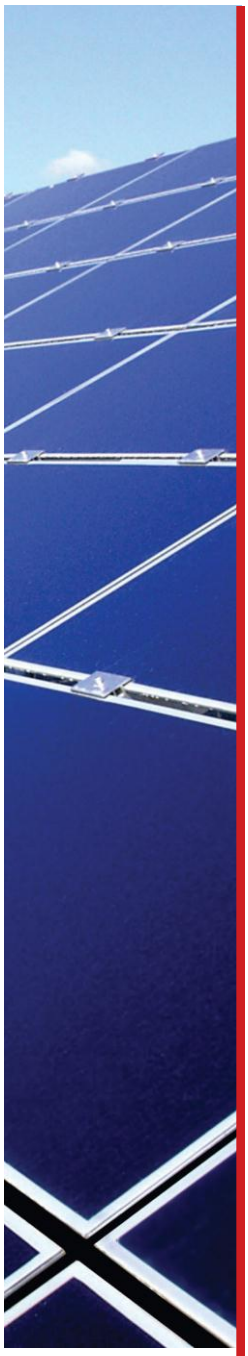

Application Note
Compatible Inverters without galvanic isolation for FS Series 2 and FS Series 3 PV Modules

This document provides a list of inverters that are compatible and approved for the usage with the First Solar FS Series 2 and FS Series 3 Modules. This list does not provide performance evaluations or comparisons between inverters and does not recommend a specific inverter manufacturer. Absence from the list does not indicate that there is an incompatibility with an inverter, only that First Solar has not done a estimation or doesn't completed the verification of the component in this point of time.

First Solar warrants its FS-Series 2 & 3 modules according to the First Solar Module Warranty Terms & Conditions (PD-5-102-EU) provided the modules are installed, operated and serviced as described in the First Solar User Guide (PD-5-200, "User Guide") and in the System Design and Application document (PD-2-303, "SDA").

First Solar requires all system designs to be submitted for review and approval via its SDA process. For warranty purposes, every system with First Solar modules must be covered by a SDA. Project developer should request this particular document from direct First Solar customers.

Approval of the following listed inverter is based upon and in accordance with the datasheet effective at the time of evaluation. Changes in the inverter parameter(s) lead automatically to a lapse of the confirmation of compatibility. First Solar reserves the right to change the approval requirements for the inverter as well as a possible revocation of the inverter approval list.

Compatible Inverters without galvanic isolation for FS Series 2 and FS Series 3 PV Modules:[1][2]

Manufacturer	Inverter Series	Type	Transformer	VOC Max	max modules in series (FS2)	max modules in series (FS3)
AEG Power Solutions	Protect PV	8	No	1000	10	15
AEG Power Solutions	Protect PV	10	No	1000	10	15
AEG Power Solutions	Protect PV	12,5	No	1000	10	15
AEG Power Solutions	Protect PV	15	No	1000	10	15
AEG Power Solutions	Protect PV	2000	No	450	4	6
AEG Power Solutions	Protect PV	2800	No	500	5	7
AEG Power Solutions	Protect PV	4600	No	750	7	11
AEG Power Solutions	Protect PV	.250	No	1000	10	15
AEG Power Solutions	Protect PV	.500	No	1000	10	15

[1] First Solar FS Series 2&3 PV Modules have no exposed conductive surfaces and do not require equipment grounding as long as a clip length of 100mm for a standard 4 clip mounting is not exceeded.
[2] Calculation for max. number of modules in series is based on -10°C cell temperature and 700W/m² irradiation.

