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DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

Certificate

No. ESY 135260 0037 Rev. 01

Unit Certificate

Holder of Certificate: **Anker Solix Innovations Limited**
Flat/RM 829, 8/F, Tower 2
Admiralty Centre, 18 Harcourt Road
Central and Western District
HONG KONG

Product: **Converter (Battery Energy Storage System)**

Model(s): **A17E23Z1-8, A17E23Z1-8-1, A17E23Z1-8-2, A17E23Z1-8-3, A17E23Z1-8-4, A17E23Z1-8-5, A17E23Z1-25, A17E23Z1-25-1, A17E23Z1-25-2, A17E23Z1-25-3, A17E23Z1-25-4, A17E23Z1-25-5, A17E23Z1-35, A17E23Z1-35-1, A17E23Z1-35-2, A17E23Z1-35-3, A17E23Z1-35-4, A17E23Z1-35-5, A17E23Z1-46, A17E23Z1-46-1, A17E23Z1-46-2, A17E23Z1-46-3, A17E23Z1-46-4, A17E23Z1-46-5, A17E24Z1, A17E24Z1-1, A17E24Z1-2, A17E24Z1-3, A17E24Z1-4, A17E24Z1-5**
AE1113Z1-8, AE1113Z1-8-1, AE1113Z1-8-2, AE1113Z1-8-3, AE1113Z1-8-4, AE1113Z1-8-5, AE1113Z1-25, AE1113Z1-25-1, AE1113Z1-25-2, AE1113Z1-25-3, AE1113Z1-25-4, AE1113Z1-25-5, AE1113Z1-35, AE1113Z1-35-1, AE1113Z1-35-2, AE1113Z1-35-3, AE1113Z1-35-4, AE1113Z1-35-5, AE1113Z1-46, AE1113Z1-46-1, AE1113Z1-46-2, AE1113Z1-46-3, AE1113Z1-46-4, AE1113Z1-46-5, AE1114Z1, AE1114Z1-1, AE1114Z1-2, AE1114Z1-3, AE1114Z1-4, AE1114Z1-5

Parameters: See pages 2 to 11

Applicable standards:
VDE-AR-N 4105:2018
DIN VDE V 0124-100 (VDE V 0124-100):2020

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.: 64290253184602

Date, 2026-07-10

Kennen Wang

(Kennen Wang)

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

Certificate

No. ESY 135260 0037 Rev. 01

Parameters:

Model	A17E23Z1 -8	A17E23Z1 -8-1	A17E23Z1 -8-2	A17E23Z1 -8-3	A17E23Z1 -8-4	A17E23Z1 -8-5
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	450					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-450					
Maximum charge active power [kW]	3.5	3.68				
Maximum discharge active power [kW]	3.5	4.48				
Maximum charge current [A_{DC}]	9.7	10.2				
Maximum discharge current [A_{DC}]	9.7	12.4				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	15.2					
Maximum continuous input current [A_{AC}]	16					
Maximum continuous input active power from grid to battery [kW]	3.5	3.68				
Grid terminal output parameters						
Rated output current [A_{AC}]	3.5					
Maximum continuous output current [A_{AC}]	3.6					
Rated output active power [kW]	0.8					
Maximum continuous output active power [kW]	0.8					
Maximum continuous output apparent power [kVA]	0.8					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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No. ESY 135260 0037 Rev. 01

Model	A17E23Z1 -25	A17E23Z1 -25-1	A17E23Z1 -25-2	A17E23Z1 -25-3	A17E23Z1 -25-4	A17E23Z1 -25-5
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	450					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-450					
Maximum charge active power [kW]	3.5	3.68				
Maximum discharge active power [kW]	3.5	5				
Maximum charge current [A_{DC}]	9.7	10.2				
Maximum discharge current [A_{DC}]	9.7	13.9				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	15.2					
Maximum continuous input current [A_{AC}]	16					
Maximum continuous input active power from grid to battery [kW]	3.5	3.68				
Grid terminal output parameters						
Rated output current [A_{AC}]	10.9					
Maximum continuous output current [A_{AC}]	11.4					
Rated output active power [kW]	2.5					
Maximum continuous output active power [kW]	2.5					
Maximum continuous output apparent power [kVA]	2.5					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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No. ESY 135260 0037 Rev. 01

