



SolarRiver 3000TLA-US SolarRiver 3800TLA-US SolarRiver 5000TLA-US SolarRiver 6000TLA-US SolarRiver 7000TLA-US SolarRiver 8000TLA-US SolarRiver 9000TLA-US SolarRiver 10000TLA-US



Samil Power Software www.SAMILPOWER.com











Table of Contents

About this Installation Guide	AC- and DC-Connection 23 Starting the Inverter 32 Inverter Configuration 34 Opening the Inverter 35 Communcation Ports 41 Display Messages 44 Arc Fault Current 46 Interrupter (AFCI) 46 Periodic Inspection 48 Technical Data 50 FCC compliance information 52
-------------------------------	---



EN



SAMILPOWER



Safety Symbols

Life threatening voltages are processed inside the inverter. Hazardous situations that can lead to death or serious injuries are indicated with the "WARNING" symbol (1) on the left.

Hazardous situations that can result in damage of the inverter are indicated with the "CAUTION" symbol (2) on the left.

Countermeasures that must be taken in order to avoid the hazardous situation are indicated with an arrow:

EN

"This is an example how to avoid a hazardous situation."









Intended Use

The inverter (1) converts DC-power from the PV-generator (2) to ACpower. The AC-power is fed into the grid (3). In case of a grid failure: The inverter automatically disconnects (4) from the grid. The inverter automatically reconnects when the grid is restored. The inverter can only be used for DC-power from PVgenerators (5).

CAUTION! Risk of damaging the inverter!

Do not connect other DC-power sources (6) such as wind power systems, hydroelectric generators, fuel cells or batteries.

EN







SAMILPOWER



MIL POWER







SAMILPOWE









Description of the LEDs

1. GFCI

Flashing Red: Ground fault detected on DC side. Inverter is disconnected from grid.

2. Fault / Alarm

Flashing Yellow: Alarm detected and operation continues. Flashing Red: Fault detected and operation is stopped. LED keeps flashing as long as alarm is present. Details are indicated on the dinduct the display.

3. Normal

Solid Green: Inverter is conducting self-test / checking AC-grid Flashing Green: Inverter is feeding to the grid.

EN

4. WiFi Solid Red: No WiFi activities Flashing Red: WiFi communication.





Display: "Settings" Menu / Password

The "Settings" menu is protected with a password. The default password is "0000"



EN



Unpacking

4. Check all items for visible

Check all items for visible damages.
 Contact your supplier when items are missing or the inverter is damaged. Do not install a damaged inverter.
 Keep packaging for later use.
 The packing list is specified on the following page.

EN











Mounting Bracket: Dimensions

Requirements for the installation location are specified on the following pages.

Mounting the inverter: Use stainless steel screws. Screws are included in delivery.



EN



SolarRiver	А	В	С	D	Weight
3000TLA-US	38.0 / 15.0	58.0 / 23.8	20.3 8.0	21.8 / 8.4	26.0 kg / 57.3 lb.
3800TLA-US	38.0 / 15.0	58.0 / 23.8	20.3 8.0	21.8 / 8.4	27.5 kg / 60.6 lb.
5000TLA-US	38.0 / 15.0	58.0 / 23.8	20.3 8.0	21.8 / 8.4	29.0 kg / 64.0 lb
6000TLA-US	38.0 / 15.0	58.0 / 23.8	20.3 8.0	21.8 / 8.4	30.0 kg / 66.0 lb
7000TLA-US	47.0 / 18.5	70.0 / 27.6	20.3 8.0	21.8 / 8.4	42.5 kg / 93.7 lb
8000TLA-US	47.0 / 18.5	70.0 / 27.6	20.3 8.0	21.8 / 8.4	42.5 kg / 93.7 lb
9000TLA-US	47.0 / 18.5	70.0 / 27.6	20.3 8.0	21.8 / 8.4	43.5 kg / 95.9 lb
10000TLA-US	47.0 / 18.5	70.0 / 27.6	20.3 8.0	21.8 / 8.4	43.5 kg / 95.9 lb
		All dime	ensions in	cm / in.	















Mounting the Inverter

Proceed as follows for mounting the inverter:

- On plasterboard walls: Use center holes. Screw wall mounting bracket to wall stud.
- On massive walls: Use outside holes. Screw wall mounting bracket to wall.
- Hang inverter on wall mounting bracket.

- Check correct position.
 On bottom of inverter: Screw inverter to wall mounting bracket. Use 6x20 screws enclosed in delivery.

