



Silfab Solar Inc.
240 Courtneypark Drive East
Mississauga, Ontario, Canada L5T 2Y3
Tel: +1-905-255-2501
Fax: +1-905-696-0267
Web: www.silfabsolar.com
Email: info@silfabsolar.com

February 10th, 2021

Subject: Update to Silfab's UL 1703 Mechanical Load Test Ratings

To whom it may concern,

Thank you for your choice of employing Silfab PV Modules in your PV rooftop projects, some of which can be located in areas with above normal windload design requirements.

Silfab Solar Inc. has made recent targeted efforts to extend the mechanical test load ratings under the UL 1703 PV module standard for Silfab's residential PV module product offerings with regards to extreme uplift design load needs, namely the PV modules identified as follows: SIL-xxxNL, SIL-xxxHL, SIL-xxxBK, and SIL-xxxNX.

This letter serves to clarify the achieved maximum test load ratings, and the associated design load ratings, according to the following modifications to the design of the module's mounting locations under a 2-rail configuration which must be followed in order to ensure compliance:

- SIL-xxxNL and SIL-xxxHL:** the mounting/clamping locations must be made along the long edge of the module frame and be spaced apart 1100mm +/- 25mm in a symmetric/centered fashion.
- SIL-xxxBK and SIL-xxxNX:** the mounting/clamping locations must be made along the long edge of the module frame and be spaced apart 1200mm +/- 25mm in a symmetric/centered fashion.

As long as the design and installation of the aforementioned PV module types follows the guidelines above, the maximum test load ratings in both downward and upward orientations have been confirmed as 119psf (5700Pa) which corresponds to a maximum design load rating of 79.3psf (3800Pa).

Sincerely,

Itai Suez, PhD – Vice President of Product Development
Silfab Solar Inc.

A0001 Rev.D

Sep. 3, 2019

Electrical Specifications		SIL-340 NL mono PERC	
Test Conditions		STC	NOCT
Module Power (P _{max})	W _p	340	241
Maximum power voltage (V _{pmax})	V	33.7	30.4
Maximum power current (I _{pmax})	A	10.1	7.9
Open circuit voltage (V _{oc})	V	40.9	37.1
Short circuit current (I _{sc})	A	10.5	8.3
Module efficiency	%	20.0	17.7
Maximum system voltage (V _{DC})	V		1000
Series fuse rating	A		20
Power Tolerance	W _p		+/-3%
Measurement conditions: STC 1000 W/m ² • AM 1.5 • Temperature 25°C • NOCT 800 W/m ² • AM 1.5 • Measurement uncertainty ± 3% • Sun simulator calibration reference module from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by ±1.2%.			
Temperature Ratings		SIL-340 NL mono PERC	
Temperature Coefficient I _{sc}			0.054 %/°C
Temperature Coefficient V _{oc}			-0.28 %/°C
Temperature Coefficient P _{max}			-0.36 %/°C
NOCT (+ 2°C)			46 °C
Operating temperature			40/+85 °C
Mechanical Properties and Components		SIL-340 NL mono PERC	
Module weight			41 ±0.4 lbs
Dimensions (H x L x D)			66.9 in x 39.4 in x 1.5 in
Maximum surface load (wind/snow)*			83.5/112.8 lb/ft ²
Hail impact resistance			1 in at 51.6 mph
Cells			60 - Mono PERC - 5 busbar, 6.25 x 6.25 inch
Glass			0.126 in high transmittance, tempered, DSM anti-reflective coating
Cables and connectors (refer to installation manual)			47.2 in, ø 0.22 in, MC4 from Staubi
Backsheet			High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV backsheet
Frame			Anodized Aluminum (Black)
Bypass diodes			3 diodes-30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)
Junction Box			UL 3730 Certified, IEC 62790 Certified, IP67 rated
Warranties		SIL-340 NL mono PERC	
Module product workmanship warranty			25 years**
Linear power performance guarantee			30 years
		≥ 97.1% end 1 st year	≥ 91.6% end 12 th year ≥ 85.1% end 25 th year ≥ 82.6% end 30 th year
Certifications		SIL-340 NL mono PERC	
Product			ULC ORD C1703, UL1703, CEC Listed***, UL 61215-1/-1-1/-2, UL 61730-1/-2, IEC 61215-1/-1-1/-2***, IEC 61730-1/-2***, CSA C22.2 #61730-1/-2***, IEC 62716 Ammonia Corrosion, IEC61701:2011 Salt Mist Corrosion Certified, UL Fire Rating: Type 2
Factory			ISO9001:2015

■ Modules Per Pallet: 26
■ Pallets Per Truck: 36
■ Modules Per Truck: 936

* ⚠ 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: www.silfabsolar.com.

***September 2020 expected completion date.

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

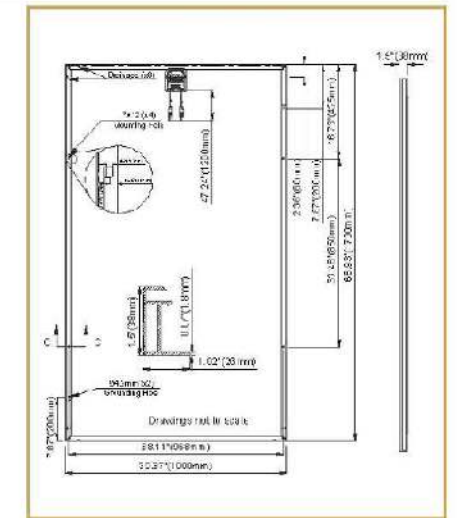


Titan Solar Power
525 W Baseline Rd
Mesa, AZ 85210
Tel: 855-SAY-SOLAR
TitanSolarPower.com
info@titansolarpower.com