Model	A17E23Z1 -35	A17E23Z1 -35-1	A17E23Z1 -35-2	A17E23Z1 -35-3	A17E23Z1 -35-4	A17E23Z1 -35-5
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	450					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-450					
Maximum charge active power [kW]	3.5	3.68				
Maximum discharge active power [kW]	3.5	5				
Maximum charge current [A_{DC}]	9.7	10.2				
Maximum discharge current [A_{DC}]	9.7	13.9				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	15.2					
Maximum continuous input current [A_{AC}]	16					
Maximum continuous input active power from grid to battery [kW]	3.5	3.68				
Grid terminal output parameters						
Rated output current [A_{AC}]	15.2					
Maximum continuous output current [A_{AC}]	16					
Rated output active power [kW]	3.5					
Maximum continuous output active power [kW]	3.5					
Maximum continuous output apparent power [kVA]	3.68					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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No. ESY 135260 0037 Rev. 01

Model	A17E23Z1 -46	A17E23Z1 -46-1	A17E23Z1 -46-2	A17E23Z1 -46-3	A17E23Z1 -46-4	A17E23Z1 -46-5
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	450					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-450					
Maximum charge active power [kW]	3.5	4.6				
Maximum discharge active power [kW]	3.5	5				
Maximum charge current [A_{DC}]	9.7	12.8				
Maximum discharge current [A_{DC}]	9.7	13.9				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	20					
Maximum continuous input current [A_{AC}]	20.9					
Maximum continuous input active power from grid to battery [kW]	3.5	4.6				
Grid terminal output parameters						
Rated output current [A_{AC}]	15.2	20				
Maximum continuous output current [A_{AC}]	16	22.7				
Rated output active power [kW]	3.5	4.6				
Maximum continuous output active power [kW]	3.5	4.6				
Maximum continuous output apparent power [kVA]	3.68	5				
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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No. ESY 135260 0037 Rev. 01

Model	A17E24Z1	A17E24Z1-1	A17E24Z1-2	A17E24Z1-3	A17E24Z1-4	A17E24Z1-5
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	450					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-450					
Maximum charge active power [kW]	3.5	4.6				
Maximum discharge active power [kW]	3.5	4.6				
Maximum charge current [A_{DC}]	9.7	12.8				
Maximum discharge current [A_{DC}]	9.7	12.8				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	15.2	20				
Maximum continuous input current [A_{AC}]	16	20.9				
Maximum continuous input active power from grid to battery [kW]	3.5	4.6				
Grid terminal output parameters						
Rated output current [A_{AC}]	15.2	20				
Maximum continuous output current [A_{AC}]	16	22.7				
Rated output active power [kW]	3.5	4.6				
Maximum continuous output active power [kW]	3.5	4.6				
Maximum continuous output apparent power [kVA]	3.68	5				
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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Model	AE1113Z1 -8	AE1113Z1 -8-1	AE1113Z1 -8-2	AE1113Z1 -8-3	AE1113Z1 -8-4	AE1113Z1 -8-5
PV terminal input/output parameters						
Maximum PV voltage [V_{DC}]	600					
Rated input voltage [V_{DC}]	360					
MPPT voltage range (full load) [V_{DC}]	277.8-500					
MPPT voltage range [V_{DC}]	30-550					
Maximum input current (per-channel MPPT) [A_{DC}]	18/18/18					
Maximum PV short circuit current [A_{DC}]	25/25/25					
MPPT tracker number	3					
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	600					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-600					
Maximum charge active power [kW]	3.5	7	10			
Maximum discharge active power [kW]	3.5	4.48				
Maximum charge current [A_{DC}]	9.7	19.4	27.8			
Maximum discharge current [A_{DC}]	9.7	12.4				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	15.2					
Maximum continuous input current [A_{AC}]	16					
Maximum continuous input active power from grid to battery [kW]	3.5	3.68				
Grid terminal output parameters						
Rated output current [A_{AC}]	3.5					
Maximum continuous output current [A_{AC}]	3.6					
Rated output active power [kW]	0.8					
Maximum continuous output active power [kW]	0.8					
Maximum continuous output apparent power [kVA]	0.8					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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Certificate

