

Item 1: ANSI Data Sheet



DATA SHEET - MAIN CHARACTERISTICS OF THE EQUIPMENT

CUSTOMER:		MARS		PROPOSAL N°:	BM241112-01
TECHNICAL SPECIFICATION:		Scope of Supply - 270MVA-345kV GSU - 2024.11.11 - VER		DATE:	11/21/2024
STANDARD:		IEEE		OIT N°:	10090-R00

1. EQUIPMENT CHARACTERISTICS

QUANTITY: 1 un		TEMPERATURE RISE LIMITS:			
FREQUENCY: 60 Hz		MAXIMUM AMBIENT		41 [°C]	
THREE PHASE TRANSFORMER		MINIMUM AMBIENT		-34 [°C]	
INSULATION LIQUID TYPE: MINERAL OIL		AVERAGE AMBIENT		30 [°C]	
TYPE: TOC-NF SEISMIC LEVEL: Low (0,25g)		TOP OIL:		65 [°C]	
PHASORIAL DIAGRAM: YNyn0d1		WINDING AVERAGE		65 [°C]	
SITE ALTITUDE: 1000 m.a.s.l		WINDING HOT SPOT		80 [°C]	

Terminal	Rated Power [MVA]			Rated Voltage [kV]	Maximum Voltage [kV]	Connection	Type of Tap Changer / Panel
	ONAN	ONAF I	ONAF II				
HV	162	215	270	345 ± 16x0,625%		YN	OLTC
LV	162	215	270	34.5		YN	N/A
TV	16.2	21.5	27	13.8		D	BURIED

2. PERFORMANCE

(Tolerances acc. to standard IEEE)

REFERENCES			REQUIRED		GUARANTEED	
Reference Power		kVA			270000	162000
Reference Voltage		kV			345-34,5	345-34,5
Impedance	85 °C	%			16.67	10.00
No-Load Losses	60 Hz	kW			120	120
Load Losses	85 °C	kW			760	273.6
Auxiliary Losses		kW				
Total Losses (excluding auxiliary losses)	85 °C	kW			880	393.6
Excitation Current	100% Vn	%			0.3	
Average Sound Level	100% Vn	dB			88	

3. DIMENSIONAL DRAWING - N°:

10090CRQ1

Approximate Dimension [mm]		Approximate Weight [kg]		Efficiencies & Regulation					
				Base	270000 kVA	Voltage Ratio	345-34,5 kV		
(Assembled / For Transportation)				PF	Efficiencies	PF	Efficiencies		
Height	7850 4300	Without Oil	175000	1.0	125%	99.61	0.8	125%	99.52
Length	10250 9800	Oil	69993.1		100%	99.68		100%	99.59
Width	6650 3700	Total	237300		75%	99.73		75%	99.66
Untanking Height	11100	Core & Coils	118500		50%	99.77		50%	99.71
		Tank and Fittings	56500		25%	99.75		25%	99.69
		For Transport w/o Oil	155700		Regulation	1.66		Regulation	11.01

4. DIELECTRIC TEST

TESTS		TERMINALS					
Maximum equipment voltage		HV	LV	TV	HVN	LVN	
Lightning Impulse Level	Full Wave [kV]	900	200	110	110	200	
	Chopped Wave [kV]	990	220	121	-	-	
Switching Surge Impulse Level	[kV]	745	-	-	-	-	
Applied Voltage Level	[kV]	34	70	34	34	70	
AC Short Duration Induced Voltage	[kV]						
AC Long Duration Induced Voltage	[kV]	360/315	-				
Partial Discharge Level	[pC]	≤	300	Partial Discharge		[µV]	≤
RIV	[µV]	≤	2500				

5. NOTES:

— See notes on the file: "OIT 10090-R00 - Deviations and Clarifications"

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

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Applicant:	Silfab Solar Inc.	Manufacturer:	Silfab Solar Inc.
Address:	240 Courtneypark Drive East Mississauga, Ontario L5T 2Y3	Address:	1770 Port Dr, Burlington, Washington, 98233
Country:	Canada	Country:	USA
Party Authorized To Apply Mark:	Same as Manufacturer		
Report Issuing Office:	Intertek Testing Services NA, Inc., Lake Forest, CA		
Control Number:	<u>5021655</u>	Authorized by:	<u>Charden Jarboe</u> for L. Matthew Snyder, Certification Manager



This document supersedes all previous Authorizations to Mark for the noted Report Number.

