

Certificate

No. ESY 075386 0305 Rev. 00

Holder of 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

Product:

Converter

(Energy Storage Inverter & Hybrid Inverter)

Model(s):

Hybrid Inverter:

KAC50DP2, KAC49.9DP2, KAC40DP2, KAC30DP2,
KAC29.9DP2, KAC25DP2, KAC20DP2,
KAC50DP2-S0, KAC49.9DP2-S0, KAC40DP2-S0,
KAC30DP2-S0, KAC29.9DP2-S0, KAC25DP2-S0,
KAC20DP2-S0,

Energy Storage Inverter:

KAC50D2, KAC49.9D2, KAC40D2, KAC30D2,
KAC29.9D2, KAC25D2, KAC20D2,
KAC50D2-S0, KAC49.9D2-S0, KAC40D2-S0,
KAC30D2-S0, KAC29.9D2-S0, KAC25D2-S0,
KAC20D2-S0

Parameters:

See pages 4 to 10

Applicable standards:

NTS V2.1:2021-07
NTS SENP V1.1:2021-07

This Certificate confirms the compliance with the above listed standards on a voluntary basis. It refers only to the sample submitted to TÜV SÜD Product Service GmbH and does not certify the quality or safety of the serial products. It was issued according to TÜV SÜD Product Service certification program Photovoltaics and Grid Integration. For details see: www.tuvsud.com/ps-cert

Test report no.:

64290253072701

Date,

2025-12-23



(Billy Qiu)

Certificate

No. ESY 075386 0305 Rev. 00

Certification Body TÜV SÜD Product Service GmbH performed assessment of the products listed below:

Type of PGM to be installed	Energy Storage inverter & Hybrid Inverter Type B for NTS V2.1:2021-07 (SEPE) NTS SENP V1.1:2021-07 (SENP)
Test requirement	The certification complies with the requirements of the following documents: Technical standard for monitoring the compliance of electricity generating modules according to EU Regulation 2016/631. Version 2.1 (2021-07-09) + correction of errors of Version 2.1 (2021-10-08) Technical standard for monitoring the compliance of electricity generation modules according to P.O. 12.2 SENP. Version 1.1 (2021-07-09)
Manufacturer	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
Model and Technical Data	See pages 4 to 10
Software version	V010B000D000

Scope of assessment and results

Clause of NTS V2.1 (SEPE)	Requirement	Type A	Type B	Assessment
5.1.	Power-frequency limited over-frequency regulation mode (MRPFL-O)	N/A	Yes	Pass
5.2.	Power-frequency limited under-frequency regulation mode (MRPFL-U)	N/A	N/A	N/A
5.3.	Power-frequency regulation mode (MPRF)	N/A	N/A	N/A
5.5.	Active power control capability and range	N/A	N/A	N/A
5.7.	Reactive power capability at maximum capacity and below maximum capacity	N/A	Yes	Pass
5.8.	Reactive Power Control	N/A	Yes	Pass
5.11.	Ability to withstand voltage dips of the generators connected above 110 kV	N/A	N/A	N/A
5.11.	Ability to withstand voltage dips of the generators connected below 110 kV	N/A	Yes	Pass
5.11.	Recovery of active power after a fault	N/A	Yes	Pass
5.11.	Fast Fault Current Injection Capability	N/A	Yes	Pass
6.2	Validation of the UGE model	N/A	N/A	N/A

Certificate

No. ESY 075386 0305 Rev. 00

Clause of NTS V1.1 (SENP)	Requirement	Assessment
5.1.	Limited frequency sensitive mode - overfrequency (LFSM-O)	Pass
5.2.	Limited frequency sensitive mode - underfrequency (LFSM-U)	Pass
5.3.	Frequency sensitive mode (FSM)	Pass
5.5.	Active power control range and remote controllability	Pass
5.7.	Reactive power capacity at maximum capacity and under maximum capacity	Pass
5.8.	Reactive power control at MPE	Pass
5.11	Robustness requirements: Post-fault active power recovery, low voltage ride through capability and provision of fast fault current	Pass
6	Validation of the UGE model	N/A

Certificate

No. ESY 075386 0305 Rev. 00
Parameters:

Model	KAC50DP2	KAC49.9DP2	KAC40DP2	KAC30DP2
PV terminal parameters				
Maximum input voltage [V _{DC}]	950			
Rated input voltage [V _{DC}]	720			
PV input operating voltage range [V _{DC}]	250-950			
MPPT voltage range (full load) [V _{DC}]	620-800	620-800	500-800	400-800
MPPT tracker number	4			
Maximum operating PV input current [A _{DC}]	45/45/45/45			
Maximum PV short circuit current [A _{DC}]	60/60/60/60			
Maximum input power [W]	100000	100000	80000	60000
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150–900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input parameters				
Rated input voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input frequency [Hz]	50			
Maximum continuous input current [A _{AC}]	160	144	128	96
Maximum continuous input active power [W]	100000	99800	80000	60000
Maximum continuous input apparent power [VA]	110000	99800	88000	66000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)			
Grid terminal output parameters				
Rated output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum output active power [W]	50000	49900	40000	30000
Maximum continuous output apparent power [VA]	55000	49900	44000	33000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)			