Conergy AG	IPG S	3S	No	940	9	14
Conergy AG	IPG S	4S	No	940	9	14
Conergy AG	IPG S	5S	No	940	9	14
Conergy AG	IPG T	11 T	No	1000	10	15
Conergy AG	IPG T	15 T	No	1000	10	15
Conergy AG	IPG T	8 T	No	1000	10	15
Danfoss Solar Inverters A/S	TripleLynx	10k	No	1000	10	15
Danfoss Solar Inverters A/S	TripleLynx	12.5k	No	1000	10	15
Danfoss Solar Inverters A/S	TripleLynx	15k	No	1000	10	15
Danfoss Solar Inverters A/S	TripleLynx	8k	No	1000	10	15
Delta Energy Systems	Solivia	15 TL	No	1000	10	15
Delta Energy Systems	Solivia	20 TL	No	1000	10	15
Diehl Ako Stiftung & Co. KG	Platinum	13000 TL	No	880	8	13
Diehl Ako Stiftung & Co. KG	Platinum	16000 TL	No	880	8	13
Diehl Ako Stiftung & Co. KG	Platinum	22000 TL	No	880	8	13
Diehl Ako Stiftung & Co. KG	Platinum	4300 TL	No	880	8	13
Diehl Ako Stiftung & Co. KG	Platinum	4800 TL	No	880	8	13
Diehl Ako Stiftung & Co. KG	Platinum	5300 TL	No	880	8	13
Diehl Ako Stiftung & Co. KG	Platinum	6300 TL	No	880	8	13
Diehl Ako Stiftung & Co. KG	Platinum	7200 TL	No	880	8	13
Effekta Regeltechnik GmbH	ES	3300	No	500	5	7
Effekta Regeltechnik GmbH	ES	4200	No	500	5	7
Emerson	SPV	145	No	1000	10	15
Emerson	SPV	175	No	1000	10	15
Emerson	SPV	248	No	1000	10	15
Emerson	SPV	300	No	1000	10	15
Emerson	SPV	350	No	1000	10	15
Emerson	SPV	600	No	1000	10	15
Emerson	SPV	700	No	1000	10	15
Emerson	SPV	880	No	1000	10	15
Emerson	SPV	900	No	1000	10	15
Emerson	SPV	1060	No	1000	10	15
Emerson	SPV	1200	No	1000	10	15
Emerson	SPV	1410	No	1000	10	15
Emerson	SPV	1500	No	1000	10	15
Emerson	SPV	1590	No	1000	10	15
Emerson	SPV	1800	No	1000	10	15
Emerson	SPV	2100	No	1000	10	15
Emerson	SPV	2400	No	1000	10	15
Emerson	SPV	2700	No	1000	10	15
Fronius International GmbH	IG TL	3.6	No	850	8	12
Fronius International GmbH	IG TL	3.0	No	850	8	12
Fronius International GmbH	IG TL	4.0	No	850	8	12
Fronius International GmbH	IG TL	5.0	No	850	8	12
Growatt New Energy	Growatt	3600MTL-US	No	600	6	9
Growatt New Energy	Growatt	4200MTL-US	No	600	6	9
Growatt New Energy	Growatt	5000MTL-US	No	600	6	9
IBC Solar AG	ServeMaster	10000TL	No	1000	10	15
IBC Solar AG	ServeMaster	12500TL	No	1000	10	15

