



THEIA S String Solar Inverters: 2.1kW – 4.6kW

High Performance, Galvanically Isolated, String Inverters

Able to provide extraordinary power yields by using RAC-MPP, the *THEIA S String* inverter range will provide reliable and steady power for more time during the day, even under extreme or highly fluctuating environmental conditions. With 8 models available between 2.1kW and 4.6kW, all with maximum efficiencies, the *THEIA S String* provides a comprehensive range of string inverters.

Product Description

Performance

Using galvanic isolation, the *THEIA S String* inverters meet the highest international safety standards and enable the user to choose whether to ground the positive or the negative terminal on the DC side, making the device especially suitable for use with thin-film modules of any technology. With an extremely low power feed level, the *THEIA S String* inverters provide more power for more of the day, maximising the working time of the installation. The wide input voltage range is outstanding within the class of transformer inverters and enables the use with either monocrystalline, polycrystalline or thin-film PV modules, and starting with the model 3800S and upwards, two PV string inputs are standard. Models 4301S and 4601S also offer the additional advantage of an especially high DC input current of up to 16A.

Reliability

The efficiency of the *THEIA S String* inverter range is one of the highest amongst inverters containing a transformer. High efficiency alone, however, is not sufficient to maximise the energy yield that can be obtained. The decisive measure is how many Wh an inverter can gain from a PV generator, and in this the *THEIA S String* range excels by using Rapid Adaption Control Maximum Power Point tracking (RAC-MPP), a principle for extraordinary high yields, even under extremely fluctuating and dynamic irradiation conditions. The result is quick, efficient, and top class MPP tracking. With a protection level of IP54 and smart thermal design, the inverter has the ability to withstand quick temperature changes, high humidity and dust levels, and is able to operate when other devices have failed in the midday heat.

Ease of use

With all connections using plug connectors and accessible without having to open the inverter, installation occurs in the minimum amount of time. Even in installations containing hundreds of inverters, setup is minimised by the use of an automatic transfer of settings from one inverter to all the others thanks to master programming across the connected *THEIA S String* inverter network.

Monitoring

With a large, backlit, full graphical LCD, performance and important operating conditions are displayed in clearly arranged graphs and diagrams, including week and year review functions, to allow a quick on-site performance check at any time. Even after sunset, you can communicate with the *THEIA S String* inverter to access the current measured data and plant performance, and monitor unexpected plant behaviour day and night.

Datalogger

Throughout its operating life of more than 30 years, the inverter's built-in datalogger saves your measured values, yield and performance data. The datalogger is the only one on the market that functions with the high precision of an electricity meter, with events recorded in a separate protocol memory.

Communication

With a variety of different *THEIA S String* communication devices available, the inverters can be integrated into the total plant monitoring. The EIA485 interface connects the *THEIA S String* inverters and gives them access to the world of *THEIA S String* plant monitoring. This high-performance interface allows cable lengths of up to 1,000 m.

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Technical Specifications

MODEL		2100S	2800S	3100S	3800S	4300S	4301S	4600S	4601S
Input Data									
Max. PV power	W _p	2300	3200	3450	4200	4800	4800	5100	5100
Max. DC power	W	2100	2800	3100	3800	4300	4300	4600	4600
Max. DC voltage	V _{dc}	480	780	780	780	780	580	780	580
Voltage range MPPT	V _{dc}	206	313	314	315	320	277	320	278
		to 390	to 630	to 630	to 630	to 630	to 470	to 630	to 470
Max. input current	A _{dc}	9.0	9.0	9.0	12.0	12.5	15.0	13.0	16.0
Number of PV string inputs		1	1	1	2	2	2	2	2
Number of MPP trackers		1							
Input protection		Optional DC switch disconnecter, integrated in the device Reverse voltage protection							
Output Data									
Max. AC Power	W	1900	2600	2800	3600	4050	4050	4200	4200
Nominal output power	W	1750	2400	2550	3300	3680	3680	3800	3800
Mains output voltage range	V _{ac}	230V (+/-20 %) single phase *							
Mains frequency:	Hz	47.5 to 52.5 *							
Max. AC Current	A _{ac}	8.3	11.3	12.2	15.7	17.6	17.6	18.3	18.3
Nominal AC Current	A _{ac}	7.6	10.4	11.1	14.3	16.0	16.0	16.5	16.5
Output protection		Short circuit detection 1-phase or 3-phase grid monitoring							
Performance Data									
Maximum Efficiency:	%	>94,7	>95,3	>95,3	>95,6	>95,6	>94,6	>95,6	>94,6
EU Efficiency:	%	>93,7	>94,4	>94,4	>94,6	>94,7	>93,5	>94,8	>93,6
Power Feed Starts at	W	13	14	14	18	18	17	18	17
Night mode power	W	< 2.5							
Mechanical Data									
Protection degree (EN 60529)		IP 54							
Dimensions	mm	H 720 x W 320 x D 250							
Weight	kg	30	35	35	42	42	43	42	43
Cable access		Bottom							
Input cable connection		MC4							
Output cable connection		Wieland RST 3i or 5i (dependant upon 1-phase or 3-phase grid monitoring)							
Design Standards									
EM compatibility:		EN 61000-6-2, EN 61000-6-3							
CE marking:		Yes							
Other standards:		DIN VDE V 0126-1-1, G83/1, EN 50438, AS 4777, ENEL Guidelines, RD 1663, RD 661, EN 61000-3-2, EN 61000-3-3 EN 61000-3-11, EN 61000-3-12							
Environmental Data									
Operating temperature:	°C	-20 to +60 (output power derating above +45°C)							
Storage temperature:	°C	-20 to +80							
Ventilation		Convection cooling (fan assist at high temperature)							
Interface									
Front panel		Full graphic LCD: 170 x 76 pixels							
Embedded datalogger		Memory capacity for 30yrs operation							
Service		EIA 232, 9-pin D-sub female							
Remote connection option		EIA 485, 2x RJ45 for network components							
Volt free contact option		Normally open contact: 24V _{ac} /2A rated							

*- voltage and frequency range adjusted to specific country settings