Verklaring van geen bezwaar

Aanvrager:	**Anker Innovations Limited** **Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road** **Central and Western District, HONG KONG** **P.R. China**
Product:	**Fotovoltaïsche en batterij-omvormer**
Model:	**A17C53Z1** **A17C53Z1-20,** **A17C53Z1-1*** **A17C53Z1-20-1*** **A17C53Z1-2*** **A17C53Z1-20-2*** **A17C53Z1-3*** **A17C53Z1-20-3*** **A17C53Z1-4*** **A17C53Z1-20-4*** **A17C53Z1-5*** **A17C53Z1-20-5***
Opmerking	***Uitbreidingsmodules van 1 tot 5 batterijen**

Het apparaat is ontworpen om te werken als een generatie-eenheid van het type: A

Omvormer voor eenfasige parallelle aansluiting op het openbare net.

Toepasselijke documenten:

Besluit van de Autoriteit Consument en Markt van 21 april 2016, kenmerk ACM/DE/2016/202151, houdende de vaststelling van de voorwaarden als bedoeld in artikel 31 van de Elektriciteitswet 1998 (Netcode elektriciteit)

Controlebasis:

EN 50549-1:2019/A1:2023, NEN EN 50549-1:2019/A1:2023
Eisen met betrekking tot elektriciteitscentrales bedoeld om parallel te worden aangesloten op distributienetten - Deel 1: Aansluiting op een LV-distributienet - Energiecentrales tot en met Type B

4.4 Normaal werkbereik
4.5 Immuniteit voor storingen
4.6 Actieve reactie op frequentieafwijking
4.7 Vermogensreactie 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
4.13 Vereisten met betrekking tot tolerantie voor één fout van interfacebeveiligingssysteem en interfaceschakelaar

EN 50549-10:2022, NEN EN 50549-10:2022
Eisen voor parallel aan distributienetten te koppelen productie-installaties - Deel 10: Proeven voor conformiteitsbeoordeling van productie-eenheden

Voldoet aan de parameters van appendix C van de norm
(zie appendix Tabel met parameters)

Verordening (EU) 2016/631 Van De Commissie van 14 april 2016
Tot vaststelling van een netcode betreffende eisen voor de aansluiting van elektriciteitsproducenten op het net
Typegoedkeuring voor productie-eenheden voor gebruik in type A-installaties.

Op het ogenblik dat dit certificaat wordt afgegeven, beantwoordt het hierboven vermelde representatieve product aan de vermelde regels en normen.

Rapportnummer: **HC2411280272GC03** **Certificatie-programma:** **NSOP-0032-DEU-ZE-V10**

Certificaatnummer: **U25-0341** **Datum:** **2025-04-10**

Certificatie-instelling **Accreditatie**

Georg LORITZ
Lab Supervisor Energy Systems

DAkkS Deutsche Akkreditierungsstelle D-ZE-12024-01-00

Type Approval and declaration of compliance with the requirements of EN 50549-1 and Commission Regulation (EU) 2016/631 of 14 April 2016				
Manufacturer	Anker Innovations Limited Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road Central and Western District, HONG KONG P.R. China			
Product type	Photovoltaic and battery inverter (Hybrid-Inverter)			
Static converter model	A17C53Z1, A17C53Z1-1* A17C53Z1-2* A17C53Z1-3* A17C53Z1-4* A17C53Z1-5*	A17C53Z1-20, A17C53Z1-20-1* A17C53Z1-20-2* A17C53Z1-20-3* A17C53Z1-20-4* A17C53Z1-20-5*	--	--
Input DC (photovoltaic)				
Max. input voltage [V]	60	60	--	--
Max. input current per MPPT [A]	32*4	32*4	--	--
Input DC (battery)				
DC voltage range [V]	25,6	25,6	--	--
Max. DC voltage [V]	75	75	--	--
Max. DC current per DC input [A]	70	70	--	--
Output AC				
Rated AC voltage [V]	220/230 (L + N + PE, 50Hz)	220/230 (L + N + PE, 50Hz)	--	--
Rated output current [A]	3,5	5,3	--	--
Max. output current [A]	10	10	--	--
Nom. converter output (P_{NINV}) [W]	800	1200	--	--
Rated apparent power [VA]	800	1200	--	--
In on-grid battery mode AC				
P_{sn} (nom. discharge power) [W]	800	1200	--	--
P_{cn} (nom. charging power) [W]	2000	2000	--	--
P_{smax} (max. discharge power) [W]	800	1200	--	--
P_{cmax} (max. charging power) [W]	2000	2000	--	--
Type	Bidirectional	Bidirectional	--	--
In off-grid battery mode				
P_{sn} (nom. discharge power) [W]	2000	2000	--	--
P_{smax} (max. discharge power) [W]	2000	2000	--	--

