

SOFAR 15-24KTLX-G3

15 / 17 / 20 / 22 / 24 kW

THREE-PHASE DUAL MPPT



Product advantages

- Max. efficiency up to 98.6%
- Low start-up voltage, wide MPPT voltage
- Maximum DC input voltage 1100 V
- Smart string level monitoring
- Type II SPD for both DC and AC side
- Remote firmware upgrade
- 110% long-time overload ability



Model	SOFAR 15KTLX-G3	SOFAR 17KTLX-G3	SOFAR 20KTLX-G3	SOFAR 22KTLX-G3	SOFAR 24KTLX-G3
Input (DC)					
Max. input voltage	1100V				
Rated input voltage	650V				
Start-up voltage	160V				
MPPT operating voltage range	140V-1000V				
Number of MPP trackers	2				
Number of DC inputs	2/2				
Max. input MPPT current	26A/26A				
Max. input short circuit current	36A/36A				
Output (AC)					
Rated output power	15000W	17000W	20000W	22000W	24000W
Max. apparent power	16500VA	18700VA	22000VA	24200VA	26400VA
Max. output current	23.9A	27.1A	31.9A	35.1A	38.3A
Rated output voltage	3/N/PE, 230V/400Vac				
Output voltage range	310Vac-480Vac				
Rated output frequency	50/60Hz				
Output frequency range	45Hz-55Hz/55Hz-65Hz				
Active power adjustable range	0-100%				
THDi	<3%				
Power factor	1 (adjustable +/-0.8)				
Efficiency					
Max. efficiency	98.6%				
European efficiency	98.2%				
Protection					
DC reverse polarity protection	Yes				
Anti-islanding protection	Yes				
Leakage current protection	Yes				
Ground fault monitoring	Yes				
PV-array string fault monitoring	Yes				
DC switch	Yes				
SPD	PV: type II, AC: type II				
General Data					
Ambient temperature range	-30℃~+60℃				
Self-consumption at night	<1W				
Topology	Transformerless				
Degree of protection	IP65				
Allowable relative humidity range	0-100%				
Max. operating altitude	4000m				
Cooling	Smart air cooling				
Dimension (W×H×D)	520×430×198mm				
Weight	20kg	22kg		23kg	
Display	LCD & Bluetooth +APP				
Communication	RS485/Wi-Fi				
Standard	IEC/EN 61000-6-1/3, IEC/EN 61000-3-11/12, IEC 62116, IEC 61727, IEC 61683, IEC 60068-1/2/14/30, IEC/EN 62109-1/2, G99, VDE-AR-N 4105, VDE V 0126-1-1, EN 50549-1, NRS 097-2-1				

*All specifications are subject to change without notice.



ATTESTATION of conformity with European Directives

Attestation Number: 2088AB0511N080002
Product: Solar Grid-tied Inverter
Brand Name: 
Model: SOFAR 24KTLX-G3, SOFAR 15KTLX-G3
Additional Model: SOFAR 17KTLX-G3, SOFAR 20KTLX-G3, SOFAR 22KTLX-G3
Applicant: Shenzhen SOFARSOLAR Co., Ltd.
Address: 401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China.
Technical Characteristics: Max. DC Input Voltage: DC 1100V
Operating MPPT Voltage Range: DC 140~1000V
Max. Input Current: 26A/26A
Nominal Grid Voltage: AC 380/400V
Nominal Grid Frequency: 50/60Hz

The submitted sample of the above equipment has been tested according to following standards:

Standards	Report Number	Report date
IEC 61000-6-3:2006 + A1:2010 IEC 61000-3-11:2017 IEC 61000-3-12:2011 IEC 61000-6-1:2016	C200511N080	Dec. 10, 2020

Assistant Manager
EMC Department



Name: Glyn He
Date: Dec. 10, 2020

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Information given in this document is related to the tested specimen of the described electrical sample.



