



BUREAU
VERITAS

Atbilstības sertifikāts

Pretendents: Kostal Solar Electric
Hanferstrasse 6
79108 Freiburg
Vācija

Produkts: Fotoelektriskais (PV) invertors

Modelis:	PLENTICORE plus 3.0	PIKO IQ 3.0
	PLENTICORE plus 4.2	PIKO IQ 4.2
	PLENTICORE plus 5.5	PIKO IQ 5.5
	PLENTICORE plus 7.0	PIKO IQ 7.0
	PLENTICORE plus 8.5	PIKO IQ 8.5
	PLENTICORE plus 10	PIKO IQ 10

Izmantojiet saskaņā ar noteikumiem:

Automatische scheidingsinrichting met driefasige netbewaking volgens EN 50549-1: 2019 voor fotovoltaïsche installaties met een driefasige parallelle koppeling via een omvormer in het openbare stroomnet. De automatische uitschakelinrichting is een integraal onderdeel van de bovengenoemde omvormer.

Piemērotie noteikumi un standarti:

EN 50549-1:2019, LVS EN 50549-1:2019

Prasības elektrostacijām, kas paredzētas paralēlam darbam ar sadales elektrotīklu. 1.daļa: Pieslēgums zemsprieguma sadales tīklam. Piemērošanai līdz B tipa elektrostacijām ieskaitot

- 4.4 Normaal bedrijfsbereik
- 4.5 Immunitet voor storingen
- 4.6 Actieve respons op frequentieafwijking
- 4.7 Vermogensrespons op spanningsvariaties en spanningsveranderingen
- 4.8 EMC en stroomkwaliteit
- 4.9 Interface bescherming
- 4.10 Aansluiten en beginnen met het opwekken van elektrische stroom
- 4.11 Stoppen en verminderen van actief vermogen op instelpunt
- 4.12 Informatie-uitwisseling op afstand
- 4.13 Eisen met betrekking tot enkele fout Tolerantie van interfacebeveiligingssysteem en interfaceschakelaar

LVS EN 50438:2014

Prasības mikroģeneratoru iekārtām, kas paredzētas pievienošanai paralēli publiskajiem zemsprieguma tīkliem

DIN V VDE V 0126-1-1: 2006 (4.1. Funkcionālā drošība)

Automātiska atvienošanas ierīce starp ģeneratoru un publisko zemsprieguma tīklu

Šī sertifikāta izsniegšanas laikā iepriekšminētā reprezentatīvā produkta drošības koncepcija atbilst spēkā esošajām drošības specifikācijām noteiktai lietošanai saskaņā ar noteikumiem.

Ziņojuma numurs:	19TH0374-EN50549-1_4	Sertifikācijas programma:	NSOP-0032-DEU-ZE-V01
Sertifikāta numurs:	U20-1002	Izdošanas datums:	2020-12-11

Certification body

Thomas Lammel



Sertifikācijas iestāde Bureau Veritas Consumer Products Services Germany GmbH akreditācija uz DIN EN ISO/IEC 17065
Lai daļēji apliecinātu sertifikātu, nepieciešams rakstisks apstiprinājums Bureau Veritas Consumer Products Services Germany GmbH

Appendix

Extract from test report according to EN 50549-1

Nr. 19TH0374-EN50549-1_4

Type Approval and declaration of compliance with the requirements of EN 50549-1.

Manufacturer / applicant:	Kostal Industrie Elektrik GmbH Lange Eck 11 58099 Hagen Germany			
Micro-generator Type	Photovoltaic inverter			
	PLENTICORE plus 3.0	PLENTICORE plus 4.2	PLENTICORE plus 5.5	PLENTICORE plus 7.0
MPP DC voltage range [V]	180 - 720	180 - 720	225 - 720	290 - 720
Input DC voltage range [V]	180 - 1000	180 - 1000	225 - 1000	290 - 1000
Input DC current [A]	2x 13,0	2x 13,0	2x 13,0	3x 13,0
Output AC voltage [V]	3N~, 400V, 50Hz	3N~, 400V, 50Hz	3N~, 400V, 50Hz	3N~, 400V, 50Hz
Output AC current [A]	4,33	6,74	8,82	11,23
Output power [VA]	3000	4200	5500	7000
	PLENTICORE plus 8.5	PLENTICORE plus 10	--	--
MPP DC voltage range [V]	345 - 720	405 - 720	--	--
Input DC voltage range [V]	345 - 1000	405 - 1000	--	--
Input DC current [A]	3x 13,0	3x 13,0	--	--
Output AC voltage [V]	3N~, 400V, 50Hz	3N~, 400V, 50Hz	--	--
Output AC current [A]	13,63	16,04	--	--
Output power [VA]	8500	10000	--	--
	PIKO IQ 3.0	PIKO IQ 4.2	PIKO IQ 5.5	PIKO IQ 7.0
MPP DC voltage range [V]	180 - 720	180 - 720	225 - 720	290 - 720
Input DC voltage range [V]	180 - 1000	180 - 1000	225 - 1000	290 - 1000
Input DC current [A]	2x 13,0	2x 13,0	2x 13,0	3x 13,0
Output AC voltage [V]	3N~, 400V, 50Hz	3N~, 400V, 50Hz	3N~, 400V, 50Hz	3N~, 400V, 50Hz
Output AC current [A]	4,33	6,74	8,82	11,23
Output power [VA]	3000	4200	5500	7000
	PIKO IQ 8.5	PIKO IQ 10.0	--	--
MPP DC voltage range [V]	345 - 720	405 - 720	--	--
Input DC voltage range [V]	345 - 1000	405 - 1000	--	--
Input DC current [A]	3x 13,0	3x 13,0	--	--
Output AC voltage [V]	3N~, 400V, 50Hz	3N~, 400V, 50Hz	--	--
Output AC current [A]	13,63	16,04	--	--
Output power [VA]	8500	10000	--	--