This Authorization to Mark is for the exclusive use of Intertek's Client and is provided pursuant to the Certification agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Authorization to Mark. Only the Client is authorized to permit copying or distribution of this Authorization to Mark and then only in its entirety. Use of Intertek's Certification mark is restricted to the conditions laid out in the agreement and in this Authorization to Mark. Any further use of the Intertek name for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. Initial Factory Assessments and Follow up Services are for the purpose of assuring appropriate usage of the Certification mark in accordance with the agreement, they are not for the purposes of production quality control and do not relieve the Client of their obligations in this respect.

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Standard(s):	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [UL 61730-1:2022 Ed.2]
	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [UL 61730-2:2022 Ed.2+R:25Apr2023]
	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [CSA C22.2#61730-1:2019 Ed.2]
	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [CSA C22.2#61730-2:2019 Ed.2]
	Photovoltaic (PV) Module Safety Qualification - Part 1: Requirements for Construction [IEC 61730-1:2016 Ed.2]
	Photovoltaic (PV) Module Safety Qualification - Part 2: Requirements for Testing [IEC 61730-2:2016 Ed.2]
Product:	Photovoltaic Module
Brand Name:	Silfab Solar

SIL-290NL, SIL-295NL, SIL-300NL, SIL-305NL, SIL-310NL, SIL-315NL, SIL-320NL, SIL-325NL, SIL-330NL, SIL-335NL, SIL-340NL, SIL-345NL, SIL-350NL.

SIL-290NL-W, SIL-295NL-W, SIL-300NL-W, SIL-305NL-W, SIL-310NL-W, SIL-315NL-W, SIL-320NL-W, SIL-325NL-W, SIL-330NL-W, SIL-335NL-W, SIL-340NL-W, SIL-345NL-W, SIL-350NL-W.

SIL-300HL, SIL-305HL, SIL-310HL, SIL-315HL, SIL-320HL, SIL-325HL, SIL-330HL, SIL-335HL, SIL-340HL, SIL-345HL, SIL-350HL, SIL-355HL, SIL-360HL.

SIL-300HL-W, SIL-305HL-W, SIL-310HL-W, SIL-315HL-W, SIL-320HL-W, SIL-325HL-W, SIL-330HL-W, SIL-335HL-W, SIL-340HL-W, SIL-345HL-W, SIL-350HL-W, SIL-355HL-W, SIL-360HL-W.

SIL-290BL, SIL-295BL, SIL-300BL, SIL-305BL, SIL-310BL, SIL-315BL, SIL-320BL, SIL-325BL, SIL-330BL, SIL-335BL, SIL-340BL, SIL-345BL, SIL-350BL.

SIL-360NU, SIL-365NU, SIL-370NU, SIL-375NU, SIL-380NU, SIL-385NU, SIL-390NU, SIL-395NU, SIL-400NU, SIL-405NU, SIL-410NU, SIL-415NU, SIL-420NU, SIL-425NU, SIL-430NU, SIL-435NU, SIL-440NU.

SIL-370HU, SIL-375HU, SIL-380HU, SIL-385HU, SIL-390HU, SIL-395HU, SIL-400HU, SIL-405HU, SIL-410HU, SIL-415HU, SIL-420HU, SIL-425HU, SIL-430HU, SIL-435HU, SIL-440HU, SIL-445HU, SIL-450HU.

SIL-360NT, SIL-365NT, SIL-370NT, SIL-375NT, SIL-380NT, SIL-385NT, SIL-390NT, SIL-395NT, SIL-400NT, SIL-405NT, SIL-410NT, SIL-415NT, SIL-420NT, SIL-425NT, SIL-430NT, SIL-435NT, SIL-440NT.

SIL-340BK, SIL-345BK, SIL-350BK, SIL-355BK, SIL-360BK, SIL-365BK, SIL-370BK, SIL-375BK, SIL-380BK.

SIL-350NX, SIL-355NX, SIL-360NX, SIL-365NX, SIL-370NX, SIL-375NX, SIL-380NX.

Models:

models:

SIL-360HC, SIL-365HC, SIL-370HC, SIL-375HC, SIL-380HC, SIL-385HC, SIL-390HC, SIL-395HC, SIL-400HC.

SIL-420HE, SIL-425HE, SIL-430HE, SIL-435HE, SIL-440HE, SIL-445HE, SIL-450HE, SIL-455HE, SIL-460HE, SIL-465HE, SIL-470HE, SIL-475HE, SIL-480HE.

SIL-450HN, SIL-455HN, SIL-460HN, SIL-465HN, SIL-470HN, SIL-475HN, SIL-480HN, SIL-485HN, SIL-490HN, SIL-495HN, SIL-500HN, SIL-505HN, SIL-510HN, SIL-515HN, SIL-520HN.