Certificate of Conformity

Certificate No.: 2088AP0511N080002
Product: Solar Grid-tied Inverter
Brand Name: 
Test Model No.: SOFAR 15KTLX-G3, SOFAR 17KTLX-G3, SOFAR 20KTLX-G3,
SOFAR 22KTLX-G3, SOFAR 24KTLX-G3,
Applicant: Shenzhen SOFARSOLAR Co., Ltd.
401, Building 4, AnTongDa Industrial Park, District 68, XingDong
Community, XinAn Street, BaoAn District, Shenzhen, China
Report No.: PV200511N080-R1, HY202011015(1)

Use in accordance with regulations:

The inverters are tested for functional safety, grid protection, specified environmental influences and efficiency. For detailed information, please watch the corresponding test reports.

Applied rules and standards

IEC 60068-2-1:2007	Environmental testing – Part 2-1: Tests – Test A: Cold
IEC 60068-2-2:2007	Environmental testing – Part 2-2: Tests – Test B: Dry heat
IEC 60068-2-14:2009	Environmental testing – Part 2-14: Tests – Test N: Change of temperature
IEC 60068-2-30:2005	Environmental testing – Part 2-30: Tests – Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)
IEC 61683:1999	Photovoltaic systems – Power conditioners – Procedure for measuring efficiency



Name: James Huang
Technical Manager/ New Energy Team
Date: 2020-11-20

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Certificate of Conformity

Certificate No.: 2088AP200511N080006

Equipment: Solar Grid-tied Inverter

Brand Name:



Test Model No.: SOFAR 15KTLX-G3, SOFAR 17KTLX-G3, SOFAR 20KTLX-G3,
SOFAR 22KTLX-G3, SOFAR 24KTLX-G3

Applicant: Shenzhen SOFARSOLAR Co., Ltd.

401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community,
XinAn Street, BaoAn District, Shenzhen, China

Report No.: LD200511N080

The submitted sample of the above equipment has been tested for CE marking according to following European Directive and standards:

- **Low Voltage Directive 2014/35/EU.**

The referred test report(s) show that the product complies with standard(s) recognized as giving presumption of compliance with the essential requirements in the specified European Directive.

This verification does not imply assessment of the production of the product. The CE marking may be affixed if all relevant and effective European Directives with CE are applicable.

Applied rules and standards

EN 62109-1:2010

Safety of power converters for use in photovoltaic power systems – Part 1: General requirements

EN 62109-2:2011

Safety of power converters for use in photovoltaic power systems –
Part 2: Particular requirements for inverters



Name: James Huang
Technical Manager/ New Energy Team
Date: 2020-12-17

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Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch.
Information given in this document is related to the tested specimen of the described electrical sample.



Certificate of compliance

Certificate No.: 2088AP0511N080050
Equipment: Solar Grid-tied Inverter

Brand Name:



Model: SOFAR 15KTLX-G3, SOFAR 17KTLX-G3, SOFAR 20KTLX-G3,
SOFAR 22KTLX-G3, SOFAR 24KTLX-G3

Applicant: Shenzhen SOFARSOLAR Co., Ltd.
401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community,
XinAn Street, BaoAn District, Shenzhen, China

Report No.: PVSP200511N080-7

Applied rules and standards

UNE 217001 IN:2015

Requirements and testing of systems to avoid energy emissions to distribution networks
Royal Decree No. 244 / 2019 of 5 April sets out the administrative, technical and economic conditions for
self generation. Annex I: systems to prevent energy emissions to the network.



Name: James Huang
Technical Manager / New Energy Team
Date: 2021-03-25

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Annex to the UNE 217001 IN certificate of compliance No. 2088AP0511N080050

Ratings..... :	SOFAR 15KTLX-G3	SOFAR 17KTLX-G3	SOFAR 20KTLX-G3	SOFAR 22KTLX-G3	SOFAR 24KTLX-G3
Input DC voltage [V]	Max. 1100Vd.c.				
MPP DC voltage range [V]	140-1000Vd.c.				
Input DC current [A].....	26,0A / 26,0A				
Isc PV [A]	36,0A / 36,0A				
Output AC voltage [V].....	380/400Va.c., 3W+N+PE; 50/60Hz				
Rated Output AC current [A].....	21,7	24,6	29,0	31,9	34,8
Max. Output AC current [A]	23,9	27,1	31,9	35,1	38,3
Rated Output power [kW]	15,0	17,0	20,0	22,0	24,0
Max Output power [kVA].....	16,5	18,7	22,0	24,2	26,4

