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VERITAS**

Certificate of compliance

Applicant: KATEK Memmingen GmbH
Mammostrasse 1
87700 Memmingen
Germany

Product: Photovoltaic (PV) inverter

Model: Steca Grid 3213
Steca Grid 4013
Steca Grid 5013
Steca Grid 6013

Use in accordance with regulations:

Automatic disconnection device with three-phase mains surveillance in accordance with DANSK ENERGI DK1/DK2:2019 for photovoltaic systems with a three-phase parallel coupling via an inverter in the public mains supply. The automatic disconnection device is an integral part of the aforementioned inverter.

Applied rules and standards:

DANSK ENERGI DK1/DK2:2019

Technical requirements for connection of power-generating plants to the low-voltage grid ($\leq 1\text{kV}$) Type A

- 4.1 Tolerance of Frequency and voltage deviations
- 4.2 Start-up and reconnection of a power-generating plant
- 4.3 Active power control
- 4.4 Reactive power control
- 4.5 Protection
- 4.6 Power Quality

DIN V VDE V 0126-1-1:2006-02 (4.1 Functional safety)

Automatic disconnection device between a generator and the public low-voltage grid

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.

Report number: 13TH0511-DK1/DK2_0

Certificate number: U20-0903

Certification Program: NSOP-0032-DEU-ZE-V01

Date of issue: 2020-11-20

Certification body



Thomas Lammel

Certification body Bureau Veritas Consumer Products Services Germany GmbH accreditation to DIN EN ISO/IEC 17065

A partial representation of the certificate requires the written approval of Bureau Veritas Consumer Products Services Germany GmbH



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Annex to the DANKS ENERGI certificate of compliance No. U20-0903

Type Verification Test Report

Extract from test report according to DANKS ENERGI

Nr. 13TH0511-DK1/DK2_0

Type Approval and declaration of compliance with the requirements of DANKS ENERGI

Manufacturer / applicant:	KATEK Memmingen GmbH Mammostrasse 1 87700 Memmingen Germany
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Micro-generator Type	Photovoltaic inverter			
	Steca Grid 3213	Steca Grid 4013	Steca Grid 5013	Steca Grid 6013
MPP DC voltage range [V]	300 – 800	375 – 800	560 - 800	560 - 800
Input DC voltage range [V]	250 – 1000			
Input DC current [A]	max. 11			
Output AC voltage [V]	230 / 400; 3/N @ 50 Hz			
Output AC current [A]	Max. 7	Max. 7	Max. 10	Max. 10
Output power [VA]	3200	4000	5000	6000

Firmware version	PU_APP_11.15.0 and ENS_3.6.8 or higher
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Measurement period:	2019-11-11 to 2020-08-25
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Description of the structure of the power generation unit:

The power generation unit is equipped with a PV and line-side EMC filter. The power generation unit has no galvanic isolation between DC input and AC output. Output switch-off is performed with single-fault tolerance based on two series-connected relays in each line and neutral. This enables a safe disconnection of the power generation unit from the network in case of error.

Type Verification Test Report

Extract from test report according to DANSK ENERGI

Nr. 13TH0511-DK1/DK2_0

Setting of the parameter values for DK1 and DK2:

	Settings for DK1	Setting for DK2
	LFSM-O	
Threshold frequency [Hz]	50,2	50,5
Droop [% of P _n]	5% (40% P _n /Hz)	4% (50% P _n /Hz)
Intentional Delay	500ms	500ms
	Reactive Power	
	Q fix	Q fix
Active/disabled [On/Off]	On	On
Q setpoint [VAR]	0	0
	cos φ fix	
Active/disabled [On/Off]	Off	Off
PF setpoint [PF]	1	1
	Settings for DK1	Setting for DK2
	cos φ (P)	
Active/disabled [On/Off]	Off	Off
Cos φ (P) P1 [% of P _n]	0	0
Cos φ (P) PF1 [PF]	1	1
Cos φ (P) P2 [% of P _n]	50	50
Cos φ (P) PF2 [PF]	1	1
Cos φ (P) P3 [% of P _n]	100	100
Cos φ (P) PF3 [PF]	0,9 inductive	0,9 inductive
Cos φ (P) Lockin [% of U _n]	105	105
Cos φ (P) Lockout [% of U _n]	100	100
	Connection and Reconnection	
Gradient [% of P _n /min]	20	20
Observation time [seconds]	180	180
U _{min} [% of U _n]	85	85
U _{max} [% of U _n]	110	110
f _{min} [Hz]	47,5	47,5
f _{max} [Hz]	50,2	50,5



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Nr. 13TH0511-DK1/DK2_0

	System Protection	
f> [s]	0,2	0,2
f> [Hz]	51,5	51,5
f< [s]	0,2	0,2
f< [Hz]	47,5	47,5
U> [s]	60	60
U> [% of U _n]	110	110
U>> [s]	0,2	0,2
U>> [% of U _n]	115	115
U< [s]	50	50
U< [% of U _n]	85	85
	Loss of Mains Detection	
U<< [s]	0,2	0,2
U<< [% of U _n]	80	80

Note.

The settings of the interface protection are password protected adjustable.

In case the above stated generators are used with an external protection device, the protection settings of the inverters are to be adjusted according to the manufacturer's declaration.