Interface protection system and interface switch (Network and system protection "NS-protection")		
Type of protection	Integrated NS-protection	
Assigned to generation unit type	A17C53Z1 A17C53Z1-1* A17C53Z1-2* A17C53Z1-3* A17C53Z1-4* A17C53Z1-5*	A17C53Z1-20, A17C53Z1-20-1* A17C53Z1-20-2* A17C53Z1-20-3* A17C53Z1-20-4* A17C53Z1-20-5*
Integrated interface switch	Type of switching equipment 1: galvanic separation HF-Transformer Type of switching equipment 2: Relay (Model HF140FF-G/012-2HSWTF (456))	
	Note: The output is switched off by the inverter bridge and one relay in line and neutral.	
Firmware version	V1.0	

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.

The above stated generators are tested according to the requirements in the EN 50549-1 and the Commission Regulation (EU) 2016/631 of 14 April 2016. 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.

Type Approval and declaration of compliance with the requirements of EN 50549-1, Commission Regulation (EU) 2016/631 of 14 April 2016 and "Netcode elektriciteit" for Netherlands							
Parameter Table							
Name of parameter set	**EN50549-10**						
Specific technical requirement	**Netcode elektriciteit**						
Clause(s) / subclause(s) of EN 50549-1:2019+A1:2023	**Parameter**	**Remarks / additional information**	**configurable value range**	**Step size**	**unit**	**default value**	
4.3.2 Interface switch	Single fault tolerance for interface switch required	Requirement met	yes | no	---	---	yes	
4.4.2 Operating frequency range	47,0 – 47,5 Hz Duration	---	0.00 – 20.00	0.01	s	0.00	
	47,5 – 48,5 Hz Duration	---	1800.00 – 5400.00	0.01	s	≥1800.00	
	48,5 – 49,0 Hz Duration	---	1800.00 – 5400.00	0.01	s	≥1800.00	
	49,0 – 51,0 Hz Duration	---	not configurable	0.01	s	unlimited	
	51,0 – 51,5 Hz Duration	---	1800.00 – 5400.00	0.01	s	≥1800.00	
	51, 5 – 52 Hz Duration	---	0.00 – 900.00	0.01	s	0.00	
4.4.3 Minimal requirement for active power delivery at under frequency	Reduction threshold	---	49.00 – 49.50	0.01	Hz	Electronic inverter no power reduction take place	
	Maximum reduction rate	---	2 – 10	1	%PM/ Hz	2	
4.4.4 Continuous operating voltage range	Upper limit	---	not configurable	0.01	V	253.00	
	Lower limit	---	not configurable	0.01	V	195.50	
4.5.2 Rate of change of frequency (ROCOF) immunity	Internal parameter not configurable	ROCOF withstand capability ≥ 2Hz/s	not defined	0.01	HZ/s	2.50	
4.5.3.2 Generating plant with non- synchronous generating technology (FRT)	Maximum power resumption time	---	Not configurable	0.01	s	≤ 1.00	
	Enable under voltage ride through	---	Enable | Disable	---	---	Enable	
	Voltage-Time-Diagram	Voltage-Time-Diagram definition	Requirement acc. EN 50549-1, figure 6 (default requirement) can be met	---	---	Time	U
	V1		11.50 – 46.00	0.01	V	---	34.50