SIL-390BG, SIL-395BG, SIL-400BG, SIL-405BG, SIL-410BG, SIL-415BG, SIL-420BG, SIL-425BG, SIL-430BG.

SIL-380HC+, SIL-385HC+, SIL-390HC+, SIL-395HC+, SIL-400HC+, SIL-405HC+, SIL-410HC+, SIL-415HC+, SIL-420HC+.

SIL-480HM, SIL-485HM, SIL-490HM, SIL-495HM, SIL-500HM, SIL-505HM, SIL-510HM, SIL-515HM, SIL-520HM.

SIL-400QD, SIL-405QD, SIL-410QD, SIL-415QD, SIL-420QD, SIL-425QD, SIL-430QD, SIL-435QD, SIL-440QD.

SIL-440QP, SIL-445QP, SIL-450QP, SIL-455QP, SIL-460QP, SIL-465QP, SIL-470QP, SIL-475QP, SIL-480QP.

SIL-510QM, SIL-515QM, SIL-520QM, SIL-525QM, SIL-530QM, SIL-535QM, SIL-540QM.

SIL-560XM+, SIL-565XM+, SIL-570XM+, SIL-575XM+, SIL-580XM+, SIL-585XM+

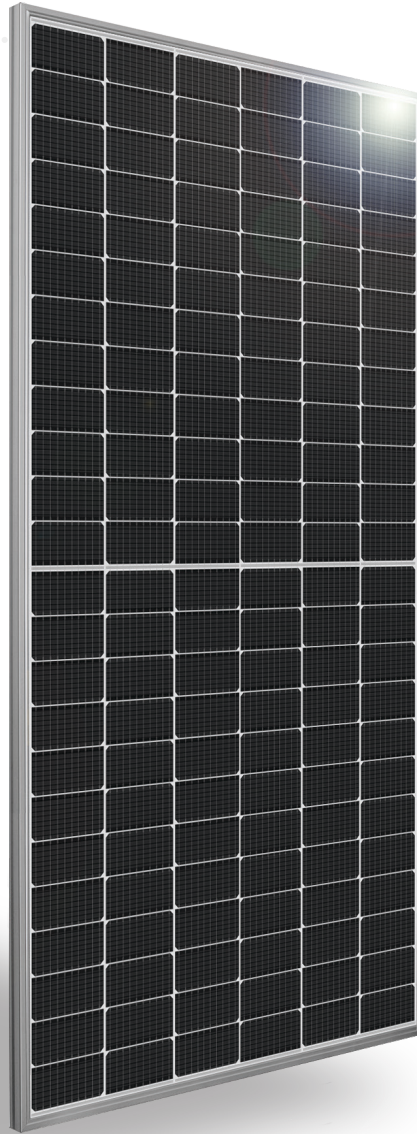
SIL-510XM, SIL-515XM, SIL-520XM, SIL-525XM, SIL-530XM, SIL-535XM, SIL-540XM.

SIL-620XL, SIL-630XL, SIL-640XL.

SILFAB
COMMERCIAL **NTC**

SIL-570/580 XM+
BIFACIAL

SILFAB
SOLAR®



INTRODUCING NEXT-GENERATION N-TYPE CELL TECHNOLOGY

- Improved Shade Tolerance
- Improved Low-Light Performance
- Increased Performance in High Temperatures
- Enhanced Durability
- Reduced Degradation Rate
- Industry-Leading Warranty



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ELECTRICAL SPECIFICATIONS		570					580				
		STC at front+irradiance % on back side					STC at front+irradiance % on back side				
Test Conditions		STC	NOCT	10%	20%	30%	STC	NOCT	10%	20%	30%
Module Power (Pmax)	Wp	570	421	618	665	713	580	428	628	676	725
Maximum power voltage (Vpmax)	V	43.74	40.23	43.87	43.98	44.09	44.27	40.73	44.40	44.51	44.62
Maximum power current (Ipmax)	A	13.03	10.46	14.1	15.1	16.2	13.10	10.51	14.1	15.2	16.2
Open circuit voltage (Voc)	V	52.03	47.85	52.16	52.27	52.38	52.27	48.08	52.40	52.51	52.62
Short circuit current (Isc)	A	13.79	11.07	14.9	16.0	17.1	13.85	11.12	15.0	16.1	17.2
Module efficiency	%	22.1%	20.4%	23.9%	25.7%	27.6%	22.4%	20.7%	24.3%	26.2%	28.0%
Maximum system voltage (VDC)	V	1500									
Series fuse rating	A	30									
Power Tolerance	Wp	0 to +10									
Bifaciality Factor	%	80±5									

Measurement conditions: STC 1000 W/m² • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ≤ 3%. Sun simulator calibration reference modules from authorized third-party lab. Electrical characteristics may vary by ±5% and power by 0 to + 10 W. Bifaciality Factor = Pmax rear / Pmax front, both cases are tested under STC.