EN

Optional: Secure the inverter with a padlock.







AC-Connection - Requirements

Overcurrent protection for the AC output circuit must be provided in the electrical installation. Refer to the National Electrical Code®, ANSI/ NFPA 70.

- 7. Use suitable circuit breaker.
- 8. WARNING! Risk of fire!
 - ➔ Do not connect any consumers to the AC-line
- Recommendation: Keep cable losses below 1 %. Keep impedance below 0.2 Ohm.

- 10. Wire sizes and torques: See page 37.
 11. Use 1 inch conduit for the AC
- 1. Use 1 inch conduit for the AC connection

EN



SR3-10TLA-US-IG_10_EN0714





25

SAMILPOWER





DC-Connection - Requirements

- 1. CAUTION! Risk of damaging the 4. The DC-ports can be connected: Install diodes in order to avoid
 - → Ensure that the voltage and current is below the specified values.
- 2. Do not connect the + or poles to
- ground. The inverter is equipped with two separate MPP-trackers. (Exception: SR 3000TLA-US) 3.
- reverse currents.

EN

- Cover PV-modules when working on the DC-connection.
- 6. WARNING! Risk of electric shock!
 - ➔ Do not work on the DC-cables when the PV-modules are not covered.

Torques and wire sizes are specified on page 37





28





29





DC Connection: Parallel Connected Strings

It is possible to connect the strings in parallel as shown in the illustration.

WARNING! Risk of fire! Reverse currents in the PV-strings can result in currents that exceed the PV-module capacity.

- → Install diodes in order to prevent dangerous reverse currents.
 → Observe NEC 690.9: Install series
- Observe NEC 690.9: Install series fuse when necessary.

Configuration of the inverter when strings are connected in parallel: Go to "Settings" / "MPPT Input" and set value to "1" for optimum operation.

EN





DC Connection: Using only one DC-Port

It is possible to only use one DC port as shown in the illustration.

Connect PV2+ and PV2- as shown in the illustration.





Starting the Inverter

WARNING! Risk of electric shock!

- → Make sure the inverter is properly connected.
- → Make sure the inverter is properly closed.

- Proceed as follows: 1. Activate AC-power. 2. Activate DC-power The inverter performs self-tests, checks AC-grid and starts operation. See next page for details.

EN



SR3-10TLA-US-IG_10_EN0714





Additional Inverter Configuration

Use the SamilPower SolarPower Browser for configuration. In general the inverters are connected to a PC (3) with ethernet (1). A router (2) can be used in order to connect several inverters.

Any modification may only be done in compliance with the utility operator! SolarPower Browser can be used for adjusting the inverter parameters.

SolarPower Browser is available for download at: www.samilpower.com

EN







Opening the Inverter

Proceed as follows:

- 1. WARNING! Risk of electric WARNING: RISK of electric shock! Both DC and AC voltage is terminated inside the inverter.
 → Disconnect DC and AC voltage before servicing.
 CAUTION! risk of damaging the inverter with water inside the opdiourse. Desure that po water
- enclosure. Ensure that no water will enter when the inverter is open.
- 3. Disconnect AC-power.

- Disconnect DC-power.
 WARNING! Danger of electric shock!
- → Wait for 5 minutes in order to 6. Remove screws on the bottom lid.

EN

- 7. Remove lid.
- 8. CAUTION! Risk of damaging the inverter! Protect the inverter from electrostatic discharge.



SR3-10TLA-US-IG_10_EN0714



Examples of Wiring Diagrams

All electrical installations must be done in accordance with the local codes and with the National Electrical Code®, ANSI/NFPA 70. See national National Electrical Code® section 690-64(b)(2). Overcurrent protection for the AC output circuit must be provided in the electrical installation refer to the National Electrical Code®, ANSI/ NFPA 70.

EN





Wire Sizes and Torques

Use the following wire sizes and torques:

Ε.			AC	D	C	PI	
	SolarRiver	Size [AWG]	Torque [Nm/in-bs]	Size [AWG]	Torque [Nm/in-bs]	Size [AWG]	Torque [Nm/in-bs]
L	3000TLA-US	6-10	1.69/15	8-10	1.69/15	6-10	5.08/45
L	3800TLA-US	6-10	1.69/15	8-10	1.69/15	6-10	5.08/45
L	5000TLA-US	6-8	1.69/15	8-10	1.69/15	6-8	5.08/45
	6000TLA-US	6-8	1.69/15	8-10	1.69/15	6-8	5.08/45
	7000TLA-US	4-6	1.69/15	8-10	1.69/15	4-6	5.08/45
Ε.	8000TLA-US	4-6	1.69/15	8-10	1.69/15	4-6	5.08/45
L	9000TLA-US	4-6	1.69/15	8-10	1.69/15	4-6	5.08/45
L	10000TLA-US	4-6	1.69/15	8-10	1.69/15	4-6	5.08/45



EN

SR3-10TLA-US-IG_10_EN0714



Display: "Statistics" / "Information"

Statistics

 T-day, E-day, T-mon, E-mon, T-tot: Total operating hours and energy yield in current day, month and total.