No. ESY 135260 0037 Rev. 01

Model	AE1113Z1 -25	AE1113Z1 -25-1	AE1113Z1 -25-2	AE1113Z1 -25-3	AE1113Z1 -25-4	AE1113Z1 -25-5
PV terminal input/output parameters						
Maximum PV voltage [V_{DC}]	600					
Rated input voltage [V_{DC}]	360					
MPPT voltage range (full load) [V_{DC}]	277.8-500					
MPPT voltage range [V_{DC}]	30-550					
Maximum input current (per-channel MPPT) [A_{DC}]	18/18/18					
Maximum PV short circuit current [A_{DC}]	25/25/25					
MPPT tracker number	3					
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	600					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-600					
Maximum charge active power [kW]	3.5	7	10			
Maximum discharge active power [kW]	3.5	5				
Maximum charge current [A_{DC}]	9.7	19.4	27.8			
Maximum discharge current [A_{DC}]	9.7	13.9				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	15.2					
Maximum continuous input current [A_{AC}]	16					
Maximum continuous input active power from grid to battery [kW]	3.5	3.68				
Grid terminal output parameters						
Rated output current [A_{AC}]	10.9					
Maximum continuous output current [A_{AC}]	11.4					
Rated output active power [kW]	2.5					
Maximum continuous output active power [kW]	2.5					
Maximum continuous output apparent power [kVA]	2.5					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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No. ESY 135260 0037 Rev. 01

Model	AE1113Z1 -35	AE1113Z1 -35-1	AE1113Z1 -35-2	AE1113Z1 -35-3	AE1113Z1 -35-4	AE1113Z1 -35-5
PV terminal input/output parameters						
Maximum PV voltage [V_{DC}]	600					
Rated input voltage [V_{DC}]	360					
MPPT voltage range (full load) [V_{DC}]	277.8-500					
MPPT voltage range [V_{DC}]	30-550					
Maximum input current (per-channel MPPT) [A_{DC}]	18/18/18					
Maximum PV short circuit current [A_{DC}]	25/25/25					
MPPT tracker number	3					
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	600					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-600					
Maximum charge active power [kW]	3.5	7	10			
Maximum discharge active power [kW]	3.5	5				
Maximum charge current [A_{DC}]	9.7	19.4	27.8			
Maximum discharge current [A_{DC}]	9.7	13.9				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	15.2					
Maximum continuous input current [A_{AC}]	16					
Maximum continuous input active power from grid to battery [kW]	3.5	3.68				
Grid terminal output parameters						
Rated output current [A_{AC}]	15.2					
Maximum continuous output current [A_{AC}]	16					
Rated output active power [kW]	3.5					
Maximum continuous output active power [kW]	3.5					
Maximum continuous output apparent power [kVA]	3.68					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

DAkkS Deutsche Akkreditierungsstelle D-ZE-11321-01-00

Certificate

No. ESY 135260 0037 Rev. 01

Model	AE1113Z1 -46	AE1113Z1 -46-1	AE1113Z1 -46-2	AE1113Z1 -46-3	AE1113Z1 -46-4	AE1113Z1 -46-5
PV terminal input/output parameters						
Maximum PV voltage [V_{DC}]	600					
Rated input voltage [V_{DC}]	360					
MPPT voltage range (full load) [V_{DC}]	277.8-500					
MPPT voltage range [V_{DC}]	30-550					
Maximum input current (per-channel MPPT) [A_{DC}]	18/18/18					
Maximum PV short circuit current [A_{DC}]	25/25/25					
MPPT tracker number	3					
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	600					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-600					
Maximum charge active power [kW]	3.5	7	10			
Maximum discharge active power [kW]	3.5	5				
Maximum charge current [A_{DC}]	9.7	19.4	27.8			
Maximum discharge current [A_{DC}]	9.7	13.9				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	20					
Maximum continuous input current [A_{AC}]	20.9					
Maximum continuous input active power from grid to battery [kW]	3.5	4.6				
Grid terminal output parameters						
Rated output current [A_{AC}]	20					
Maximum continuous output current [A_{AC}]	22.7					
Rated output active power [kW]	4.6					
Maximum continuous output active power [kW]	4.6					
Maximum continuous output apparent power [kVA]	5					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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Certificate