MECHANICAL PROPERTIES / COMPONENTS	METRIC	IMPERIAL
Module weight	28.5 kg ±0.2 kg	62.8 lbs ±0.4 lbs
Dimensions (H x L x D)	2278 mm x 1133 mm x 35 mm	89.7 in x 44.6 in x 1.4 in
Maximum surface load (wind/snow)*	2400 Pa rear load / 5400 Pa front load	50.1 lb/ft ² rear load / 112.8 lb/ft ² front load
Hail impact resistance	ø 25 mm at 83 km/h	ø 1 in at 51.6 mph
Cells	144 Half cells - N-Type Silicon solar cell 182 mm x 91 mm	144 Half cells - N-Type Silicon solar cell 7.16 in x 3.58 in
Glass	3.2 mm high transmittance, tempered, anti-reflective coating	0.126 in high transmittance, tempered, anti-reflective coating
Cables and connectors (refer to installation manual)	1350 mm, ø 5.7 mm, EVO2 from Staubli	53.1 in, ø 0.22 in (12 AWG), EVO2 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, transparent PV backsheet	
Frame	Anodized Aluminum (Silver)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP68 rated, 3 diodes	

TEMPERATURE RATINGS		WARRANTIES	
Temperature Coefficient Isc	0.04 %/°C	Module product workmanship warranty	25 years**
Temperature Coefficient Voc	-0.24 %/°C	Linear power performance guarantee	30 years
Temperature Coefficient Pmax	-0.29 %/°C	≥ 98% end 1st yr ≥ 94.7% end 12th yr ≥ 90.8% end 25th yr ≥ 89.3% end 30th yr	
NOCT (± 2°C)	45 °C		
Operating temperature	-40/+85 °C		

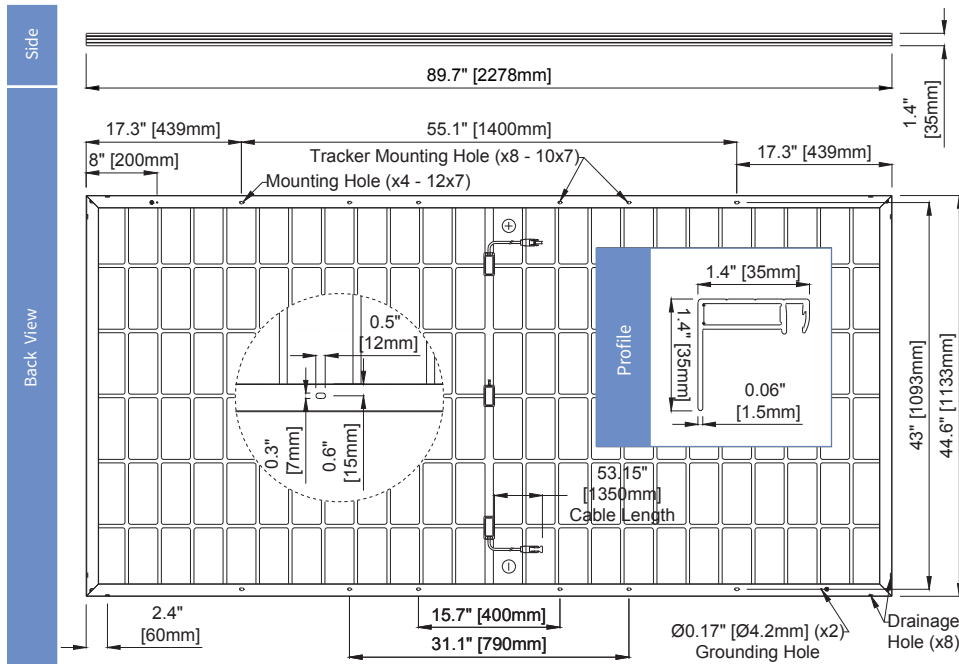
CERTIFICATIONS		SHIPPING SPECS	
Product	UL 61215***, UL 61730***, CSA C22.2#61730***, IEC 61215***, IEC 61730***, IEC 61701 (Salt Mist Corrosion), IEC 62716 (Ammonia Corrosion), CEC Listing***, UL Fire Rating: Type 1	Modules Per Pallet:	TBD
Factory	ISO9001:2015	Pallets Per Truck	TBD
		Modules Per Truck	TBD

* ⚠ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.

