

Compliance Document

No. D 104339 0076 Rev. 00

Holder of Certificate: **Ningbo Sunways Technologies Co.,Ltd.**
No. 1,Second Road
Green Industrial Zone
Chongshou Town
315334 Cixi,Ningbo,Zhejiang
PEOPLE'S REPUBLIC OF CHINA

Product: **Converter**
GRID-CONNECTED PV INVERTER

This Compliance document confirms the compliance with the listed standards on a voluntary basis. It refers only to the sample submitted for testing and certification and does not certify the quality or safety of the serial products. For details see: www.tuvsud.com/ps-cert

Test report no.: 5040923003106-00

Date, 2023-05-16



(Zhengdong Ma)



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Model(s): STS-1KTL-S, STS-1.5KTL-S, STS-2KTL-S,
STS-2.5KTL-S, STS-3KTL-S, STS-1KTL-S-P,
STS-1.5KTL-S-P, STS-2KTL-S-P, STS-2.5KTL-S-P,
STS-3KTL-S-P.

Parameters: Please see pages 3-6

Tested according to: UTE C15-712-1:2013
DIN VDE 0126-1-1:2013 (with national deviation of France: DIN
VDE 0126-1-1 VFR 2019)

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Parameters:

Model Name	STS-1KTL-S	STS-1.5KTL-S	STS-2KTL-S
PV Input Parameters:			
Max. Input Voltage	500 Vd.c.	500 Vd.c.	500 Vd.c.
MPPT Voltage Range	80-450 Vd.c.	80-450 Vd.c.	80-450 Vd.c.
Max. Input Current	12.5 Ad.c.	12.5 Ad.c.	12.5 Ad.c.
Isc PV	15 Ad.c.	15 Ad.c.	15 Ad.c.
AC Output Parameters:			
Output Rated Voltage	230 Va.c.	230 Va.c.	230 Va.c.
Output Rated Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Output Rated Power	1000 W	1500 W	2000 W
Output Max. Apparent Power	1100 VA	1650 VA	2200 VA
Output Rated Current	4.4 Aa.c.	6.5 Aa.c.	8.7 Aa.c.
Output Max. Current	4.8 Aa.c.	7.2 Aa.c.	9.6 Aa.c.
Power Factor	0.8 leading...0.8 lagging		
Others:			
Protection Class	I		
Ingress Protection	IP65		
Overvoltage Category	II(PV), III(MAINS)		
Operating Temperature Range	-30°C ... +60°C		
Operating Altitude	3000m		
Inverter Topology	Non-isolated		

Model Name	STS-2.5KTL-S	STS-3KTL-S
PV Input Parameters:		
Max. Input Voltage	500 Vd.c.	500 Vd.c.
MPPT Voltage Range	80-450 Vd.c.	80-450 Vd.c.
Max. Input Current	12.5 Ad.c.	12.5 Ad.c.
Isc PV	15 Ad.c.	15 Ad.c.
AC Output Parameters:		
Output Rated Voltage	230 Va.c.	230 Va.c.
Output Rated Frequency	50/60 Hz	50/60 Hz
Output Rated Power	2500 W	3000 W
Output Max. Apparent Power	2750 VA	3300 VA
Output Rated Current	10.9 Aa.c.	13.1 Aa.c.
Output Max. Current	12 Aa.c.	14.4 Aa.c.
Power Factor	0.8 leading...0.8 lagging	
Others:		
Protection Class	I	
Ingress Protection	IP65	
Overvoltage Category	II(PV), III(MAINS)	
Operating Temperature Range	-30°C ... +60°C	
Operating Altitude	3000m	
Inverter Topology	Non-isolated	

Model Name	STS-1KTL-S-P	STS-1.5KTL-S-P	STS-2KTL-S-P
PV Input Parameters:			
Max. Input Voltage	500 Vd.c.	500 Vd.c.	500 Vd.c.

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MPPT Voltage Range	80-450 Vd.c.	80-450 Vd.c.	80-450 Vd.c.
Max. Input Current	16 Ad.c.	16 Ad.c.	16 Ad.c.
Isc PV	20 Ad.c.	20 Ad.c.	20 Ad.c.
AC Output Parameters:			
Output Rated Voltage	230 Va.c.	230 Va.c.	230 Va.c.
Output Rated Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Output Rated Power	1000 W	1500 W	2000 W
Output Max. Apparent Power	1100 VA	1650 VA	2200 VA
Output Rated Current	4.4 Aa.c.	6.5 Aa.c.	8.7 Aa.c.
Output Max. Current	4.8 Aa.c.	7.2 Aa.c.	9.6 Aa.c.
Power Factor	0.8 leading...0.8 lagging		
Others:			
Protection Class	I		
Ingress Protection	IP65		
Overvoltage Category	II(PV), III(MAINS)		
Operating Temperature Range	-30°C ... +60°C		
Operating Altitude	3000m		
Inverter Topology	Non-isolated		