IBC Solar AG	ServeMaster	15000TL	No	1000	10	15
IBC Solar AG	ServeMaster	8000TL	No	1000	10	15
Ingeteam GmbH	IngeconSun Lite	2.5 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Lite	3 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Lite	3.3 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Lite	3.68 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Lite	3.8 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Lite	4.6 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Lite	5 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Lite	6 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Power Max	100TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	125TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	250TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	315TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	375TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	470TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	500TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	625TL	No	900	9	13
Ingeteam GmbH	IngeconSun Power Max	630 HE TL	No	900	9	13
Ingeteam GmbH	IngeconSun Smart	10 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Smart	12.5 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Smart	15 TL	No	550	5	8
Ingeteam GmbH	IngeconSun Smart	18 TL	No	550	5	8
KACO Gerätetechnik GmbH	Powador	3200	No	800	8	12
KACO Gerätetechnik GmbH	Powador	4400	No	800	8	12
KACO Gerätetechnik GmbH	Powador	5300	No	800	8	12
KACO Gerätetechnik GmbH	Powador	5500	No	800	8	12
KACO Gerätetechnik GmbH	Powador	6600	No	800	8	12
KACO Gerätetechnik GmbH	Powador	7700	No	800	8	12
KACO Gerätetechnik GmbH	Powador	7900	No	800	8	12
KACO Gerätetechnik GmbH	Powador	8600	No	800	8	12
KACO Gerätetechnik GmbH	Powador	9600	No	800	8	12
KACO Gerätetechnik GmbH	Powador	10.0 TL3	No	1000	10	15
KACO Gerätetechnik GmbH	Powador	12.0 TL3	No	1000	10	15
KACO Gerätetechnik GmbH	Powador	14.0 TL3	No	1000	10	15
KACO Gerätetechnik GmbH	Powador	25000xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	25000xi Park	No	800	8	12
KACO Gerätetechnik GmbH	Powador	2500xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	30.0 TL3	No	1000	10	15
KACO Gerätetechnik GmbH	Powador	30000xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	30000xi Park	No	800	8	12
KACO Gerätetechnik GmbH	Powador	33000xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	33000xi Park	No	800	8	12
KACO Gerätetechnik GmbH	Powador	3500xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	3600xi	No	800	8	12

KACO Gerätetechnik GmbH	Powador	37.5 TL3	No	1000	10	15
KACO Gerätetechnik GmbH	Powador	39.0 TL3	No	1000	10	15
KACO Gerätetechnik GmbH	Powador	4000xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	4500xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	5000xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	6400xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	6650xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	7200xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	8000xi	No	800	8	12
KACO Gerätetechnik GmbH	Powador	8000xi Thinfilm HV	No	800	8	12
KACO Gerätetechnik GmbH	Powador	8000xi Thinfilm LV	No	600	6	9
Kostal Solar Electric GmbH	Piko	10.1	No	950	9	14
Kostal Solar Electric GmbH	Piko	4.2	No	950	9	14
Kostal Solar Electric GmbH	Piko	8.3	No	950	9	14
Kostal Solar Electric GmbH	Piko	5.5	No	950	9	14
Kostal Solar Electric GmbH	Piko	3.6	No	950	9	14
M+W Group GmbH	MW	65	No	850	8	12
M+W Group GmbH	MW	125	No	850	8	12
Mastervolt	SunMaster	CS 15 TL	No	1000	10	15
Mastervolt	SunMaster	CS 20 TL	No	1000	10	15
Oelmaier Technology GmbH	PAC	2	No	750	7	11
Oelmaier Technology GmbH	PAC	3	No	750	7	11
Oelmaier Technology GmbH	PAC	4	No	750	7	11
Oelmaier Technology GmbH	PAC	5	No	750	7	11
Oelmaier Technology GmbH	PAC	7	No	750	7	11
Omron	KP	100G	No	800	8	12
PAIRAN GmbH	PVI	8000	No	1000	10	15
PAIRAN GmbH	PVI	10000	No	1000	10	15
Power One Italy SpA	Aurora Trio	20.0-TL-OUTD	No	1000	10	15
Power One Italy SpA	Aurora Trio	27.6-TL-OUTD	No	1000	10	15
Power One Italy SpA	Aurora Trio	PVI-10.0-OUTD	No	900	9	13
Power One Italy SpA	Aurora Trio	PVI-12.5-OUTD	No	900	9	13
Power One Italy SpA	Aurora Uno	PVI-2000	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-3.0-OUTD	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-3.0-OUTD-S	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-3.6-OUTD	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-3.6-OUTD-S	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-3600	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-4.2-OUTD	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-4.2-OUTD-S	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-5000-OUTD-S	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-6000-OUTD	No	600	6	9
Power One Italy SpA	Aurora Uno	PVI-6000-OUTD-S	No	600	6	9