** 12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at silfabsolar.com.

PAN files generated from 3rd party performance data are available for download at: silfabsolar.com/downloads.

*** Certification and CEC listing in progress.



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SUNNY CENTRAL

4000 UP-US / 4200 UP-US / 4400 UP-US / 4600 UP-US



Efficient

- Up to 4 inverters can be transported in one standard shipping container
- Over-sizing up to 180% is possible
- Full power at ambient temperatures of up to 35°C

Robust

- Intelligent air cooling system OptiCool for efficient cooling
- Suitable for outdoor use in all climatic ambient conditions worldwide

Flexible

- Conforms to all known grid requirements worldwide
- Q on demand
- DC-coupled storage with optional charging from grid

Easy to Use

- Improved DC connection area
- Connection area for customer equipment
- Integrated voltage support for internal and external loads

SUNNY CENTRAL

4000 UP-US / 4200 UP-US / 4400 UP-US / 4600 UP-US

The new Sunny Central: more power per cubic meter

With an output of up to 4600 kVA and system voltages of 1500 V DC, the SMA central inverter allows for more efficient system design and a reduction in specific costs for PV power plants. A separate voltage supply and additional space are available for the installation of customer equipment. True 1500 V technology and the intelligent cooling system OptiCool ensure smooth operation even in extreme ambient temperature as well as a long service life of 25 years.

SUNNY CENTRAL 4000 UP-US / 4200 UP-US

Technical data	SC 4000 UP-US	SC 4200 UP-US
Input (DC)		
MPP voltage range V _{DC} (at 25 °C / at 50 °C)	880 to 1325 V / 1050 V	921 to 1325 V / 1050 V
Min. input voltage V _{DC, min} / Start voltage V _{DC, Start}	849 V / 1030 V	891 V / 1071 V
Max. input voltage V _{DC, max}	1500 V	1500 V
Max. input current I _{DC, max}	4750 A	4750 A
Max. short-circuit current I _{DC, sc}	8400 A	8400 A
Number of DC inputs	24 double pole fused (32 single pole fused)	
Number of DC inputs with optional DC coupling of battery	18 double pole fused (36 single pole fused) for PV, 6 double pole fused for batteries	
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm²	
Integrated zone monitoring	○	
Available PV fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A	
Available battery fuse size (per input)	750 A	
Output (AC)		
Nominal AC power at cos φ =1 (at 35 °C / at 50 °C)	4000 kVA ¹¹⁾ / 3600 kVA	4200 kVA ¹¹⁾ / 3780 kVA
Nominal AC power at cos φ =0.8 (at 35 °C / at 50 °C)	3200 kW ¹¹⁾ / 2880 kW	3360 kW ¹¹⁾ / 3024 kW
Nominal AC current I _{AC, nom} (at 35 °C / at 50 °C)	3850 A / 3465 A	3850 A / 3465 A
Max. total harmonic distortion	< 3% at nominal power	< 3% at nominal power
Nominal AC voltage / nominal AC voltage range ^{1) 8)}	600 V / 480 V to 720 V	630 V / 504 V to 756 V
AC power frequency / range	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz	
Min. short-circuit ratio at the AC terminals ⁹⁾	> 2	
Power factor at rated power / displacement power factor adjustable ^{8) 10)}	1 / 0.8 overexcited to 0.8 underexcited	
Efficiency		
Max. efficiency ²⁾ / European efficiency ²⁾ / CEC efficiency ³⁾	98.8% / 98.6% / 98.5%	98.8% / 98.7% / 98.5%
Protective Devices		
Input-side disconnection point	DC load break switch	
Output-side disconnection point	AC circuit breaker	
DC overvoltage protection	Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Ground-fault monitoring / remote ground-fault monitoring	○ / ○	
Insulation monitoring	○	
Degree of protection	NEMA 3R	
General Data		
Dimensions (W / H / D)	2780 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)	
Weight	<3700 kg / < 8158 lb	
Self-consumption (max. ⁴⁾ / partial load ⁵⁾ / average ⁶⁾	< 8100 W / < 1800 W / < 2000 W	
Self-consumption (standby)	< 370 W	
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer	
Operating temperature range (optional) ⁸⁾	(–37 °C) –25 °C to 60 °C / (–37 °C) –13 °F to 140 °F	
Noise emission ⁷⁾	65.0 dB(A)*	
Temperature range (standby)	–40 °C to 60 °C / –40 °F to 140 °F	
Temperature range (storage)	–40 °C to 70 °C / –40 °F to 158 °F	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month/year) / 0% to 95%	
Maximum operating altitude above MSL ⁸⁾ 1000 m / 2000 m	● / ○ (earlier temperature-dependent derating)	
Fresh air consumption	6500 m³/h	
Features		
DC connection	Terminal lug on each input (without fuse)	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Modbus Master, Modbus Slave	
Communication with SMA string monitor (transmission medium)	Modbus TCP / Ethernet (FO MM, Cat-5)	
Enclosure / roof color	RAL 9016 / RAL 7004	
Supply transformer for external loads	○ (2.5 kVA)	
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 6I), NERC, UL 1741-SB, UL 1998, IEEE 1547-2018 ¹²⁾ , MIL-STD-810G	
EMC standards	FCC Part 15 Class A	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
● Standard features ○ Optional		