General information of external current transducer/ power meter	
Power meter	
Model	DTSU666
Electrical parameter	
Regulated working voltage range Phase to neutral [Vac]	0,9-1,1Un
Support network Single Phase / three Phase.....	Three Phase
self -consumption	Max.1,5W
communication	
Supported communication interfaces	RS485
Communication protocol.....	ModBus
Reaction time.....	1s



Annex to the UNE 217001 IN certificate of compliance No. 2088AP0511N080050

General information of external current transducer/ power meter	
Current transducer	
Model..... :	HY94C5-200
Rate Primary current,RMS,I _{pr} :	I _{pn} = 200 A
Rated secondary current,RMS,I _{sr} :	I _{out} = 5 A
Rate frequency	50/60Hz
Working humidity	≤90%RH
Max cable outer diameter(mm)	Φ24
Weight	90g
R.m.s.voltage for AC isolation test :	2kV(@50Hz,1min)
Altitude	≤1000m
Accuracy class@RL≤20 Ω	0,5%
Rate Overload..... :	1,2 x I _{pr}
Highest voltage for equipment..... :	720V
Connecting wires of secondary winding	RVB 2*1.5mm ² Red & Black (UL2468-16A)
Working temperature..... :	-30°C ...+75°C
Storage temperature	-40°C ...+85°C
Model..... :	AKH-0.66-K-Φ24
Rated operation Voltage	AC 0.66kV
Rate frequency	50-60Hz
Working temperature..... :	-30°C ...+70°C
Height above sea level..... :	≤3000m
Power frequency withstand voltage:	3000v/1min 50Hz
Max cable outer diameter(mm)	Φ24
Precision degree..... :	1

Description of the vector system to depict test results:

The regarded system of the voltage and current vectors is the generator reference system:

- If the inverter feeds to the grid the active power is measured with positive sign.
- If the load consumes from grid the active power is measured with negative sign.

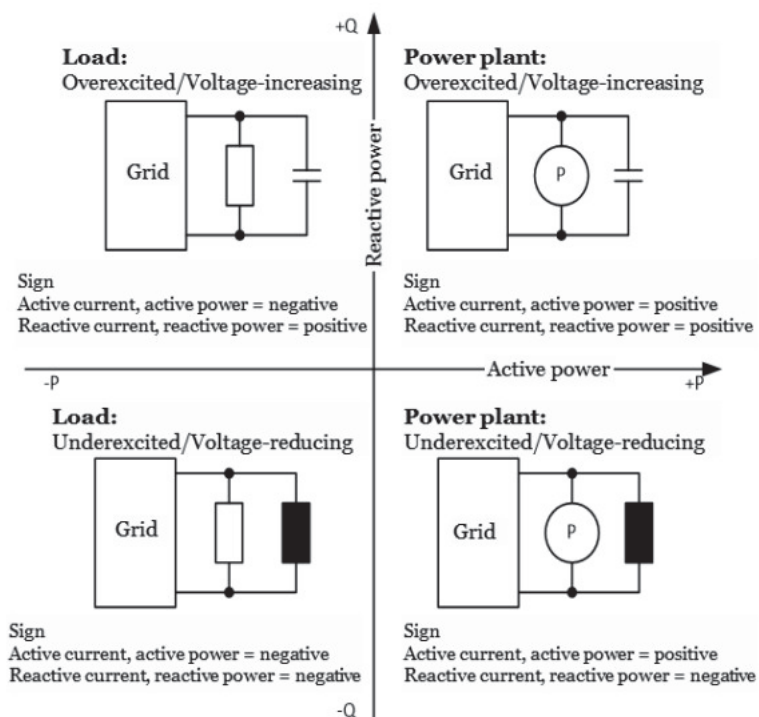


Figure 1 – Generator reference arrow system



Annex to the UNE 217001 IN certificate of compliance No. 2088AP0511N080050

General product information:

The Solar Grid-tied Inverter converts DC voltage into AC voltage.