Information

 V1in / 11in, V2in / 12in: Voltage and current of respective DCports Pin1 / Pin2: DC power of respective input ports

EN

- respective input ports
 Vgrid/ Igrid: AC voltage and AC current
- 4. Pout / Fgrid: AC-power and ACfrequency
- 5. GFCI: Ground fault current



SR3-10TLA-US-IG_10_EN0714















Ethernet: Connection

Put cable through enclosure opening.
 Connect cable to plug.
 Plug cable into socket.



EN



RS485: Connection

Connection with RJ45 plugs

- 1. Put cables through enclosure openings.
- 2. Connect cables to plugs. Use identical pins between inverters.
- 3. Plug cables into sockets
- 4. Attach magnetic brackets (only SR3000TLA-US 6000TLA-US)
- Connect to datalogger according to documentation of the datalogger.

Connection with Terminals

- 1. Put cables through enclosure openings.
- 2. Connect cables to terminals. Use identical pins between inverters.

EN

- 3. Attach magnetic brackets (only SR3000TLA-US 6000TLA-US)
- Connect to datalogger according to documentation of the datalogger.





Display Messa	ges		
Event Code	Message	Description	Suggested Solutions
1	ac-volta9e-oor	AC-voltage is out of range	• Check whether AC-grid (voltage and frequency) is beyond the specification.
2	ac-freq-oor	AC-frequency is out of range	Check whether the connection of AC-side is correct.
3	PV1- voltage-oor	PV1 voltage out of range	Check output voltage of PV-array. Check if voltage and current is in specified
4	PV2- voltage-oor	PV2 voltage out of range	range.
5	PV1 Over current	PV1 current out of range	Check overall installation for proper connection according to manual.
6	PV2 Over current	PV2 current out of range	If the failure consists, contact your supplier.
7	Over TemPerature	High temperature detected inside enclosure	 Check fan function. Check fan for dust and dirt. Check ambient conditions.
8	Gr id Gone	No voltage detected	Check AC-side connection.
9	Unknown 9r id	Grid type (208 V, 240 V, 277 V) could not be detected	Specify correct grid type in "Settings" menu.
10	Fan Loss	Fan abnormity	Check the fan. If the fan is not rotating, contact your supplier.
11	Comm Loss	Communication abnormity	Contact your supplier when this failure persists, when the inverter is
12	EEPROM Loss	Internal failure	rebooted.
13	ISO Loss	Isolation measurement failure	 Check if output voltage of PV-array is in specified range. Check insulation of PV-cable. Check overall installation for proper connection according to manual. Reboot inverter. Contact your supplier when this failure persists.





EN



Display Messages

Event Code	Message	Description	Suggested Solutions
14	Over Load	Ouptput power is exceeding specified value	Check installation Check if PV-power is too high
15	DC Reverse		 Check whether the output voltage of PV array is in the allowable range. Check whether the insulation of PV cable is good. Inspect whether the installation is correct according to the manual. Reboot inverter. Contact your supplier when this failure persists.
16	PV1 Always Low	Power from PV1 is low for 3 hours, while PV2 is operating normally.	Check the DC-side and the connection.
17	PV2 A luays Low	Power from PV2 is low for 3 hours, while PV1 is operating normally.	
18	StartuP		
19	Shutdown		
20	Fan1Loss	Malfunction of Fan 1 detected	Check the fan 1. If the fan is not turning, contact your supplier.
21	Fan2 Loss	Malfunction of Fan 2 detected	Check the fan 2. If the fan is not turning, contact your supplier.
24	AFCI Hard Fault	AFCI detecting module fault	Reboot inverter. Contact your supplier when this failure persists.
25	AFCI Fault	An arc was detected on the DC side	Check the reason for the AFCI fault. See page 44.