Model Name	STS-2.5KTL-S-P	STS-3KTL-S-P
PV Input Parameters:		
Max. Input Voltage	500 Vd.c.	500 Vd.c.
MPPT Voltage Range	80-450 Vd.c.	80-450 Vd.c.
Max. Input Current	16 Ad.c.	16 Ad.c.
Isc PV	20 Ad.c.	20 Ad.c.
AC Output Parameters:		
Output Rated Voltage	230 Va.c.	230 Va.c.
Output Rated Frequency	50/60 Hz	50/60 Hz
Output Rated Power	2500 W	3000 W
Output Max. Apparent Power	2750 VA	3300 VA
Output Rated Current	10.9 Aa.c.	13.1 Aa.c.
Output Max. Current	12 Aa.c.	14.4 Aa.c.
Power Factor	0.8 leading...0.8 lagging	
Others:		
Protection Class	I	
Ingress Protection	IP65	
Overvoltage Category	II(PV), III(MAINS)	
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Default protection settings

Parameters	Normative requirements		Internal threshold setting	
	Maximum clearance time	Trip limit	Maximum clearance time (factory setting)	Factory setting trip value (Default)
Over voltage – state 1: 10 minutes mean value corresponding to EN 50160 and DIN VDE 0126-1-1:2013 (VDE V 0126-1-1:2013)	200ms	1.1Un...1.15Un	200ms	1.1Un (adjustable)
Over voltage – stage 2	200ms	1.15Un	200ms	1.15Un
Under voltage	200ms	0.8Un	200ms	0.8Un
Over frequency	200ms	51.5Hz	200ms	51.5Hz
Under frequency	200ms	47.5Hz	200ms	47.5Hz
Reconnection voltage range after a network outage and response to abnormal conditions	-	85 % Un ... 110 % Un	-	85 % Un ... 110 % Un
Reconnection frequency range after a network outage and response to abnormal conditions	-	47.5 Hz to 50.05 Hz	-	47.5 Hz to 50.05 Hz
Automatic reconnection after a network outage and response to abnormal conditions	≥60s	-	60s	-
DC injection current	200 ms	1A	200ms	1A
PV array Insulation resistance measurement before starting operation	-	≥ Vmax PV/30mA	-	600KΩ
Islanding detection	Max. 5s	Loss of mains	Max. 5s	Loss of mains
Continuous residual current	300 ms	300 mA	300ms	300mA
Sudden changes in residual current	300 ms	30 mA;	300ms	30mA
	150 ms	60 mA;	150ms	60mA
	40 ms	150 mA;	40ms	150mA
Displacement factor	0.944 (According to Enedis-FOR-CF_15E:2023, version 13)		0.944	

The tolerance between setting value and trip value of the voltage shall be at maximum $\pm 1 \%$ and the admissible tolerance for the frequency at maximum $\pm 0.1 \%$.

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b) The following deviations have been applied according to SEI REF 04:2007/V7:2018 for PV plant capacity less than 250kVA and LV connection (PROTECTION DE DECOUPLAGE POUR LE RACCORDEMENT D'UNE PRODUCTION DECENTRALISEE EN HTA ET EN BT DANS LES ZONES NON INTERCONNECTEES. Référentiel Technique)

Parameters	Tripping setting	Max. clearance time setting
Over voltage	1.11 Vn	0.2s
Under voltage	0.85 Vn	0.2s
Over frequency	52.0Hz	0.2s
Under frequency	46.0Hz	0.2s
Under frequency (for Guiana)	45.0Hz	0.2s

c) The following deviations have been applied according to "Contrat de raccordement, d'accès et d'exploitation (CRAE) pour une installation de production photovoltaïque raccordée au Réseau Public d'électricité" and EDT:2011/V1:2011.

Parameters	Tripping setting	Max. clearance time setting
Over voltage	1.15 Vn	0.2s
Under voltage	0.85 Vn	0.2s
Over frequency	62.5Hz	0.2s
Under frequency	55.0Hz	0.2s

Alteration of the above settings or full setting range of the interface protection may cause a breach of the type-certificate marking.

Unauthorised access to factory safety parameters setting and software should be prohibited.

A reset to the factory safety parameters requires retesting and verification in conjunction with the end-use system.