The DC input of Solar Grid-tied Inverter can be supplied from PV array.

The Solar Grid-tied Inverter is a three-phase type.

The unit is providing EMC filtering at the output toward mains. The unit does not provide galvanic separation from input to output (transformerless). The output is switched off redundant by the high power switching bridge and a two relays. This assures that the opening of the output circuit will also operate in case of one error.

Description of the electrical circuit

The internal control is redundant built. It consists of Microcontroller DSP (U30) and DSP (U23).

The Main DSP(U30) control the relays by switching signals; measures the PV voltage, PV current, Bus voltage, grid voltage, frequency, AC current with injected DC and the array insulation resistance to ground. In addition it tests the Current Transformers and the RCMU circuit before each start up.

The slave DSP (U23) is measures the grid voltage, grid frequency, DCI and residual current, also can switch off the relays independently, and communicate with the Main DSP (U30) each other.

The current is measured by a Current Transformer. The AC current signal and the injected DC current signal are sent to the Main DPU (U30). The Main DSP (U30) tests and calibrates before each start up all Current Transformers.

The unit provides two relays in series in all output conductors. When single fault applied to one relay, alarm an error code in display panel, another redundant relay provides basic insulation maintained between the PV array and the mains. All the relays are tested before each start up.

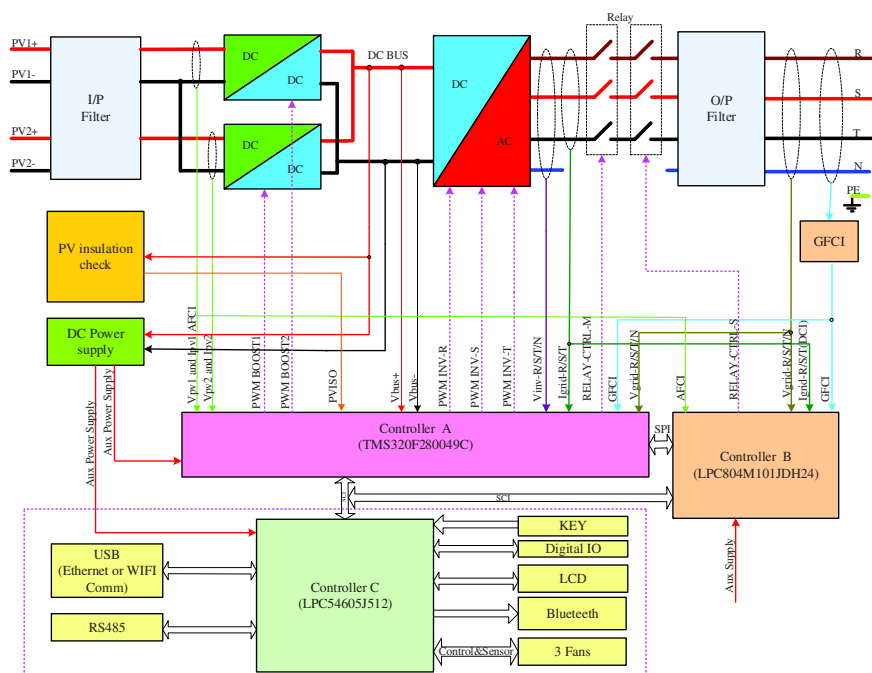


Figure 2 – Block diagram



Annex to the UNE 217001 IN certificate of compliance No. 2088AP0511N080050

Application Scenarios:

Scheme of Single machine photovoltaic power generation system: Solar inverter + Energy Meter + Current Transformer.

The smart Energy Meter is used to realize power restriction for household energy management. It adopts RS485 communication, which can realize the electrical quantity measurement, energy metering function and in respond to the upper host for the real-time data query.