Clause(s) / subclause(s) of EN 50549-1:2019+A1:2023	Parameter	Remarks / additional information	configurable value range	Step size	unit	default value	
	T1		0.00 – 1.00	0.01	s	0.50	
	V2		46.00 – 92.00	0.01	V		80.50
	T2		0.00 – 30.00	0.01	s	1.00	
	V3		92.00 - 195.50	0.01	V		195.50
	T3		0.00 – 60.00	0.01	s	2.00	
4.5.4 Over-voltage ride through (OVRT)	Enable over voltage ride through	---	Enable | Disable	---	---	Enable	
	Voltage-Time-Diagram	Voltage-Time-Diagram definition	Requirement acc. EN 50549-1, figure 8 can be met	---	---	Time	U
	V1		230.00 – 264.50	0.01	V	---	264.50
	T1		0.00 – 600.00	0.01	s	60.00	---
	V2		264.50 – 276.00	0.01	V	---	276.00
	T2		0.00 – 60.00	0.01	s	5.00	---
	V3		276.00 – 299.00	0.01	V	---	287.50
	T3		0.00 – 30.00	0.01	s	0.10	---
4.6.1 Power response to over frequency (LFSM-O)	Activation frequency	Threshold frequency f1	50.00 - 52.00	0.01	Hz	50.20	
	Power gradient	Droop	1.0 - 12.0	0.1	%	5.0	
	Overfrequency reference power section	Power reference	P_M | P_{max}	---	---	P_{max}	
	Delay time	Intentional delay	0.00- 60.00	0.01	s	0.00	
4.6.2 Power response to under frequency (LFSM-U)	Activation frequency	Threshold frequency f1	47.00 - 50.00	0.01	Hz	49.80	
	Power gradient	Droop	1.0 - 12.0	0.1	%	5.0	
	Underfrequency reference power section	Power reference	P_M | P_{max}	---	---	P_{max}	
	Delay time	Intentional delay	0.00 - 60.00	0.01	s	0.00	
4.7.2.2 voltage support by reactive power - Capabilities	Reactive power range overexcited	---	0.0 - 43.6	0.1	$\%S_n$	43.6	
	Reactive power range underexcited	---	-43.6 - 0.0	0.1	$\%S_n$	43.6	
	Minimum inductive power factor	Active factor range underexcited	0.80 - 1.00	0.01	---	0.90	

Clause(s) / subclause(s) of EN 50549-1:2019+A1:2023	Parameter	Remarks / additional information	configurable value range	Step size	unit	default value
	Minimum capacitive power factor	Active factor range overexcited	0.80 - 1.00	0.01	---	0.90
4.7.2.3 Control modes	Enabled control mode	---	Q setpoint Q(U) cosφ setpoint cosφ(P)	---	---	Q setpoint
4.7.2.3.2 Set point control modes (Q setpoint and excitation)	Reactive power setting value	---	-43.6 - 43.6	0.1	$\%S_n$	0.0
	Delay time	---	0.00 - 60.00	0.01	s	0.00
	Tau value	PT1-filtering time constant	0.00 - 60.00	0.01	s	3.30
4.7.2.3.2 Set point control modes (cosφ setpoint and excitation)	cosφ setting value	---	0.80 - 1.00 - 0.80	0.01	---	0.90
	Delay time	---	0.00 - 60.00	0.01	s	0.00
	Tau value	PT1-filtering time constant	0.00 - 60.00	0.01	s	3.30
4.7.2.3.3 Voltage related control modes - Q(U)	Voltage node 1	---	0.00 - 300.00	0.01	V	213.90
	Voltage node 2	---	0.00 - 300.00	0.01	V	216.20
	Voltage node 3	---	0.00 - 300.00	0.01	V	243.80
	Voltage node 4	---	0.00 - 300.00	0.01	V	248.40
	Reactive Power responding node 1	---	0.0 - 100.0	0.1	$\%S_n$	43.6
	Reactive Power responding node 2	---	0.0 - 100.0	0.1	$\%S_n$	0.0
	Reactive Power responding node 3	---	0.0 - 100.0	0.1	$\%S_n$	0.0
	Reactive Power responding node 4	---	-100.0 - 100.0	0.1	$\%S_n$	-43.6
	Delay time	---	0.00 - 60.00	0.01	s	0.00
	Tau value	PT1-filtering time constant	0.00 - 60.00	0.01	s	3.30
4.7.2.3.4 Power related control mode - cosφ(P)	PF Node 1	---	0.00 - 1.00	0.01	---	1.00
	PF Node 2	---	0.00 - 1.00	0.01	---	1.00
	PF Node 3	---	-1.00 - 1.00	0.01	---	0.90
	Power node 1	---	0.0 - 100.0	0.1	$\%S_n$	20.0