No. ESY 135260 0037 Rev. 01

Model	AE1114Z1	AE1114Z1-1	AE1114Z1-2	AE1114Z1-3	AE1114Z1-4	AE1114Z1-5
PV terminal input/output parameters						
Maximum PV voltage [V_{DC}]	600					
Rated input voltage [V_{DC}]	360					
MPPT voltage range (full load) [V_{DC}]	277.8-500					
MPPT voltage range [V_{DC}]	30-550					
Maximum input current (per-channel MPPT) [A_{DC}]	18/18/18					
Maximum PV short circuit current [A_{DC}]	25/25/25					
MPPT tracker number	3					
Battery terminal input/output parameters						
Battery type	Lithium-ion					
Maximum voltage [V_{DC}]	600					
Battery rated voltage [V_{DC}]	400					
Battery voltage range [V_{DC}]	360-600					
Maximum charge active power [kW]	3.5	7	10			
Maximum discharge active power [kW]	3.5	5				
Maximum charge current [A_{DC}]	9.7	19.4	27.8			
Maximum discharge current [A_{DC}]	9.7	13.9				
Grid terminal input parameters						
Rated voltage [V_{AC}]	1L+N+PE, 230					
Rated frequency [Hz]	50					
Rated input current [A_{AC}]	20					
Maximum continuous input current [A_{AC}]	20.9					
Maximum continuous input active power from grid to battery [kW]	3.5	4.6				
Grid terminal output parameters						
Rated output current [A_{AC}]	20					
Maximum continuous output current [A_{AC}]	22.7					
Rated output active power [kW]	4.6					
Maximum continuous output active power [kW]	4.6					
Maximum continuous output apparent power [kVA]	5					
Power factor range	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)					

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No. ESY 135260 0037 Rev. 01

E.4 Unit certificate

Unit certificate		
Manufacturer	Anker Solix Innovations Limited	
Power generation unit type	[Battery Energy Storage System]: A17E23Z1-8, A17E23Z1-8-1, A17E23Z1-8-2, A17E23Z1-8-3, A17E23Z1-8-4, A17E23Z1-8-5, A17E23Z1-25, A17E23Z1-25-1, A17E23Z1-25-2, A17E23Z1-25-3, A17E23Z1-25-4, A17E23Z1-25-5, A17E23Z1-35, A17E23Z1-35-1, A17E23Z1-35-2, A17E23Z1-35-3, A17E23Z1-35-4, A17E23Z1-35-5, A17E23Z1-46, A17E23Z1-46-1, A17E23Z1-46-2, A17E23Z1-46-3, A17E23Z1-46-4, A17E23Z1-46-5, A17E24Z1, A17E24Z1-1, A17E24Z1-2, A17E24Z1-3, A17E24Z1-4, A17E24Z1-5, AE1113Z1-8, AE1113Z1-8-1, AE1113Z1-8-2, AE1113Z1-8-3, AE1113Z1-8-4, AE1113Z1-8-5, AE1113Z1-25, AE1113Z1-25-1, AE1113Z1-25-2, AE1113Z1-25-3, AE1113Z1-25-4, AE1113Z1-25-5, AE1113Z1-35, AE1113Z1-35-1, AE1113Z1-35-2, AE1113Z1-35-3, AE1113Z1-35-4, AE1113Z1-35-5, AE1113Z1-46, AE1113Z1-46-1, AE1113Z1-46-2, AE1113Z1-46-3, AE1113Z1-46-4, AE1113Z1-46-5, AE1114Z1, AE1114Z1-1, AE1114Z1-2, AE1114Z1-3, AE1114Z1-4, AE1114Z1-5. Remark: certified on representative model A17E23Z1-46-1 of family design products, results of the measurement of A17E23Z1-46-1 can be transferred to other models based on transferability rule of measurements in DIN VDE V 0124-100 (VDE V 0124-100):2020-06.	
Assessment values	max. active power P_{Emax}	4600 W (A17E23Z1-46-1)
	max. apparent power S_{Emax}	5000 VA (A17E23Z1-46-1)
	Rated voltage	230 V_{AC}, 1L+N+PE
	Rated current (AC) I_r	20.0 A (A17E23Z1-46-1)
	Initial short-circuit AC current I''_k	22.7 A (A17E23Z1-46-1)
Network connection rule	**VDE-AR-N 4105:2018-11 “Generators connected to the low-voltage distribution network”** Technical minimum requirements for connection and parallel operation of power generation systems connected to the low-voltage network	
Test requirement	**DIN VDE V 0124-100 (VDE V 0124-100):2020-06 “Network integration of power generation systems – Low voltage”** Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network	
Test report	64.290.25.31846.02 from 2026-07-06	
The above designated power generation unit meets the requirements of VDE-AR-N 4105:2018-11.		
The model A17E23Z1-46, A17E23Z1-46-1, A17E23Z1-46-2, A17E23Z1-46-3, A17E23Z1-46-4, A17E23Z1-46-5, A17E24Z1, A17E24Z1-1, A17E24Z1-2, A17E24Z1-3, A17E24Z1-4, A17E24Z1-5, AE1113Z1-46, AE1113Z1-46-1, AE1113Z1-46-2, AE1113Z1-46-3, AE1113Z1-46-4, AE1113Z1-46-5, AE1114Z1, AE1114Z1-1, AE1114Z1-2, AE1114Z1-3, AE1114Z1-4, AE1114Z1-5 may be connected single-phase, a storage unit and a balancing device must be used to ensure that the requirements of maximum permissible unbalance ≤ 4.6kVA according to 5.5.2 of VDE-AR-N 4100 are met and a registration with the grid operators the finally installation.		