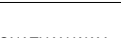


Silfab Solar Inc.
240 Courtneypark Drive East
Mississauga, ON L5T 2Y3 Canada
Tel: +1-905-255-2501 | Fax: +1-905-696-0267
info@silfabsolar.com | www.silfabsolar.com

Silfab Solar Inc.
800 Cornwall Ave
Bellingham, WA 98225, USA
Tel: 11360-569-4733



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ISSUED FOR PERMIT				DATE	CAD	QC	TITAN SOLAR POWER FL				MOSES TOWN		PV MODULES DATASHEET			
REV	DESCRIPTION			DATE	CAD	QC	12221 N US HIGHWAY 301				PROJECT ADDRESS:		PROJECT ID:			
							THONOTASASSA, FL 33592				205 SE JONATHAN WAY LAKE CITY FL 32025 <th colspan="2">ENGINEER OF RECORD:</th> <th colspan="2">SHEET TITLE:</th>		ENGINEER OF RECORD:		SHEET TITLE:	
							(813) 982 -9001				PARCEL NUMBER:		ENG. RAFAEL A. GONZALEZ SOTO, PE <td colspan="2">D-1</td>		D-1	
							#EC13008093			15-4S-17-08360-184 <td colspan="2">DATE:</td> <td colspan="2">SHEETS:</td>		DATE:		SHEETS:		
							833 - 888 - 3644					TSP68549		7 OF 9		
												03-16-2021				

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505



POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com



Power Optimizer

For North America

P320 / P340 / P370 / P400 / P401 / P405 / P485 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high- power 60-cell modules)	P370 (for higher- power 60 and 72- cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72 cell modules)	P405 (for high- voltage modules)	P485 (for high- voltage modules)	P505 (for higher current modules)		
INPUT										
Rated Input DC Power [®]	320	340	370	400		405	485	505	W	
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	60	125 [®]		83 [®]	Vdc	
MPPT Operating Range	8 - 48		8 - 60	8 - 80	8 - 60	12.5 - 105		12.5 - 83	Vdc	
Maximum Short Circuit Current (IsC)	11			10.1	11.75	11		14	Adc	
Maximum DC Input Current	13.75			12.5	14.65	12.5		17.5	Adc	
Maximum Efficiency	99.5								%	
Weighted Efficiency	98.3							98.6	%	
Overvoltage Category	II									
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)										
Maximum Output Current	15								Adc	
Maximum Output Voltage	60						85		Vdc	
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)										
Safety Output Voltage per Power Optimizer	1 ± 0.1								Vdc	
STANDARD COMPLIANCE										
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3									
Safety	IEC62109-1 (class II safety), UL1741									
Material	UL94 V-0, UV Resistant									
RoHS	Yes									
INSTALLATION SPECIFICATIONS										
Maximum Allowed System Voltage	1000								Vdc	
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters									
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1			129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 / 5.1 x 6 x 1.16	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9		129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in	
Weight (including cables)	630 / 1.4			750 / 1.7	655 / 1.5	845 / 1.9		1064 / 2.3	gr / lb	
Input Connector	MC4 [®]						Single or dual MC4 ^{®/®}	MC4 [®]		
Input Wire Length	0.16 / 0.52									m / ft
Output Wire Type / Connector	Double Insulated / MC4									
Output Wire Length	0.9 / 2.95			1.2 / 3.9						m / ft
Operating Temperature Range [®]	-40 - +85 / -40 - +185									°C / °F
Protection Rating	IP68 / NEMA6P									
Relative Humidity	0 - 100									%

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed.
(2) NEC 2017 requires max input voltage be not more than 80V.
(3) For other connector types please contact SolarEdge.
(4) For dual version for parallel connection of two modules use P485-INMD4MRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals.
(5) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details.

PV System Design Using a SolarEdge Inverter ⁽⁵⁾	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400, P401 P405, P485, P505	8	10	18	
		6	8	14	
Maximum String Length (Power Optimizers)		25	25	50 ⁽⁶⁾	
Maximum Power per String	5700 (6000 with SE7600-US - SE11400-US)	5250	6000 ⁽⁹⁾	12750 ⁽¹⁰⁾	W
Parallel Strings of Different Lengths or Orientations	Yes				

(5) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
(6) It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400/P401 in one string.
(7) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.
(8) For 208V grid, it is allowed to install up to 6,500W per string when the maximum power difference between each string is 1,000W.
(9) For 277/480V grid, it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W.

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ISSUED FOR PERMIT				03-18-2021	DP	JG	ENGIPARTNERS LLC						TITAN SOLAR POWER FL				MOSES TOWN		SMART MONITORING DATASHEET				
REV				DESCRIPTION	DATE	CAD	QC	C.A. 32661 255 GIRALDA AVE CORAL GABLES, FL 33134 DESIGN@ENGIPARTNERS.COM 833 - 888 - 3644						12221 N US HIGHWAY 301 THONOTASASSA, FL 33592 (813) 982 - 9001 #EC13008093				PROJECT ADDRESS: 205 SE JONATHAN WAY LAKE CITY FL 32025 PARCEL NUMBER: 15-4S-17-08360-184					
																		PROJECT ID: TSP68549		ENGINEER OF RECORD: ENG. RAFAEL A. GONZALEZ SOTO, PE DATE: 03-16-2021		SHEET TITLE: D-2 SHEETS: 8 OF 9	

Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014, NEC 2017 and NEC 2020 per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

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Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 254)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380				400			Vdc
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600ka Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

(1) For other regional settings please contact SolarEdge support.
(2) A higher current source may be used; the inverter will limit its input current to the values stated.

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