Clause(s) / subclause(s) of EN 50549-1:2019+A1:2023	Parameter	Remarks / additional information	configurable value range	Step size	unit	default value
	Power node 2	---	0.0 - 100.0	0.1	$\%S_n$	50.0
	Power node 3	---	0.0 - 100.0	0.1	$\%S_n$	100.0
	Tau Value	PT1-filtering time constant	0.00 - 60.00	0.01	s	3.30
4.7.2.3.4 Power related control mode - (cos φ (P))	Ena	disable / enable	[0 / 1]	---	---	0
	PF	---	-0.90 – 0.90	0.01	---	-0.90
	Time	---	0.50 – 1800.00	0.01	s	3.30
4.7.4.2.2 Zero current mode for converter connected generating technology	Threshold value of under voltage	---	not configurable	0.01	V	195.50
	Threshold value of over voltage	---	not configurable	0.01	V	246.50
4.9.2 Requirements on voltage and frequency protection	Undervoltage Protection value Level_1(V)	Undervoltage threshold stage 1	34.50-230.00	0.01	V	195.50
	Undervoltage Disconnection Time Level_1(V)	Undervoltage operate time stage 1	0 - 3000	1	ms	1500
	Undervoltage Protection value Level_2(V)	Undervoltage threshold stage 2	34.50-230.00	0.01	V	105.00
	Undervoltage Disconnection Time Level_2(V)	Undervoltage operate time stage 2	0 - 3000	1	ms	500
	Overvoltage Protection value Level_1(V)	Overvoltage threshold stage 1	230.00-287.50	0.01	V	264.50
	Overvoltage Disconnection Time Level_1(V)	Overvoltage operate time stage 1	0 - 3000	1	ms	1500
	Overvoltage Protection value Level_2(V)	Overvoltage threshold stage 2	230.00-287.50	0.01	V	276.00
	Overvoltage Disconnection Time Level_2(V)	Overvoltage operate time stage 2	0 - 3000	1	ms	500
	10min overvoltage Protection Value	Overvoltage threshold 10min mean protection	230.00-287.50	0.01	V	253.00
	10-min mean Disconnection Time	Overvoltage operate time 10 min mean protection	---	---	min	10 min (update every 3s)
	Underfrequency Protection value Level_1	Underfrequency threshold stage 1	46.00-50.00	0.01	Hz	47.50

Clause(s) / subclause(s) of EN 50549-1:2019+A1:2023	Parameter	Remarks / additional information	configurable value range	Step size	unit	default value
	Underfrequency Disconnection Time Level_1	Underfrequency operate time stage 1	0 - 3000	1	ms	500
	Overfrequency Protection value Level_2	Underfrequency threshold stage 2	46.00-50.00	0.01	Hz	47.00
	Overfrequency Disconnection Time Level_2	Underfrequency operate time stage 2	0 - 3000	1	ms	200
	Overfrequency Protection value Level_1	Overfrequency threshold stage 1	50.00-53.00	0.01	Hz	52.00
	Overfrequency Disconnection Time Level_1	Overfrequency operate time stage 1	0 - 3000	1	ms	500
	Level-2 overfrequency frequency value	Overfrequency threshold stage 2	50.00-53.00	0.01	Hz	52.50
	Level-2 overfrequency trip delay time	Overfrequency operate time stage 2	0 - 3000	1	ms	200
4.10.2 Automatic reconnection after tripping	Start up time follewing grid error	---	0.00 - 900.00	0.01	s	60.00
	Power gradient follewing grid error (%/min)	---	0.0 - 100.0	0.1	%Pn/ min	10.0
	Max. grid reconnection voltage	---	0.00 - 300.00	0.01	V	253.00
	Min. grid reconnection voltage	---	0.00 - 300.00	0.01	V	195.50
	Max. grid reconnection frequency	---	45.00 - 65.00	0.01	Hz	50.10
	Min. grid reconnection frequency	---	45.00 - 65.00	0.01	Hz	47.50
4.10.3 Starting to generate electrical power	Start up time	---	0.00 - 900.00	0.01	s	60.00
	Power gradient	---	0.0 - 100.0	0.1	%Pn/ min	10.0
	Max. grid start voltage	---	0.00 - 300.00	0.01	V	253.00
	Min. grid start voltage	---	0.00 - 300.00	0.01	V	195.50

Clause(s) / subclause(s) of EN 50549-1:2019+A1:2023	Parameter	Remarks / additional information	configurable value range	Step size	unit	default value
	Max. grid start frequency	---	45.00 - 65.00	0.01	Hz	50.10
	Min. grid start frequency	---	45.00 - 65.00	0.01	Hz	47.50
4.11.1 Ceasing active power	---	---	---	---	---	Bluetooth
4.11.2 Reduction of active power on set point	Temporary Active Power Setting	---	0.0 - 100.0	0.1	%Pn	100.0
	Active Power Slope Setting	---	[0.0 - 100.0]	0.1	%Pn/ min	20.0
4.12 Remote information exchange	---	---	---	---	---	---