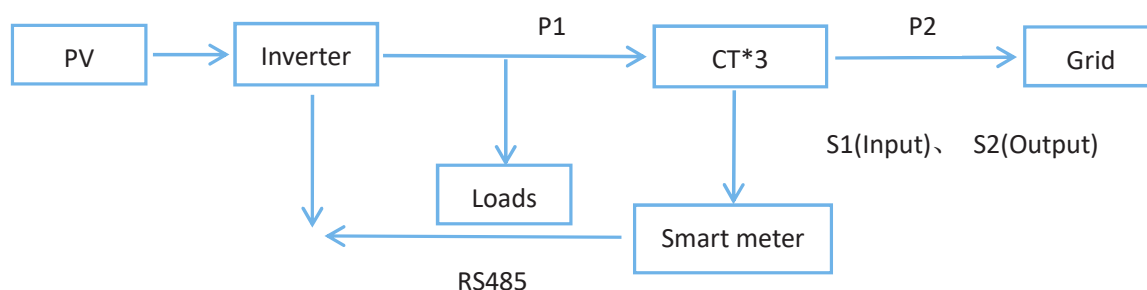


Figure 3 (Use CT)

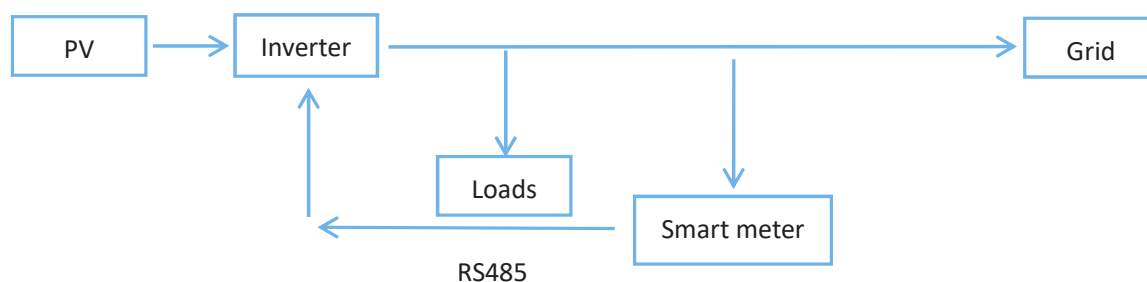


Figure 4 (Direct connection)



Certificate of Conformity

Certificate No.: 2088AP0511N080001
Equipment: Solar Grid-tied Inverter
Brand Name: 
Test Model No.: SOFAR 15KTLX-G3, SOFAR 17KTLX-G3, SOFAR 20KTLX-G3,
SOFAR 22KTLX-G3, SOFAR 24KTLX-G3,
Applicant: Shenzhen SOFARSOLAR Co., Ltd.
401, Building 4, AnTongDa Industrial Park, District 68, XingDong
Community, XinAn Street, BaoAn District, Shenzhen, China
Report No.: PV200511N080-1-R1, PV200511N080-2-R1

Use in accordance with regulations:

Automatic disconnection device with three-phases mains surveillance in accordance with IEC 61727:2004 for photovoltaic systems with a three-phases parallel coupling via an inverter in the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverters.

At the time of issue of this certificate the safety concept of an aforementioned representative product corresponds to the valid safety specifications for the specified use in accordance with regulations.

Applied rules and standards

IEC 61727:2004	Characteristics of the utility interface
IEC 62116:2014	Islanding prevention measures for utility-interconnected photovoltaic inverters



Name: James Huang
Technical Manager/ New Energy Team
Date: 2020-11-20

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Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch.
Information given in this document is related to the tested specimen of the described electrical sample.

VERIFICATION OF RED COMPLIANCE

Verification No.: GZCR2109021000PVV
 Applicant: Shenzhen SOFARSOLAR Co., Ltd.
 Address of Applicant: 401, Building 4, Antongda Industrial Park, District 68, Xingdong Community, Xinan Street, Baoan District, Shenzhen, China
 Manufacturer: Shenzhen SOFARSOLAR Co., Ltd.
 Address of Manufacturer: 401, Building 4, Antongda Industrial Park, District 68, Xingdong Community, Xinan Street, Baoan District, Shenzhen, China
 Factory: Dongguan SOFAR SOLAR Co., Ltd.
 Address of Factory: 1F - 6F, Building E, No. 1 JinQi Road, Bihu Industrial Park, Wulian, Village, Fenggang Town, Dongguan City
 Product Description: PV inverter
 Model No.: SOFAR 24KTLX-G3, SOFAR 15KTLX-G3, SOFAR 17KTLX-G3, SOFAR 20KTLX-G3, SOFAR 22KTLX-G3, SOFAR 15KTLX-G3-A, SOFAR 20KTLX-G3-A, SOFAR 24KTLX-G3-A