1) At nominal AC voltage, nominal AC power decreases in the same proportion

2) Efficiency measured without internal power supply

3) Efficiency measured with internal power supply

4) Self-consumption at rated operation

5) Self-consumption at < 75% P_n at 25 °C

6) Self-consumption averaged out from 5% to 100% P_n at 25 °C

7) Sound pressure level at a distance of 10 m

8) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.

9) A short-circuit ratio of < 2 requires a special approval from SMA

10) Depending on the DC voltage

11) Nominal power at 35 °C max DC voltage of 1050 V

12) Harmonics are within IEEE 1547-2018 limits with at least 2 inverters in operation

SUNNY CENTRAL 4400 UP-US / 4600 UP-US

Technical data	SC 4400 UP-US	SC 4600 UP-US
Input (DC)		
MPP voltage range V _{DC} (at 25 °C / at 50 °C)	962 to 1325 V / 1050 V	1003 to 1325 V / 1050 V
Min. input voltage V _{DC, min} / Start voltage V _{DC, Start}	934 V / 1112 V	976 V / 1153 V
Max. input voltage V _{DC, max}	1500 V	1500 V
Max. input current I _{DC, max}	4750 A	4750 A
Max. short-circuit current I _{DC, sc}	8400 A	8400 A
Number of DC inputs	24 double pole fused (32 single pole fused)	
Number of DC inputs with optional DC coupling of battery	18 double pole fused (36 single pole fused) for PV, 6 double pole fused for batteries	
Max. number of DC cables per DC input (for each polarity)	2 x 800 kcmil, 2 x 400 mm²	
Integrated zone monitoring	○	
Available PV fuse sizes (per input)	200 A, 250 A, 315 A, 350 A, 400 A, 450 A, 500 A	
Available battery fuse size (per input)	750 A	
Output (AC)		
Nominal AC power at cos φ = 1 (at 35 °C / at 50 °C)	4400 kVA ¹⁾ / 3960 kVA	4600 kVA ¹⁾ / 4140 kVA
Nominal AC power at cos φ =0.8 (at 35 °C / at 50 °C)	3520 kW ¹⁾ / 3168 kW	3680 kW ¹⁾ / 3312 kW
Nominal AC current I _{AC, nom} (at 35 °C / at 50 °C)	3850 A / 3465 A	3850 A / 3465 A
Max. total harmonic distortion	< 3% at nominal power	< 3% at nominal power
Nominal AC voltage / nominal AC voltage range ^{1) 8)}	660 V / 528 V to 759 V	690 V / 552 V to 759 V
AC power frequency / range	50 Hz / 47 Hz to 53 Hz 60 Hz / 57 Hz to 63 Hz	
Min. short-circuit ratio at the AC terminals ⁹⁾	> 2	
Power factor at rated power / displacement power factor adjustable ^{8) 10)}	1 / 0.8 overexcited to 0.8 underexcited	
Efficiency		
Max. efficiency ²⁾ / European efficiency ²⁾ / CEC efficiency ³⁾	98.8% / 98.7% / 98.5%	98.9% / 98.7% / 98.5%
Protective Devices		
Input-side disconnection point	DC load break switch	
Output-side disconnection point	AC circuit breaker	
DC overvoltage protection	Surge arrester, type I	
AC overvoltage protection (optional)	Surge arrester, class I	
Lightning protection (according to IEC 62305-1)	Lightning Protection Level III	
Ground-fault monitoring / remote ground-fault monitoring	○ / ○	
Insulation monitoring	○	
Degree of protection	NEMA 3R	
General Data		
Dimensions (W / H / D)	2780 / 2318 / 1588 mm (109.4 / 91.3 / 62.5 inch)	
Weight	<3700 kg / < 8158 lb	
Self-consumption (max. ⁴⁾ / partial load ⁵⁾ / average ⁶⁾	< 8100 W / < 1800 W / < 2000 W	
Self-consumption (standby)	< 370 W	
Internal auxiliary power supply	○ Integrated 8.4 kVA transformer	
Operating temperature range (optional) ⁸⁾	(–37 °C) –25 °C to 60 °C / (–37 °C) –13 °F to 140 °F	
Noise emission ⁷⁾	65.0 dB(A)*	
Temperature range (standby)	–40 °C to 60 °C / –40 °F to 140 °F	
Temperature range (storage)	–40 °C to 70 °C / –40 °F to 158 °F	
Max. permissible value for relative humidity (condensing / non-condensing)	95% to 100% (2 month/year) / 0% to 95%	
Maximum operating altitude above MSL ⁸⁾ 1000 m / 2000 m	● / ○ (earlier temperature-dependent derating)	
Fresh air consumption	6500 m³/h	
Features		
DC connection	Terminal lug on each input (without fuse)	
AC connection	With busbar system (three busbars, one per line conductor)	
Communication	Ethernet, Modbus Master, Modbus Slave	
Communication with SMA string monitor (transmission medium)	Modbus TCP / Ethernet (FO MM, Cat-5)	
Enclosure / roof color	RAL 9016 / RAL 7004	
Supply transformer for external loads	○ (2.5 kVA)	
Standards and directives complied with	UL 62109-1, UL 1741 (Chapter 31, CDR 6I), NERC, UL 1741-SB, UL 1998, IEEE 1547-2018 ¹²⁾ , MIL-STD-810G	
EMC standards	FCC Part 15 Class A	
Quality standards and directives complied with	VDI/VDE 2862 page 2, DIN EN ISO 9001	
● Standard features ○ Optional		