Certificate

No. ESY 075386 0305 Rev. 00

Model	KAC29.9DP2	KAC25DP2	KAC20DP2
PV terminal parameters			
Maximum input voltage [V _{DC}]	950		
Rated input voltage [V _{DC}]	720		
PV input operating voltage range [V _{DC}]	250-950		
MPPT voltage range (full load) [V _{DC}]	400-800	350-800	300-800
MPPT tracker number	4		
Maximum operating PV input current [A _{DC}]	45/45/45/45		
Maximum PV short circuit current [A _{DC}]	60/60/60/60		
Maximum input power [W]	60000	50000	40000
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	200-900		
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input parameters			
Rated input voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input frequency [Hz]	50		
Maximum continuous input current [A _{AC}]	87	80	64
Maximum continuous input active power [W]	59800	50000	40000
Maximum continuous input apparent power [VA]	59800	55000	44000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)		
Grid terminal output parameters			
Rated output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated output frequency [Hz]	50		
Rated output current [A _{AC}]	43	36	29
Maximum continuous output current [A _{AC}]	43	40	32
Rated output active power [W]	29900	25000	20000
Maximum output active power [W]	29900	25000	20000
Maximum continuous output apparent power [VA]	29900	27500	22000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)		

Certificate

No. ESY 075386 0305 Rev. 00

Model	KAC50DP2-S0	KAC49.9DP2-S0	KAC40DP2-S0	KAC30DP2-S0
PV terminal parameters				
Maximum input voltage [V _{DC}]	950			
Rated input voltage [V _{DC}]	720			
PV input operating voltage range [V _{DC}]	250-950			
MPPT voltage range (full load) [V _{DC}]	620-800	620-800	500-800	400-800
MPPT tracker number	4			
Maximum operating PV input current [A _{DC}]	45/45/45/45			
Maximum PV short circuit current [A _{DC}]	60/60/60/60			
Maximum input power [W]	100000	100000	80000	60000
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150-900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/ discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input/output parameters				
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input/output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous input/output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum continuous input/output active power [W]	50000	49900	40000	30000
Maximum continuous input/output apparent power [VA]	55000	49900	44000	33000
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Certificate

No. ESY 075386 0305 Rev. 00

Model	KAC29.9DP2-S0	KAC25DP2-S0	KAC20DP2-S0
PV terminal parameters			
Maximum input voltage [V _{DC}]	950		
Rated input voltage [V _{DC}]	720		
PV input operating voltage range [V _{DC}]	250-950		
MPPT voltage range (full load) [V _{DC}]	400-800	350-800	300-800
MPPT tracker number	4		
Maximum operating PV input current [A _{DC}]	45/45/45/45		
Maximum PV short circuit current [A _{DC}]	60/60/60/60		
Maximum input power [W]	60000	50000	40000
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	250-900	210-900	200-900
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input/output parameters			
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input/output frequency [Hz]	50		
Rated output current [AAC]	43	36	29
Maximum continuous input/output current [A _{AC}]	43	40	32
Rated output active power [W]	29900	25000	20000
Maximum continuous input/output active power [W]	29900	25000	20000
Maximum continuous input/output apparent power [VA]	29900	27500	22000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)		

Certificate

No. ESY 075386 0305 Rev. 00

Model	KAC50D2	KAC49.9D2	KAC40D2	KAC30D2
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150–900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input parameters				
Rated input voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input frequency [Hz]	50			
Maximum continuous input current [A _{AC}]	160	144	128	96
Maximum continuous input active power [W]	100000	99800	80000	60000
Maximum continuous input apparent power [VA]	110000	99800	88000	66000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)			
Grid terminal output parameters				
Rated output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum output active power [W]	50000	49900	40000	30000
Maximum continuous output apparent power [VA]	55000	49900	44000	33000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)			

Certificate

No. ESY 075386 0305 Rev. 00

Model	KAC29.9D2	KAC25D2	KAC20D2
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	200-900		
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input parameters			
Rated input voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input frequency [Hz]	50		
Maximum continuous input current [A _{AC}]	87	80	64
Maximum continuous input active power [W]	59800	50000	40000
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Grid terminal output parameters			
Rated output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated output frequency [Hz]	50		
Rated output current [A _{AC}]	43	36	29
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Maximum continuous output apparent power [VA]	29900	27500	22000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)		

Certificate

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Model	KAC50D2-S0	KAC49.9D2-S0	KAC40D2-S0	KAC30D2-S0
Battery input/output parameters				
Battery type	Lithium-ion			
Maximum voltage [V _{DC}]	900			
Battery rated voltage [V _{DC}]	720			
Battery voltage range [V _{DC}]	150-900			
Battery voltage range [V _{DC}] (Full Load)	330-900	330-900	280-900	250-900
Maximum charge power [W]	50000	49900	40000	30000
Maximum discharge power [W]	50000	49900	40000	30000
Maximum charge/ discharge current [A _{DC}]	80/80	80/80	72/72	65/65
Grid terminal input/output parameters				
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400			
Rated input/output frequency [Hz]	50			
Rated output current [A _{AC}]	72	72	58	43
Maximum continuous input/output current [A _{AC}]	80	72	64	48
Rated output active power [W]	50000	49900	40000	30000
Maximum continuous input/output active power [W]	50000	49900	40000	30000
Maximum continuous input/output apparent power [VA]	55000	49900	44000	33000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)			

Model	KAC29.9D2-S0	KAC25D2-S0	KAC20D2-S0
Battery input/output parameters			
Battery type	Lithium-ion		
Maximum voltage [V _{DC}]	900		
Battery rated voltage [V _{DC}]	720		
Battery voltage range [V _{DC}]	150-900		
Battery voltage range [V _{DC}] (Full Load)	250-900	210-900	200-900
Maximum charge power [W]	29900	25000	20000
Maximum discharge power [W]	29900	25000	20000
Maximum charge/ discharge current [A _{DC}]	65/65	60/60	55/55
Grid terminal input/output parameters			
Rated input/output voltage [V _{AC}]	3P+N+PE, 230/400		
Rated input/output frequency [Hz]	50		
Rated output current [A _{AC}]	43	36	29
Maximum continuous input/output current [A _{AC}]	43	40	32
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Maximum continuous input/output active power [W]	29900	25000	20000
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