mm
Weight					36						kg
Storage temperature range					-40 ~ 70						°C
Operating temperature range					-30 ~ 60						°C
Relative humidity range					0% ~ 95%						
Max. operating altitude					4000						m
Cooling					Smart air cooling						
System ingress protection rating					IP66						
Communication					WLAN / Fast Ethernet / RS485 / Sigen CommMod (4G/3G/2G)						
Standard Compliance											
Standard ²	IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN 61000-6-1, IEC/EN 61000-6-2										

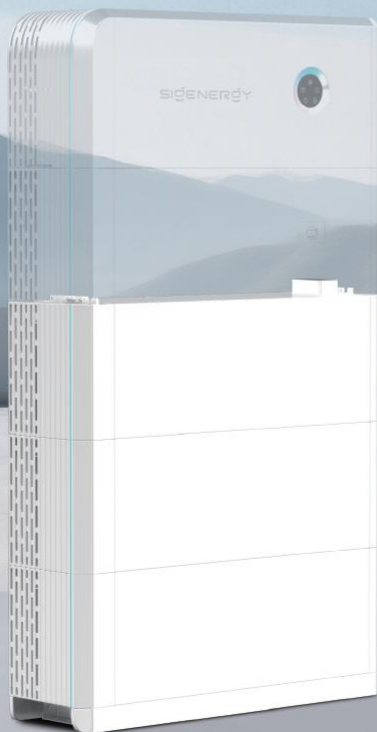
1. This refers to the load-side disruption time, to achieve this functionality Sigen Energy Gateway needs to be used together with Sigen Energy Controller and Sigen battery. Test conditions: In the open-circuit state of the power grid, the nominal power of the Sigen Energy Controller is higher than the total power of the home loads.
2. For all standards refer to the certificates category in the Sigenenergy website.

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Sigen Battery

- Premium 314Ah cells with 10,000 cycles, long-lasting & reliable
- 5-layer battery safety protection to define the safety standard
- Battery optimizer inside, mix old and new, upgrade with ease
- Higher energy density, efficient storage, compact design
- 100% depth of discharge, maximum energy utilization



Sigen Battery 6.0 / 10.0

SigenStor BAT	6.0	10.0	Units
Performance Specification			
Battery type	LiFePO4		
Cell capacity	314		Ah
Cycle life ¹	10000		
Total energy capacity	6.02	9.04	kWh
Usable energy capacity ²	5.84	8.76	kWh
Depth of discharge ³	100%		
Max. charge / discharge power	3000	4600	W
Peak charge / discharge power (10 seconds)	4500	6900	W
General Data			
Weight	62	78	kg
Dimensions (W / H / D)	767 / 270 / 265		mm
Storage temperature range	-25 ~ 60		°C
Operating temperature range	-20 ~ 55		°C
Relative humidity range	5% - 95%		
Max. operating altitude	4000		m
Cooling	Natural convection		
System ingress protection rating	IP66		
Installation method	Floor standing / Wall-mounted		
Number of modules per controller	1 ~ 6		pcs
Compatible inverters	SigenStor EC series, Sigen Hybrid SP2/TP2 series ⁴		
Standard Compliance			
Standard ⁵	IEC/EN 60730-1, UN 38.3, IEC/EN 62619, IEC/EN 63056, IEC/EN 62477		
	SigenStor BC		
Operating voltage range (Single Phase)	300 ~ 600		V
Operating voltage range (Three Phase)	600 ~ 900		V
Weight	8		kg
Dimensions (W / H / D)	765 / 109 / 260 (without decorative cover)		mm
Compatible battery	SigenStor BAT series		
Compatible inverter	Sigen Hybrid SP2/TP2 series		
Communication	CAN		



1. This is provided by the battery cell manufacturer. Based on cell test condition of 25±2°C, 0.5C charge and discharge rate and SOH=80%.
2. Test conditions: 100% depth of discharge, 0.2C rate charge & discharge averagely at 25°C, at the beginning of life.
3. Refers to the usable energy capacity. Battery must be recharged within 7 days after being fully discharged to keep battery healthy.
4. SigenStor BC must be used if Sigen Hybrid SP2/TP2 is to be connected to the Sigen Battery.
5. For all standards refer to the certificates category on the Sigenenergy website.

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Sigen Energy Gateway



- Multiple SigenStor connections supported for micro-grid system
- Seamless switchover, ensuring 0ms load-side disruption
- Built-in bypass circuit for enhanced system reliability
- Supports diesel generator connection & smart control
- Real-time current monitoring with 350ms anti-backflow protection

Sigen Energy Gateway for SigenStor

Sigen Gateway	C60-2	C120-6	C180-9	C300-12	C600	C1200	Units
Grid Connection							
Grid connection type	Three phase						
Nominal AC voltage	380 ~ 400						V
Nominal AC current	912	1824	274	456	912	1,824	A
Nominal AC power	60	120	180	300	600	1,200	kW
Nominal AC frequency	50 / 60						Hz
Disruption time of backup switch ¹	0						ms
AC Output to Backup Port							
Nominal AC voltage	380 ~ 400						V
Nominal AC current	912	1824	274	456	912	1,824	A
Nominal AC power	60	120	180	300	600	1,200	kW
Nominal AC frequency	50 / 60						Hz
Overvoltage category	III						
Inverter Connection							
Number of connection ports	2	6	9	12	30	50	
Nominal AC voltage	380 ~ 400						V
Max. AC input current	45.6						A
Smart Port Connection							
Generator output voltage	380 ~ 400						V
Nominal AC current	912	1824	274	456	912	1,824	A
Nominal AC power	60	120	180	300	600	1,200	kW
Generator 2-wire start	Supported						
General Data							
Dimensions (W / H / D)	510 / 795 / 173	850 / 1,152 / 305	800 / 2,300 / 830		1,800 / 2,300 / 1,270		mm
Weight	35	74	350	400	1,100	1,300	kg
Storage temperature range	-40 ~ 70						°C
Operating temperature range ²	-30 ~ 55						°C
Relative humidity range	0% ~ 100%		0% ~ 95%		0% ~ 95%		
Max. operation altitude ²	4,000						m
Cooling	Natural convection		Natural convection		Smart air cooling		
Ingress protection rating	IP54		IP20		IP20		
Communication	Fast Ethernet, RS485, dry contact						
Installation method	Wall-mounted		Ground-mounted		Ground-mounted		

- This refers to the load-side disruption time, to achieve this functionality Sigen Energy Gateway needs to be used together with Sigen Energy Controller and Sigen Battery. Test conditions: In the open-circuit state of the power grid, the nominal power of the Sigen Energy Controller is higher than the total power of the backup loads.
- Please consult Sigenenergy for detailed power derating information and customized requirements.

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