1) At nominal AC voltage, nominal AC power decreases in the same proportion

2) Efficiency measured without internal power supply

3) Efficiency measured with internal power supply

4) Self-consumption at rated operation

5) Self-consumption at < 75% P_n at 25 °C

6) Self-consumption averaged out from 5% to 100% P_n at 25 °C

7) Sound pressure level at a distance of 10 m

8) Values apply only to inverters. Permissible values for SMA MV solutions from SMA can be found in the corresponding data sheets.

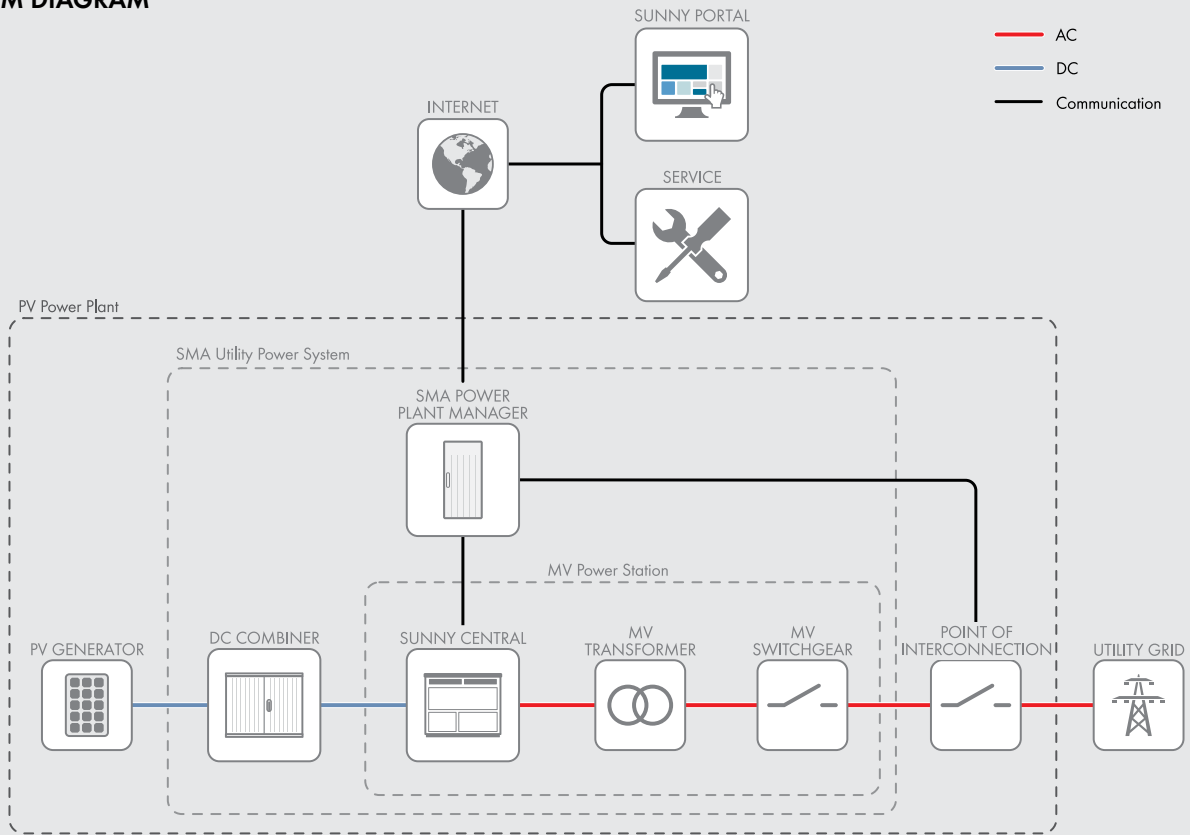
9) A short-circuit ratio of < 2 requires a special approval from SMA