Arc-Fault Circuit Interrupter

The inverter is equipped with an integrated Arc-Fault Circuit Interrupter (AFCI):

- 1. The AFCI detects electric arcs in the DC circuit.
- 2. The AFCI disconnects the DC circuit.
- 3. The inverter must be manually reset in order to resume operation.

The inverter presents the following message on the display:

EN

"AFCI Fault"

The procedure for manual reset of an AFCI fault is described on the following page.









Periodic Inspection

It is reccomended to conduct the following inspections of the inverter:

- 1. DC switch: Turn on and off several times once a month.
- 2. AFCI: Initiate self test once a month.



EN

SR3-10TLA-US-IG_10_EN0714



Fault Message	S	
Fault Code	Message	Description
1	Relay Fault	Relay abnormity
2	DCI Fault	DCI over limit
3	Short Circuit	Output Short Circuit
4	OutPut OCP	Output Overcurrent
5	GFCI Hard Fault	Internal fault
6	Bus OVP	Internal fault
7	GFCI 300mA	Ground leakage over 300mA
8	GFCI 30mA	Ground leakage jump 30mA
9	GFCI 60mA	Ground leakage jump 60mA
10	GFCI 150mA	Ground leakage jump 150mA
11	Comm Loss	communication abnormity
12	EEPROM Loss	Internal fault
13	ISO Loss	Isolation measurement failure



EN



EN Technical Data



	SolarRiver 3000TLA-US	SolarRiver 3800TLA-US	SolarRiver 5000TLA-US	SolarRiver 6000TLA-US
Input (DC)				
Max. DC power (@cos \$\$\Phi\$ = 1) total / per MPP input Max input voltane	3500 W / 3500 W	4600 W / 2600 W 550	5750 W / 2900 w	6800 W / 3400 W
MPP voltage range / rated input voltage		200 V - 500	V / 400 V	
Min. input voltage / initial input voltage Max. input current input A / input B	17.5 A / -	11 A/ 11 A	150 V 14.5 A / 14.5 A	17.5 A / 17.5 A
Max. input current per string input A / input B	11.5 A/ -	11 A/ 11 A	11.5 A / 11.5 A	11.5A/ 11.5A
Max. input short circuit current	20 A/-	15 A/ 15 A	15 A / 15 A	20 A / 20 A
Max. utility backteed current to PV array Number of independent MPP inputs / strings per MPP input	1/2	UA	0/A	UA
Output (AC)	-		ŗ	
Rated power (@ 240 V / 60 Hz)	3000 W	3800 W	5000 W	W 0009
Max. apparent AC power	3300 VA	3800 VA	5500 VA	6600 VA
Nominal AC voltage / range	240 \ 20	/ / 211 - 264 V (typi 8 V / 183 V - 229 \	(al)	240 V / 211 - 264 V (typical) 208 V / 183 V - 229 V 277 V / 244 V - 305 V
AC frequency / range		60 Hz / 59.3 H	łz 60.5 Hz	
Rated grid voltage / rated grid frequency		208 V / 60 Hz; 240 V / 60 Hz;		208 V/ 60 Hz 240 V/ 60 Hz 277 V/ 60 Hz
Max. output current	14.5 A @ 208 V 12.5 A @ 240 V	19 A @ 208 V 16 A @ 240 V	24 A@ 208 V 21 A@ 240 V	29 A @ 208 V 25 A @ 240 V 22 A @ 277 V
Max. output fault current	20 A	30 A	30 A	40 A
Max. output overcurrent protection	20 A	25 A	30 A	35 A
Trip time		≤±2 ≤16.6	% 7 ms	
Power factor at rated power		_		
Feed-in phases / connection phases		2/	N	
	V 8/06 5 @ 208 V	07 7 / 07 0	07 8 / 07 0	07 8 / 06 5 @ 208 V
Max. efficiency / CEC weighted efficiency [%]	97.6 / 97.0 @ 240 V	@ 208 V / 240 V	@ 208 V / 240V	97.8/97.0@240V/277V
DC disconnect device / AC disconnect device		•	1	
Ground fault monitoring / grid monitoring		•/	•	
Galvanic isolation		•	•	
All-pole-sensitive residual-current monitoring unit				
(according to IEC 60664-1)		1 / 11 (DC),	, III (AC)	
Dimensions (W / H / D)		380 / 580 / 203 mn	n (15 / 23.8 / 8 in)	
Weight Onerating temperature range	26 kg (57.3 lb)	27.5 kg (60.6 lb)	29 kg (64 lb) wer derating > 4	30 kg (66 lb)
Noise emission (typical)	< 40 dB	< 45	đB	< 50 dB
Topology		Transfor	nerless	
Cooling concept	Convection		Fan	
Maximum permissible value for relative humidity (non-condensing)		95	%	
DC connection / AC connection		Screw terminal /	Screw terminal	
Display		2-line	LCD	
Interface: RS485 / Wi-Fi / Ethernet		•/•	/•	
Multi-function relay / digital input		•101	-	
Certificates and approvals (additional on request)	UL1741, IEEE1547	, FCC Part 15 (Clas	35 A & B), CSA C22	2.2 No. 107.1-2001
 Standard features Optional features — Not available 			Techr	nical changes reserved

