

# Unit Certificate

**Shenzhen Kstar New Energy Company Limited**  
**The 9th Floor, R&D Building, Kstar Industrial Park,**  
**Guangming Hi-tech Industrial Zone, 518107 Shenzhen,**  
**Guangdong Province,**  
**PEOPLE'S REPUBLIC OF CHINA**

Type of equipment	Hybrid Inverter (type 2)	
Product Name	E4KT-D22, E5KT-D22, E6KT-D22, E8KT-D22, E10KT-D22, E12KT-D22	
Technical data	rated active power:	$P_{rE} = 4.0-12.0 \text{ kW}$
	maximum active power:	$P_{E\max} = 4.0-12.0 \text{ kW}$
	max. apparent power:	$S_{E\max} = 4.4-13.2 \text{ kVA}$
	rated voltage:	$U_r = 230/400 \text{ V}$
Certification scheme	P30VA01 Rev. 11/10.25	TÜV NORD Certification Process for Grid Integration Certification
Network connection rule	VDE-AR-N 4105 2018-11	Generators connected to the low-voltage distribution network customer installations to the medium voltage network operation with low- voltage distribution networks
Test requirement	DIN VDE V 0124-100 2020-06	Grid integration of generator plants - Low-voltage Test requirements for generator units to be connected to and operated in parallel with low-voltage distribution networks

The power generating units comply with the requirements of the network connection rule specified above, with a restriction. For further details and technical specifications, please refer to Annex 1, which consists of 6 pages.

Certificate Registration No. 44 798 23053450      valid from 2025-12-16  
 Evaluation Report No. 3539 6846                      Type 1a Certificate

Essen, 2025-12-16  
 Rev. 1.0



Certification body of TÜV NORD CERT GmbH

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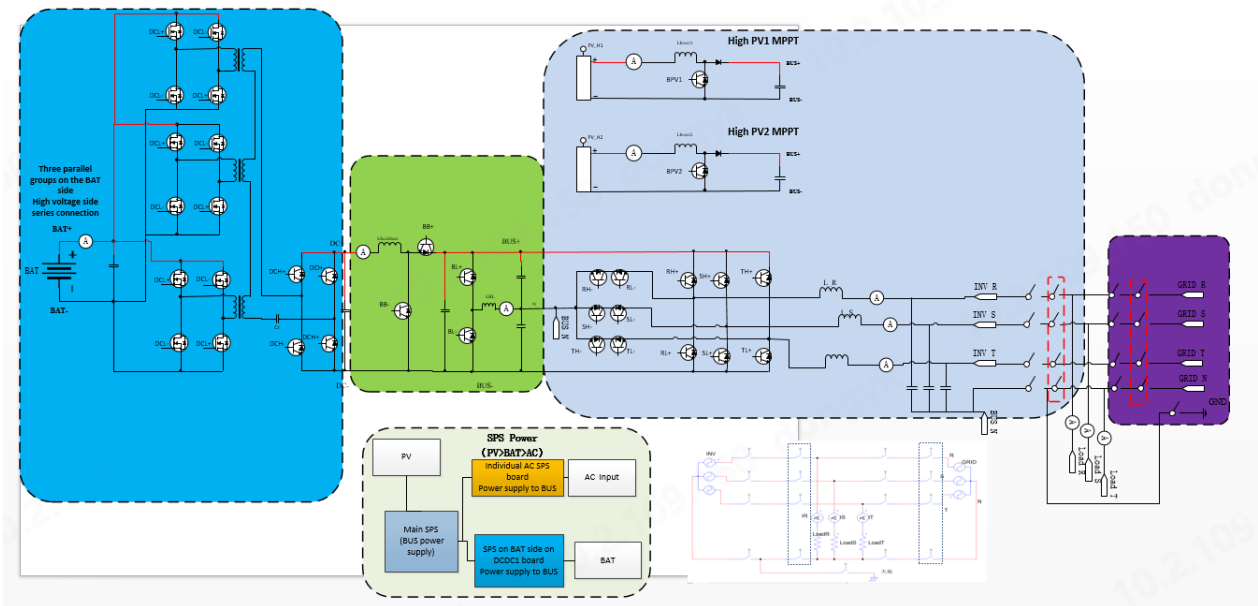


# ANNEX 1

to the Unit Certificate with the Registration No. 44 798 23053450

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Schematic structure of the power generating units:



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## Technical data of the power generating units

General			
Type of EZE	Type 2 / Hybrid Inverter		
Designation	E4KT-D22	E5KT-D22	E6KT-D22
On-grid variables			
Rated output apparent power $S_{rE}$	4000 VA 4400 VA (max)	5000 VA 5500 VA (max)	6000 VA 6600 VA (max)
Rated output effective power $P_{rE}$	4000 W 4000 W (max)	5000 W 5000 W (max)	6000 W 6000 W (max)
Max. output effective power $P_{E_{max}}$	4061 W (1.015 $P_{E_{max}}$ )	5039 W (1.008 $P_{E_{max}}$ )	6078 W (1.013 $P_{E_{max}}$ )
Max. output apparent power $S_{E_{max}}$	4461 VA (1.014 $S_{E_{max}}$ )	5554 VA (1.010 $S_{E_{max}}$ )	6728 VA (1.019 $S_{E_{max}}$ )
Max. input power $P_{E_{max}}$	10000 W	11000 W	12000 W
Rated output / Input voltage $U_r$	230/240V, 3P+N+PE		
Rated output current $I_r$	5.8 A	7.3 A	8.7 A
Max. output current $I_r$	13.1 A		
Initial short-circuit alternating current $I''_k$	24.8 A	26.7 A	26.7 A
Max. input current $I_r$	21.0 A	22.6 A	22.6 A
Reactive power adjustment range $\cos \varphi$	0.8 leading to 0.8 lagging		
Rated output / Input frequency $f_n$	50/60 Hz		
Battery Variables			
Battery type	Li-Ion		
Battery Rated Voltage	51.2 V		
Max. Charge Current	100 A	120 A	120 A
Max. Discharge Current	100 A	120 A	150 A
PV – Input Variables			
Min. MPP voltage	140 V		
Max. MPP voltage	950 V		
Max. DC input voltage	1000 V		