RefuSol GmbH	Refu Sol	004K	No	880	8	13
RefuSol GmbH	Refu Sol	005K	No	880	8	13
RefuSol GmbH	Refu Sol	006K	No	880	8	13
RefuSol GmbH	Refu Sol	008K	No	1000	10	15
RefuSol GmbH	Refu Sol	010K	No	1000	10	15
RefuSol GmbH	Refu Sol	013K	No	1000	10	15
RefuSol GmbH	Refu Sol	017K	No	1000	10	15
RefuSol GmbH	Refu Sol	020K	No	1000	10	15
RefuSol GmbH	Refu Sol	11k	No	900	9	13
RefuSol GmbH	Refu Sol	12k	No	900	9	13
RefuSol GmbH	Refu Sol	15K	No	900	9	13
RefuSol GmbH	Refu Sol	16K	No	1000	10	15
Saft Power Systems Iberica, SL	Protect PV	10	No	800	8	12
Schüco International KG	SGI	30k	No	800	8	12
Schüco International KG	SGI	33k	No	800	8	12
Schüco International KG	SGI plus	2000	No	800	8	12
Schüco International KG	SGI plus	2500	No	800	8	12
Schüco International KG	SGI plus	3000	No	800	8	12
Schüco International KG	SGI plus	3500	No	800	8	12
Schüco International KG	SGI plus	4000	No	800	8	12
Schüco International KG	SGI plus	4500	No	800	8	12
Schüco International KG	SGI plus	5500	No	800	8	12
SIAC	SOLEIL BT	6	No	600	6	9
Siemens AG	SINVERT PVM	10	No	1000	10	15
Siemens AG	SINVERT PVM	13	No	1000	10	15
Siemens AG	SINVERT PVM	17	No	1000	10	15
Siemens AG	SINVERT PVM	20	No	1000	10	15
Siemens AG	Sitop	1500	No	675	6	10
Siemens AG	Sitop	2000	No	675	6	10
Siemens AG	Sitop	2300	No	675	6	10
Siemens AG	Sitop	3000	No	675	6	10
Siemens AG	Sitop	4000	No	675	6	10
Siemens AG	Sitop	4600	No	675	6	10
SMA Solar Technology AG	Sunny Boy	2100TL	No	600	6	9
SMA Solar Technology AG	Sunny Boy	3000TL	No	550	5	8
SMA Solar Technology AG	Sunny Boy	3300TL HC	No	750	7	11
SMA Solar Technology AG	Sunny Boy	4000TL	No	550	5	8
SMA Solar Technology AG	Sunny Boy	4200TL HC	No	750	7	11
SMA Solar Technology AG	Sunny Boy	5000TL	No	550	5	8
SMA Solar Technology AG	Sunny Boy	5000TL HC	No	750	7	11
SMA Solar Technology AG	Sunny Mini Central	10000TL	No	700	7	10
SMA Solar Technology AG	Sunny Mini Central	11000TL	No	700	7	10
SMA Solar Technology AG	Sunny Mini Central	6000TL	No	700	7	10
SMA Solar Technology AG	Sunny Mini Central	7000TL	No	700	7	10
SMA Solar Technology AG	Sunny Mini Central	8000TL	No	700	7	10
SMA Solar Technology AG	Sunny Mini Central	8000TL/V	No	700	7	10
SMA Solar Technology AG	Sunny Mini Central	9000TL	No	700	7	10