Appendix

Extract from test report according to EN 50549-1

Nr. 19TH0374-EN50549-1_4

Firmware version	Beginning with FW = 01.46 / PAR = 03.19
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Measurement period:	2019-08-02 - 2019-11-07, 2020-04-06 – 2020-05-29, 2020-11-10 – 2020-11-30
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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.

Appendix

Extract from test report according to EN 50549-1

Nr. 19TH0374-EN50549-1_4

Setting of the interface protection:

Parameter	Min. disconnection time	Max. disconnection time	Min. operate value	Max. operate value	Standard set value
Over voltage (stage 1) ^a	---	---	1,0V _n	1,35V _n	1,1V _n
Over voltage (stage 2)	0,05s	24h	1,0V _n	1,35V _n	0,2s / 1,15V _n
Under voltage (stage 1)	0,05s	24h	0V	1,0V _n	1,5s / 0,85V _n
Under voltage (stage 2)	0,05s	24h	0V	1,0V _n	---
Over frequency	0,05s	24h	50,01Hz	53,1Hz	0,5s / 52Hz
Over frequency (stage 1)	0,05s	24h	50,01Hz	53,1Hz	---
Under frequency	0,05s	24h	46,9Hz	49,99Hz	0,5s / 47,5Hz
Under frequency (stage 2)	0,05s	24h	46,9Hz	49,99Hz	---
Reconnection settings for voltage (normal operational startup)	Ajustement range: min: 0-1V _n , max:1-2V _n				0,85V _n ≤ V ≤ 1,10V _n
Reconnection settings for frequency (normal operational startup)	Adjustment range: min: 44-60Hz, max: 50-66Hz				49,5Hz ≤ f ≤ 50,1Hz
Reconnection time (normal operational startup)	Adjustment range: 0-6000s				≥ 60s
Reconnection settings for voltage (automatic reconnection after tripping)	Ajustement range: min: 0-1V _n , max:1-2V _n				0,85V _n (195,5V) ≤ V ≤ 1,10V _n (253V)
Reconnection settings for frequency (automatic reconnection after tripping)	Adjustment range: min: 44-60Hz, max: 50-66Hz				47,5Hz ≤ f ≤ 50,2Hz
Reconnection time (automatic reconnection after tripping)	Adjustment range: 0-6000s				≥ 60s
Active power gradient after reconnection	Adjustment range: 1-10000%				10% P _E _{max} / per minute
Active power delivery at under frequency	electronic inverter, no active power reduction				
Active power delivery at over frequency: threshold frequency f1: Droop: Intentional delay: Power reference: Deactivation time tstop:	Adjustment range: 44-60Hz 1-10000% 0-2s PM P _{max} 0-600s				50,2Hz 5% 0s P _{max} 0s
Permanent DC-injection	≤ 0,5% of rated inverter output current or ≤ 20mA				
Rate of change of frequency (ROCOF)	Adjustment range: 0,01-100Hz/s				--
Loss of mains according EN 62116 (LoM)	Adjustment range: 0-6000s				<1s

Note:

^a Over voltage – stage1: 10 min-mean-value corresponding to EN 50160.

The settings of the interface protection are password protected adjustable in the stated range above.

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.

The above stated generators are tested according to the requirements in the EN 50549-1:2019. Any modification that affects the stated tests must be named by the manufacturer/supplier of the product to ensure that the product meets all requirements of the EN 50549-1:2019.