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E.5 Test report "Network interactions" for power generation units with an input current > 75 A

Extract of the test report for power generation units "Determination of electrical properties"		
System manufacturer:	Anker Solix Innovations Limited Flat/RM 829, 8/F, Tower 2, Admiralty Centre, 18 Harcourt Road, Central and Western District, HONG KONG	
Manufacturer indications:	Type of system	Battery Energy Storage System
	Max. active power P_{Emax}	800 W (A17E23Z1-8, A17E23Z1-8-1, A17E23Z1-8-2, A17E23Z1-8-3, A17E23Z1-8-4, A17E23Z1-8-5, AE1113Z1-8, AE1113Z1-8-1, AE1113Z1-8-2, AE1113Z1-8-3, AE1113Z1-8-4, AE1113Z1-8-5) 2500 W (A17E23Z1-25, A17E23Z1-25-1, A17E23Z1-25-2, A17E23Z1-25-3, A17E23Z1-25-4, A17E23Z1-25-5, AE1113Z1-25, AE1113Z1-25-1, AE1113Z1-25-2, AE1113Z1-25-3, AE1113Z1-25-4, AE1113Z1-25-5) 3500 W (A17E23Z1-35, A17E23Z1-35-1, A17E23Z1-35-2, A17E23Z1-35-3, A17E23Z1-35-4, A17E23Z1-35-5, AE1113Z1-35, AE1113Z1-35-1, AE1113Z1-35-2, AE1113Z1-35-3, AE1113Z1-35-4, AE1113Z1-35-5) 4600 W (A17E23Z1-46, A17E23Z1-46-1, A17E23Z1-46-2, A17E23Z1-46-3, A17E23Z1-46-4, A17E23Z1-46-5, A17E24Z1, A17E24Z1-1, A17E24Z1-2, A17E24Z1-3, A17E24Z1-4, A17E24Z1-5, AE1113Z1-46, AE1113Z1-46-1, AE1113Z1-46-2, AE1113Z1-46-3, AE1113Z1-46-4, AE1113Z1-46-5, AE1114Z1, AE1114Z1-1, AE1114Z1-2, AE1114Z1-3, AE1114Z1-4, AE1114Z1-5)
	Rated voltage	230 V_{AC}, 1L+N+PE
Measurement period:	From 2026-01-26 to 2026-05-06, 2026-05-20 to 2026-05-22	