EN Technical Data



7900 W / 3950 W	9000 W / 4500 W	10100 W / 5050 W	11300 W / 5650 W
	600	>0	
250 V - 50	0 V / 400 V	300 V - 500	V / 400 V
	150 V	/ 200 V	
18 A/ 18 A	19 A/ 19 A	19 A/ 19 A	ZU A / ZU A
76 A / 76 A	11.0A.1 7 A 1 7 E A	A 05 / A 05	30 0 / 30 0
A 0 A 0	0A	0A	0A
	2/2	+ 3	
7000 W	8000 W	M 0006	10000 W
7700 VA	8800 VA	9900 VA	11000 VA
	240 V / 211 - 2 208 V / 18 277 V / 204	264 V (typical) 3 V - 229 V	
	60 H7 / 50 3 I	- 4 2 00 2 4 4 2 4 2 4 2 4 2 4 2 4 2 4 2	
20	8 V / 60 Hz; 240 V /	60 Hz; 277 V / 60 H	Ŧ
34 A @ 208 V 29 A @ 240 V	39 A @ 208 V 33 A @ 240 V	43 A @ 208 V 38 A @ 240 V	48 A @ 208 V 42 A @ 240 V
26 A @ 277 V	29 A @ 277 V	33 A @ 277 V	37 A @ 277 V
A UC	A UC	60 A	01 × 10
40 A	A UC	A CC	A CO
		2 %	
	≤ 10.0	o/ ms	
	· c		
	2	7	
08 % / 97 % 98 % / 97 55	208 V / 277 V % @ 240 V	98 % / 97 % 00 % / 97 % 00 %	6 @ 208 V 0 240 V / 277 V
	•	- /	
	•	•	
	•	•	
	1 / 11 (DC)), III (AC)	
4	70 / 700 / 203 mm	(18.5 / 27.6 / 9.1 in	
42.5 kg	(93.7 lb)	43.5 kg (, 95.9 lb)
-25 +60 °C	Č (-13 140 °F) (p	ower derating > 45	°C / 115 °F)
< 50) dB	< 55	dB
	v	N	
	Transfor	merless	
	Ë	an	
	NEMA 3	R / IP65	
	95	%	
	Screw terminal	Screw terminal	
	2-line	I CD	
		•	
	Ĩ		
	• [•]	1010	
UL1741, IEEE154;	7, FCC Part 15 (Cla	ss A & B), CSAC22	.2 No. 107.1-2001
	7900 W / 3950 W 250 V - 50 18 A / 18 A 25 A / 25 A 7700 VA 7700 VA 7700 VA 7700 VA 7700 VA 7700 VA 7700 VA 7700 VA 745 A 45 A 45 A 45 A 45 A 45 A 45 A 45 A	7900 W/ 3950 W 900 W 4500 W 600 250 V - 500 V / 400 V 18 A / 18 A 19 A 19 A 150 V 18 A / 18 A 19 A 19 A 20 25 A / 25 A 26 A 20 A 2/2 7000 W 8000 W 8000 W 8000 W 200 V 2011 2700 W 800 W 200 W 2011 - 220 V 200 V	7900 W/ 3950 W 9000 W/ 4500 W 10100 W/ 500 W 250 V - 500 V/ 400 V 150 V / 105 N 105 V / 115 A 115 A 115 A 30 A 3



FCC compliance information

Samil Power photovoltaic grid-connected SolarRiver-US inverter complies with part 15 of the FCC rules. Operation is subject to the following conditions.

- 1. This device may not cause harmful interference.
- 2. This device must accept any interference received, including interface that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A & B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment must be installed and used in accordance with the instructions. or it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the inverter.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user is cautioned that changes or modifications not expressly approved by SamilPower could void the user's authority to operate this equipment.







One-Stop Shopping Samil Power Product Portfolio