10) Depending on the DC voltage

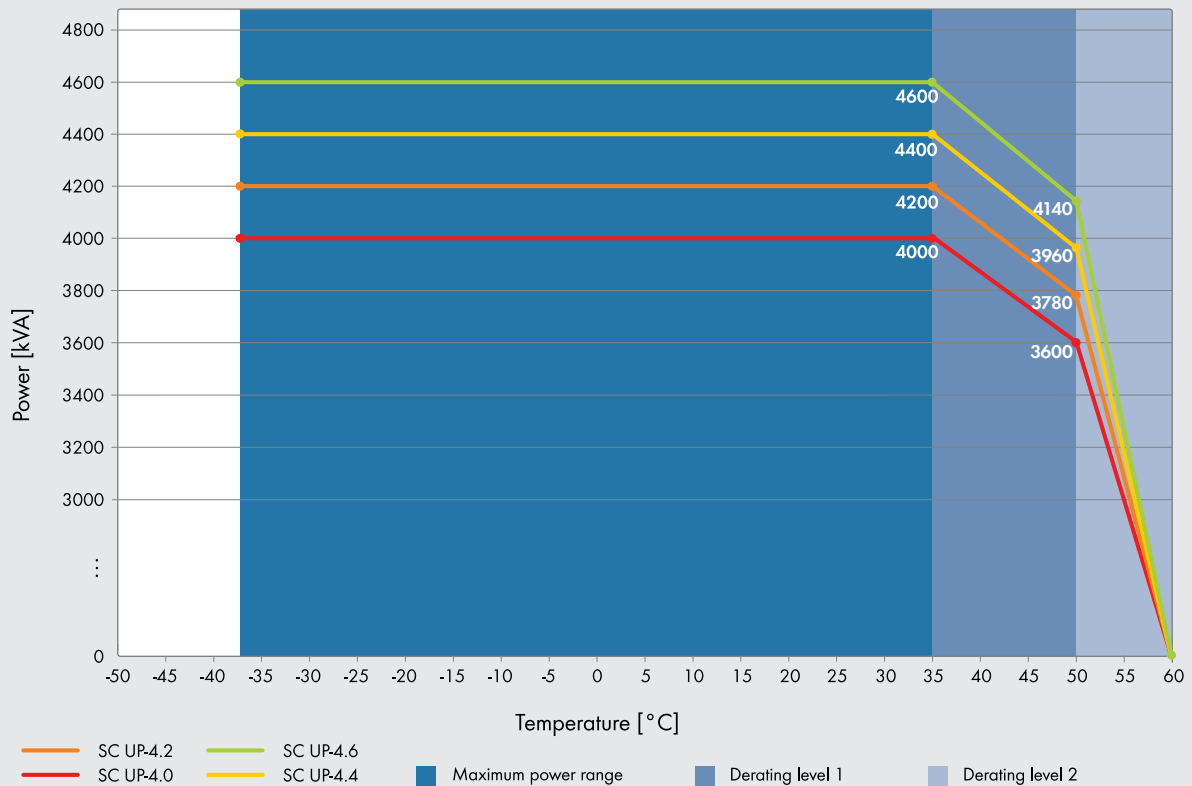
11) Nominal power at 35 °C max DC voltage of 1050 V

12) Harmonics are within IEEE 1547-2018 limits with at least 2 inverters in operation

SYSTEM DIAGRAM



TEMPERATURE BEHAVIOR (at 1000 m)



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