

Verklaring van geen bezwaar

Aanvrager: Kostal Industrie Elektrik GmbH
Lange Eck 11
58099 Hagen
Duitsland

Product: Fotovoltaïsche Omvormers

Model:	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

Reglementair voorgeschreven gebruik:

Automatisch schakelstation met driefasige netwerkbewaking conform EN 50549-1:2019, NEN-EN 50549-1:2019 voor fotovoltaïsche installaties met een driefasige parallelvoeding door middel van gelijkstroom-wisselstroommutator in het net van de openbare voorziening. Het automatische schakelstation vormt een integraal bestanddeel van hoger vermelde gelijkstroom-wisselstroommutator.

Controlebasis:

EN 50549-1:2019, NEN-EN 50549-1:2019

Vereisten voor het parallel schakelen van installaties met distributienetwerken - Deel 1: Aansluiting op een LV-distributienetwerk - Productie van installaties tot en met Type B

- 4.4 Normaal werkbereik
- 4.5 Immuniteit voor storingen
- 4.6 Actieve reactie op frequentieafwijking
- 4.7 Krachtreactie op spanningsvariaties en spanningsveranderingen
- 4.8 EMC en vermogenskwaliteit
- 4.9 Interfacebescherming
- 4.10 Aansluiting en starten met het opwekken van elektrische stroom
- 4.11 Stoppen en verminderen van actief vermogen op instelpunt
- 4.12 Informatie-uitwisseling op afstand
- 4.13 Vereisten met betrekking tot tolerantie voor één fout van interfacebeveiligingssysteem en interfaceschakelaar

BWBR0037940 Netcode elektriciteit 25-05-2019

DIN V VDE V 0126-1-1:2006-02 (4.1 Functionele Veiligheid)

Automatisch schakelstation tussen een netparallele zelfopwekinstallatie en het openbare laagspanningsnet

Een representatief testpatroon van het hoger vermelde product voldoet aan de op het moment van de uitreiking van dit attest geldende veiligheidstechnische eisen van de vermelde controlegrondbeginselen voor een reglementair voorgeschreven gebruik.

Rapportnummer: 19TH0374-EN50549-1_2

Certificatie-programma: NSOP-0032-DEU-ZE-V01

Certificaatnummer: U20-0443

Datum: 2020-06-29

Certificatie-instelling



Thomas Lammel



Certificatie-instelling Bureau Veritas Consumer Products Services Germany GmbH geaccrediteerd volgens DIN EN ISO/IEC 17065

Een gedeeltelijke weergave van het certificaat vereist de schriftelijke goedkeuring van Bureau Veritas Consumer Products Services Germany GmbH

Appendix

Extract from test report according to EN 50549-1

Nr. 19TH0374-EN50549-1_2

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	Grid-tied 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			
Output AC voltage [V]	3N~, 400V, 50Hz			
Output AC current [A]	4,33	6,74	8,82	11,23
Output power [VA]	3000	4200	5500	7000
Rated values	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			
Output AC voltage [V]	3N~, 400V, 50Hz			
Output AC current [A]	13,63	16,04		
Output power [VA]	8500	10000		
Rated values	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			
Output AC voltage [V]	3N~, 400V, 50Hz			
Output AC current [A]	4,33	6,74	8,82	11,23
Output power [VA]	3000	4200	5500	7000
Rated values	PIKO IQ 8.5	PIKO IQ 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			
Output AC voltage [V]	3N~, 400V, 50Hz			
Output AC current [A]	13,63	16,04		
Output power [VA]	8500	10000		
Firmware version	FW = 01.42 / PAR = 03.19			
Measurement period:	2019-08-02 - 2019-11-07, 2020-04-06 – 2020-05-29			

Appendix

Extract from test report according to EN 50549-1

Nr. 19TH0374-EN50549-1_2

Setting of the interface protection: for power generation module with a maximum output up to 11 kW