Trade Mark:



Sufficient samples of the product have been tested and found to be in conformity with

Test Standards: EN 61000-6-3: 2007+A1:2011, EN IEC 61000-6-1: 2019
 EN 301 489-1 V2.2.3, EN 301 489-17 V3.2.4
 EN 300 328 V2.2.2, EN 62479: 2010

As shown in the

Test Report Number(s): GZCR210902100001, GZCR210902100002
 GZCR210902100003, GZCR210902100004

Based on a review of the test report(s) detailed above, this apparatus meets the requirements of above standards. The product is in conformity with the essential requirements of Article 3.1 (a) the protection of the health, 3.1 (b) an adequate level of electromagnetic compatibility and 3.2 effective use of the spectrum of 2014/53/EU. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.



Kobe Jian
EMC Laboratory Manager



Date: 2021-10-26

Zertifikat

Certificate



Zertifikat Nr. *Certificate No.*
R 50531680

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0001

Ihr Zeichen <i>Client Reference</i>	Unser Zeichen <i>Our Reference</i>	Ausstellungsdatum <i>Date of Issue</i>
168339913	02-Kese-CN21EUBL 001	21.02.2022 (day/mo/yr)

Genehmigungsinhaber *License Holder*

Shenzhen SOFARSOLAR Co., Ltd.
11/F., Gaoxing Technology Building
No.67 Area, Xingdong Community,
Xin'an Sub-district, Bao'an District
Shenzhen City,
Guangdong
P.R. China

Fertigungsstätte *Manufacturing Plant*

Refer to latest revision
of the annex list of factories

Prüfzeichen *Test Mark*



Geprüft nach *Tested acc. to*

IEC 62109-1:2010
IEC 62109-2:2011
EN 62109-1:2010
EN 62109-2:2011

Zertifiziertes Produkt (Geräteidentifikation) *Certified Product (Product Identification)*

Lizenzentgelte - Einheit *License Fee - Unit*

PV-Inverter (Grid-connected PV Inverter)

Type Designation: SOFAR 15KTLX-G3, SOFAR 15KTLX-G3-A,
SOFAR 17KTLX-G3, SOFAR 20KTLX-G3,
SOFAR 20KTLX-G3-A, SOFAR 22KTLX-G3,
SOFAR 24KTLX-G3, SOFAR24KTLX-G3-A

17

Vmax PV [Vd.c.] : 1100
Isc PV [Ad.c.] : 36/36
MPPT Full Power Voltage Range[Vd.c.] : 420-850, 420-850,
450-850, 480-850, 480-850,
510-850, 540-850, 540-580

Max. Input Current [Ad.c.] : 26/26
Overvoltage Category (OVC) : II for PV Side
Rated Output Volt. [Va.c.] : 3/N/PE, 220/230
Rated Output Freq. [Hz] : 50/60
Rated Output Power. [kW] : 15, 15, 17, 20, 20,
22, 24, 24

Max. Output Current. [Aa.c.] : 23.9, 23.9, 27.1, 31.9,
31.9, 35.1, 38.3, 38.3

Power Factor : 1 default(+/- 0.8 adjustable)
Overvoltage Category (OVC) : III for AC mains

continued on page 0002

ANLAGE (Appendix): 1.0

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg

http://www.tuv.com/safety E-mail: markcheck@tuv.com
Fax: +49 221 806-3935



A. Chen

Zertifikat

Certificate



Zertifikat Nr. *Certificate No.*
R 50531680

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0002

Ihr Zeichen <i>Client Reference</i>	Unser Zeichen <i>Our Reference</i>	Ausstellungsdatum <i>Date of Issue</i>
168339913	02-Kese-CN21EUBL 001	21.02.2022 (day/mo/yr)