SMA Solar Technology AG	Sunny Tripower	10000TL	No	1000	10	15
SMA Solar Technology AG	Sunny Tripower	12000TL	No	1000	10	15
SMA Solar Technology AG	Sunny Tripower	15000TL	No	1000	10	15
SMA Solar Technology AG	Sunny Tripower	17000TL	No	1000	10	15
SMA Solar Technology AG	Sunny Tripower	8000TL	No	1000	10	15
Socomec	SUNSYS pro	24K	No	1000	10	15
SOLUTRONIC GmbH	SOLPLUS	25	No	850	8	12
SOLUTRONIC GmbH	SOLPLUS	35	No	850	8	12
SOLUTRONIC GmbH	SOLPLUS	50	No	850	8	12
SOLUTRONIC GmbH	SOLPLUS	55	No	850	8	12
SOLUTRONIC GmbH	SOLPLUS	100	No	850	8	12
SOLUTRONIC GmbH	SOLPLUS	120	No	850	8	12
SOLUTRONIC GmbH	SOLPLUS	300	No	850	8	12
Sputnik Engineering GmbH	SolarMax C	2000C	No	600	6	9
Sputnik Engineering GmbH	SolarMax C	3000C	No	600	6	9
Sputnik Engineering GmbH	SolarMax C	4000C	No	900	9	13
Sputnik Engineering GmbH	SolarMax C	4200C	No	600	6	9
Sputnik Engineering GmbH	SolarMax C	6000C	No	600	6	9
Sputnik Engineering GmbH	SolarMax MT	10 MT	No	900	9	13
Sputnik Engineering GmbH	SolarMax MT	13 MT	No	900	9	13
Sputnik Engineering GmbH	SolarMax MT	15 MT	No	900	9	13
Sputnik Engineering GmbH	SolarMax S	2000S	No	600	6	9
Sputnik Engineering GmbH	SolarMax S	20S	No	900	9	13
Sputnik Engineering GmbH	SolarMax S	3000S	No	600	6	9
Sputnik Engineering GmbH	SolarMax S	35S	No	900	9	13
Sputnik Engineering GmbH	SolarMax S	4200S	No	600	6	9
Sputnik Engineering GmbH	SolarMax S	6000S	No	600	6	9
Steca Elektronik GmbH	StecaGrid	3000	No	800	8	12
Steca Elektronik GmbH	StecaGrid	3600	No	800	8	12
Steca Elektronik GmbH	StecaGrid	10000 3ph	No	845	8	12
Steca Elektronik GmbH	StecaGrid	2000+	No	450	4	6
Steca Elektronik GmbH	StecaGrid	8000 3ph	No	845	8	12
Steca Elektronik GmbH	StecaGrid	9000 3ph	No	830	8	12
Sungrow Power Supply Co., Ltd.	SG	10KTL	No	1000	10	15
Sungrow Power Supply Co., Ltd.	SG	12KTL	No	1000	10	15
Sungrow Power Supply Co., Ltd.	SG	15KTL	No	1000	10	15
Sungrow Power Supply Co., Ltd.	SG	2K5TL-31	No	500	5	7
Sungrow Power Supply Co., Ltd.	SG	3KTL-31	No	500	5	7
Sungrow Power Supply Co., Ltd.	SG	4KTL-31	No	500	5	7
Sunways AG	AT	2700	No	680	6	10
Sunways AG	AT	3600	No	680	6	10
Sunways AG	AT	4500	No	680	6	10
Sunways AG	AT	5000	No	680	6	10
Sunways AG	NT	2500	No	900	9	13
Sunways AG	NT	2600	No	850	8	12
Sunways AG	NT	3700	No	900	9	13
Sunways AG	NT	4000	No	850	8	12
Sunways AG	NT	4200	No	900	9	13

Sunways AG	NT	5000	No	850	8	12
Sunways AG	NT	6000	No	850	8	12
Sunways AG	NT	8000	No	850	8	12
Sunways AG	NT	10000	No	900	9	13
Sunways AG	NT	11000	No	900	9	13
Sunways AG	NT	12000	No	900	9	13
Sunways AG	PT	30K	No	1000	10	15
Sunways AG	PT	33K	No	1000	10	15
Voltwerk electronics GmbH	VS	3	No	940	9	14
Voltwerk electronics GmbH	VS	4	No	940	9	14
Voltwerk electronics GmbH	VS	5	No	940	9	14
Voltwerk electronics GmbH	VS	8	No	1000	10	15
Voltwerk electronics GmbH	VS	11	No	1000	10	15
Voltwerk electronics GmbH	VS	15	No	1000	10	15
Zigor CORPORACIÓN S.A.	Sunzet	100 TL	No	800	8	12
Zigor CORPORACIÓN S.A.	Sunzet	30 TL	No	800	8	12
Zigor CORPORACIÓN S.A.	Sunzet	50 TL	No	800	8	12