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Number of MPPT	2
Max. input current	2*20A
Isc PV	2*25A
DC – Input variables	
Type /IGBT module	IKW40N65ES5 & STGWA25H120DF2
Quantity DC Link Capacitor	4
Clock frequency	16kHz
Type of power control	SPWM & SVPWM
Max. Output current (only for IGBT)	IKW40N65ES5: 40A STGWA25H120DF2: 25A
Software versions	V1.0.00
Generation unit Control	
Manufacturer	Shenzhen Kstar New Energy Company Limited
Software version	V1.0.00
Protection device	
Manufacturer	Churod Electronics Co., Ltd.
Type	Integrated guard
Switch-off unit (AC)	CHFN-V-112HA2F(35A)
Software versions	V1.0.00

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General			
Type of EZE	Type 2 / Hybrid Inverter		
Designation	E8KT-D22	E10KT-D22	E12KT-D22
On-grid variables			
Rated output apparent power $S_{rE}$	8000 VA 8800 VA (max)	10000 VA 11000 VA (max)	12000 VA 13200 VA (max)
Rated output effective power $P_{rE}$	8000 W 8000 W (max)	10000 W 10000 W (max)	12000 W 12000 W (max)
Max. output effective power $P_{E_{max}}$	8055 W (1.007 $P_{E_{max}}$ )	10092 W (1.009 $P_{E_{max}}$ )	12049 W (1.004 $P_{E_{max}}$ )
Max. output apparent power $S_{E_{max}}$	8917 VA (1.013 $S_{E_{max}}$ )	11127 VA (1.012 $S_{E_{max}}$ )	13368 VA (1.013 $S_{E_{max}}$ )
Max. input power $P_{E_{max}}$	16000 W	20000 W	22000 W
Rated output / Input voltage $U_r$	230/240V, 3P+N+PE		
Rated output current $I_r$	11.6 A	14.5 A	17.4 A
Max. output current $I_r$	26.1 A		
Initial short-circuit alternating current $I''_k$	41.3 A		
Max. input current $I_r$	35.0 A		
Reactive power adjustment range $\cos \varphi$	0.8 leading to 0.8 lagging		
Rated output / Input frequency $f_n$	50/60 Hz		
Battery Variables			
Battery type	Li-Ion		
Battery Rated Voltage	51.2 V		
Max. Charge Current	160 A	200 A	200 A
Max. Discharge Current	200 A	240 A	240 A
PV – Input Variables			
Min. MPP voltage	140 V		
Max. MPP voltage	950 V		
Max. DC input voltage	1000 V		
Number of MPPT	2		
Max. input current	2*20A		

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Isc PV	2*25A
DC – Input variables	
Type /IGBT module	IKW50N65ES5 & IKQ50N120CH3
Quantity DC Link Capacitor	6
Clock frequency	16kHz
Type of power control	SPWM & SVPWM
Max. Output current (only for IGBT)	50A
Software versions	V1.0.00
Generation unit Control	
Manufacturer	Shenzhen Kstar New Energy Company Limited
Software version	V1.0.00
Protection device	
Manufacturer	Churod Electronics Co., Ltd.
Type	Integrated guard
Switch-off unit (AC)	CHFV-V-112H1A2F(50A)
Software versions	V1.0.00

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## Remarks

Additional technical data is given in the evaluation report (appendix A1).

The use of a modified software version is permitted if the changes to the above-mentioned software versions have been checked by TÜV NORD CERT GmbH. The validity of a new software version is confirmed to the manufacturer in writing. This confirmation then forms part of the certificate.

### Quality Management System

The manufacturer has proven for the manufacturing facility of the power generating units a certification of its quality management system according to ISO 9001. The manufacturer confirmed in a manufacturer declaration that the certification of the management system will be valid parallel to the period of this unit certificate.

The inverter has an integrated tie breaker and no central tie breaker. The specifications of VDE-AR-N 4105 for central NA protection in combinations with central or integrated tie switches must be observed and implemented at the level of the generating plant.

## Restriction

P<sub>AV,E</sub> monitoring function is not integrated in the unit. The function can be implemented according to the specifications of the VDE-AR-N 4105 Chapter 5.5.2 in a stand-alone equipment.

## Appendix to the Certificate

- A1. Assessment report no. 35396846 version V1.0
- A2. Extract from the test report (according to VDE-AR-N 4105 annex E.5) Dongguan BALUN Testing Technology Co., Ltd., extract No. BL-DG2580083-202 A1 from Nov. 13, 2025
- A3. Extract from the test report (according to VDE-AR-N 4105 annex E.7) Dongguan BALUN Testing Technology Co., Ltd., extract No. BL-DG2580083-202 A2 from Nov. 13, 2025
- A4. Manufacturer declaration for E12KT-D22 series from Dec. 08, 2025

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