Genehmigungsinhaber *License Holder*

Shenzhen SOFARSOLAR Co., Ltd.
11/F., Gaoxing Technology Building
No.67 Area, Xingdong Community,
Xin'an Sub-district, Bao'an District
Shenzhen City,
Guangdong
P.R. China

Fertigungsstätte *Manufacturing Plant*

Refer to latest revision
of the annex list of factories

Prüfzeichen *Test Mark*



Geprüft nach *Tested acc. to*

IEC 62109-1:2010
IEC 62109-2:2011
EN 62109-1:2010
EN 62109-2:2011

Zertifiziertes Produkt (Geräteidentifikation) *Certified Product (Product Identification)*

Lizenzentgelte - Einheit *License Fee - Unit*

PV-Inverter (Grid-connected PV Inverter)

as page 0001 continuation

Protective Class : Class I
Ingress Protection (IP) : IP65
Pollution Degree (PD) : PD3
Altitude [m] : 2000
Operating Temperature [°C] : -30 to 60 (>45 derating)
Type of Inverter : Non-isolated

Remark (s) :

The installation has to be carried out according to the attached installation instruction.
Any additional requirements in countries where the product is going to be marketed have to be considered additionally.

ANLAGE (Appendix) : 1.0



Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg

<http://www.tuv.com/safety> E-mail: markcheck@tuv.com
Fax: +49 221 806-3935

A. Chen

Anlage Fertigungsstättenliste
/Attachment List of Factories



R 50531680 0001

1 Dongguan SOFAR SOLAR Co., Ltd.
1F - 6F, Building E,
No. 1 JinQi Road,
BiHu Industrial Park, Wulian Village,
Fenggang Town, Dongguan City
Guangdong
P.R. China

TÜVRheinland



Dieser Anhang ersetzt den Vorgänger vom/
This annex replaces the previous annex dated

Zertifizierungsstelle
/ Certification Body

Datum / Date 21.02.2022

A handwritten signature in blue ink, appearing to read 'A. Chen', written over a horizontal line.

A. Chen

Shenzhen SOFARSOLAR Co., Ltd.

Date : 21.02.2022

Our ref. : Kese 02

Your ref.: 168339913

11/F., Gaoxingqi Technology
Building,
No.67 Area, Xingdong Community,
Xin'an Sub-district, Bao'an
District,
Shenzhen City,

Ref : R TÜV-Mark Approval

Type of Equipment : Grid-connected PV Inverter

Model Designation : See Certificate

Certificate No. : R 50531680 0001

Report No. : CN21EUBL 001

Dear Ladies and Gentlemen,

The above specified equipment has been tested and found to be in accordance with the relevant requirements.

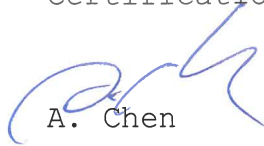
Please find enclosed your certificate as specified above.

If cancellation of the certificate is submitted by 15 November in a given year, no fee will be charged for the following year.

The certificate is issued with the reservation that the license holder applies all information required in § 6 of the ProdSG related to name and address of the manufacturer or his authorized representative / importer, including their respective contact addresses on the product prior to marketing of the product in the European Economic Area. In case you have a change regarding your involved local representative for the certificate, please inform us in due time.

With kind regards,

Certification Body


A. Chen

Enclosure

证书的详细资料请登陆www.certipedia.com查阅,或拨打我司客服热线800 999 3668 / 400 883 1300咨询



Shenzhen BALUN Technology Co., Ltd.

Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

VERIFICATION OF CONFORMITY

Certificate No.: BL-DG20A0099D01

Applicant: Shenzhen SOFARSOLAR Co., Ltd.

Address: 401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China.

Manufacture: Shenzhen SOFARSOLAR Co., Ltd.

Address: 401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China.

Product: Solar Grid-tied Inverter

Brand name:  **SOFAR SOLAR**

Model name: SOFAR 15KTLX-G3, SOFAR 17KTLX-G3, SOFAR 20KTLX-G3, SOFAR 22KTLX-G3, SOFAR 24KTLX-G3

The submitted sample of the above product has been tested according with below Standard(s) :

Applied Standards:	Report No.:
IEC 60255-27:2013	BL-DG20A0099-B01