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Certificate

No. ESY 135260 0037 Rev. 01

Rapid voltage change	
Model	A17E23Z1-35-1
Connection without provisions (regarding the primary energy carrier)	K_i=0.51
Most adverse case when switching between generator levels	K_i=0.51
Connection at nominal conditions (of the primary energy carrier)	K_i=1.01
Disconnection at rated power	K_i=1.01
Worst value of all switching operations	K_{imax}=1.01

Rapid voltage changes	
Model	A17E23Z1-46-1
Connection without provisions (regarding the primary energy carrier)	K_i=0.56
Most adverse case when switching between generator levels	K_i=0.52
Connection at nominal conditions (of the primary energy carrier)	K_i=1.02
Disconnection at rated power	K_i=1.01
Worst value of all switching operations	K_{imax}=1.02

Flicker (≤16 A) (A17E23Z1-35-1)					
Network impedance angle Ψ_k	30°	50°	70°	85°	32°
Coefficient of system flicker C_Ψ (Maximum)					
L1	--	--	--	--	0.924
L2	--	--	--	--	--
L3	--	--	--	--	--

Flicker (>16 A) (A17E23Z1-46-1)					
Network impedance angle Ψ_k	30°	50°	70°	85°	32°
Coefficient of system flicker C_Ψ (Maximum)					
L1	--	--	--	--	1.254
L2	--	--	--	--	--
L3	--	--	--	--	--

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Certificate

No. ESY 135260 0037 Rev. 01

Harmonics (≤16 A) (A17E23Z1-35-1)												
Active power P/Pn[%]	0	10	20	30	40	50	60	70	80	90	100	Limit value
Ordinal number	A	A	A	A	A	A	A	A	A	A	A	A
2	0.000	0.001	0.001	0.005	0.008	0.010	0.016	0.021	0.026	0.033	0.039	1.080
3	0.003	0.060	0.044	0.060	0.059	0.067	0.064	0.060	0.068	0.093	0.141	2.300
4	0.000	0.000	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.004	0.430
5	0.003	0.038	0.035	0.035	0.034	0.038	0.034	0.030	0.023	0.017	0.017	1.140
6	0.000	0.001	0.001	0.002	0.003	0.002	0.002	0.003	0.002	0.002	0.003	0.300
7	0.004	0.013	0.016	0.030	0.028	0.034	0.031	0.023	0.017	0.008	0.006	0.770
8	0.000	0.001	0.001	0.001	0.001	0.003	0.001	0.001	0.003	0.003	0.003	0.230
9	0.003	0.005	0.005	0.019	0.019	0.021	0.020	0.019	0.016	0.015	0.014	0.400
10	0.000	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.002	0.002	0.184
11	0.004	0.006	0.005	0.018	0.019	0.021	0.021	0.018	0.015	0.011	0.009	0.330
12	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.002	0.153
13	0.003	0.003	0.005	0.008	0.011	0.014	0.012	0.011	0.011	0.009	0.008	0.210
14	0.000	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.131
15	0.003	0.003	0.002	0.010	0.012	0.015	0.014	0.012	0.010	0.009	0.008	0.150
16	0.000	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.002	0.002	0.115
17	0.003	0.003	0.004	0.004	0.007	0.010	0.010	0.008	0.008	0.007	0.007	0.132
18	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.102
19	0.002	0.002	0.001	0.004	0.007	0.011	0.010	0.009	0.008	0.006	0.006	0.118
20	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.092
21	0.001	0.004	0.004	0.002	0.003	0.006	0.006	0.006	0.005	0.004	0.004	0.107
22	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.084
23	0.002	0.003	0.002	0.002	0.005	0.008	0.008	0.007	0.006	0.005	0.004	0.098
24	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.077
25	0.002	0.004	0.003	0.002	0.002	0.005	0.006	0.005	0.005	0.004	0.004	0.090
26	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.071
27	0.001	0.003	0.003	0.003	0.003	0.006	0.007	0.006	0.006	0.005	0.004	0.083
28	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.066
29	0.001	0.004	0.004	0.002	0.002	0.005	0.005	0.005	0.004	0.004	0.004	0.078
30	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.061
31	0.001	0.003	0.003	0.002	0.002	0.005	0.005	0.005	0.005	0.004	0.004	0.073
32	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.058
33	0.001	0.004	0.004	0.003	0.001	0.005	0.005	0.005	0.004	0.004	0.004	0.068
34	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.054
35	0.001	0.004	0.004	0.003	0.001	0.004	0.005	0.005	0.005	0.004	0.004	0.064
36	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.051
37	0.001	0.003	0.004	0.003	0.001	0.004	0.005	0.004	0.004	0.004	0.003	0.061
38	0.001	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.048
39	0.001	0.004	0.004	0.003	0.001	0.004	0.004	0.004	0.004	0.004	0.004	0.058
40	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.046
THD	0.140	0.159	0.160	0.160	0.160	0.158	0.155	0.151	0.148	0.143	0.135	5%
Remark: Iref=15.2 A.												