Parameter	Min. disconnection time	Max. disconnection time	Min. operate value	Max. operate value	Standard set value
Over voltage (stage 1)	0,05s	24h	1,0V _n	1,35V _n	2,0s / 1,1V _n
Under voltage (stage 1)	0,05s	24h	0V	1,0V _n	2,0s / 0,80V _n
Over frequency	0,05s	24h	50,01Hz	53,1Hz	2,0s / 51,0Hz
Under frequency	0,05s	24h	46,9Hz	49,99Hz	2,0s / 48,0Hz
Reconnection settings for voltage (normal operational startup)	Adjustment range: min: 0-1V _n , max:1-1,35V _n				0,90V _n ≤ V ≤ 1,10V _n
Reconnection settings for frequency (normal operational startup)	Adjustment range: min: 46,9-49,99Hz, max: 50,01-53,1Hz				49,90Hz ≤ f ≤ 50,10Hz
Reconnection time (normal operational startup)	Adjustment range: 1s – 24h				≥ 60s
Reconnection settings for voltage (automatic reconnection after tripping)	Adjustment range: min: 0-1V _n , max:1-1,35V _n				0,9V _n ≤ V ≤ 1,10V _n
Reconnection settings for frequency (automatic reconnection after tripping)	Adjustment range: min: 46,9-49,99Hz, max: 50,01-53,1Hz				49,90Hz ≤ f ≤ 50,10Hz
Reconnection time (automatic reconnection after tripping)	Adjustment range: 1s – 24h				≥ 60s
Active power gradient after reconnection	Adjustment range: 6,6 %/min – 100%/s				20% P _E max / min
Active power delivery at under frequency	electronic inverter, no active power reduction				
Power response to over frequency (frequency / droop s)	Adjustment range: 44-60Hz / 1-10000%				---
Permanent DC-injection	≤ 0,5% of rated inverter output current or ≤ 20mA				
Rate of change of frequency (ROCOF)	Adjustment range: 0,01-5Hz/s				---
Loss of mains according EN 62116 (LoM)	Adjustment range: not field-adjustable				<1s

Note:

Default interface setting according to BWBR0037940 Netcode elektriciteit 25-05-2019 with deviation Netherlands for power generation module with a maximum output up to 11 kW are used.

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.

The above stated generators are tested according to the requirements in the EN 50549-1:2019. Any modification that affects the 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.

Appendix

Extract from test report according to EN 50549-1

Nr. 19TH0374-EN50549-1_2

Setting of the interface protection: for power generation module with a maximum output of more than 11 kW

Parameter	Min. disconnection time	Max. disconnection time	Min. operate value	Max. operate value	Standard set value
Over voltage (stage 1)	0,05s	24h	1,0V _n	1,35V _n	2,0s / 1,1V _n
Under voltage (stage 1)	0,05s	24h	0V	1,0V _n	2,0s / 0,80V _n
Under voltage (stage 1)	0,05s	24h	0V	1,0V _n	0,2s / 0,70V _n
Over frequency	0,05s	24h	50,01Hz	53,1Hz	0,5s / 51,5Hz
Under frequency	0,05s	24h	46,9Hz	49,99Hz	0,5s / 47,5Hz
Reconnection settings for voltage (normal operational startup)	Adjustment range: min: 0-1V _n , max:1-1,35V _n				0,89V _n ≤ V ≤ 1,10V _n
Reconnection settings for frequency (normal operational startup)	Adjustment range: min: 46,9-49,99Hz, max: 50,01-53,1Hz				49,90Hz ≤ f ≤ 50,10Hz
Reconnection time (normal operational startup)	Adjustment range: 1s – 24h				≥ 60s
Reconnection settings for voltage (automatic reconnection after tripping)	Adjustment range: min: 0-1V _n , max:1-1,35V _n				0,9V _n ≤ V ≤ 1,10V _n
Reconnection settings for frequency (automatic reconnection after tripping)	Adjustment range: min: 46,9-49,99Hz, max: 50,01-53,1Hz				49,90Hz ≤ f ≤ 50,10Hz
Reconnection time (automatic reconnection after tripping)	Adjustment range: 1s – 24h				≥ 60s
Active power gradient after reconnection	Adjustment range: 6,6 %/min – 100%/s				20% P _E max / min
Active power delivery at under frequency	electronic inverter, no active power reduction				
Power response to over frequency (frequency / droop s)	Adjustment range: 44-60Hz / 1-10000%				50,2Hz / 5%
Permanent DC-injection	≤ 0,5% of rated inverter output current or ≤ 20mA				
Rate of change of frequency (ROCOF)	Adjustment range: 0,01-5Hz/s				---
Loss of mains according EN 62116 (LoM)	Adjustment range: not field-adjustable				<1s

Note:

Default interface setting according to BWBR0037940 Netcode elektriciteit 25-05-2019 with deviation Netherlands for power generation module with a maximum output of more than 11 kW are used.

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.

The above stated generators are tested according to the requirements in the EN 50549-1:2019. Any modification that affects the 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.