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Certificate

No. ESY 135260 0037 Rev. 01

Harmonics (>16 A and ≤75 A) (A17E23Z1-46-1)												
Active power P/Pn[%]	0	10	20	30	40	50	60	70	80	90	100	Limit value
Ordinal number	Ih/Iref [%]											[%]
2	0.001	0.007	0.006	0.035	0.055	0.090	0.122	0.166	0.210	0.265	0.275	8
3	0.013	0.268	0.162	0.299	0.348	0.316	0.337	0.526	0.959	1.488	1.655	21.6
4	0.001	0.003	0.005	0.006	0.006	0.007	0.006	0.009	0.022	0.022	0.035	4
5	0.017	0.194	0.144	0.171	0.196	0.155	0.115	0.077	0.086	0.164	0.364	10.7
6	0.001	0.002	0.003	0.016	0.008	0.011	0.012	0.008	0.009	0.007	0.008	2.67
7	0.019	0.072	0.070	0.143	0.174	0.135	0.091	0.030	0.052	0.132	0.204	7.2
8	0.002	0.006	0.006	0.006	0.014	0.007	0.015	0.016	0.019	0.020	0.016	2
9	0.014	0.022	0.041	0.095	0.113	0.097	0.077	0.074	0.068	0.045	0.088	3.8
10	0.002	0.003	0.004	0.005	0.006	0.007	0.007	0.007	0.007	0.010	0.010	1.6
11	0.018	0.032	0.030	0.096	0.109	0.094	0.078	0.053	0.045	0.065	0.048	3.1
12	0.002	0.004	0.004	0.006	0.005	0.009	0.008	0.011	0.013	0.010	0.013	1.33
13	0.014	0.014	0.029	0.058	0.071	0.060	0.054	0.048	0.044	0.050	0.091	2
14	0.002	0.004	0.004	0.006	0.006	0.006	0.007	0.007	0.008	0.008	0.008	-
15	0.014	0.013	0.011	0.061	0.082	0.064	0.050	0.043	0.035	0.032	0.021	-
16	0.002	0.004	0.004	0.008	0.005	0.007	0.006	0.009	0.007	0.008	0.009	-
17	0.017	0.018	0.024	0.035	0.054	0.047	0.041	0.037	0.039	0.027	0.035	-
18	0.002	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.007	-
19	0.010	0.009	0.006	0.036	0.056	0.051	0.042	0.033	0.027	0.029	0.014	-
20	0.003	0.003	0.004	0.005	0.004	0.004	0.005	0.005	0.006	0.005	0.007	-
21	0.007	0.019	0.020	0.016	0.035	0.030	0.024	0.021	0.021	0.018	0.015	-
22	0.003	0.003	0.003	0.005	0.004	0.004	0.004	0.004	0.004	0.006	0.007	-
23	0.011	0.011	0.007	0.021	0.043	0.035	0.033	0.027	0.023	0.020	0.014	-
24	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.006	-
25	0.008	0.018	0.016	0.011	0.030	0.027	0.024	0.020	0.017	0.014	0.013	-
26	0.003	0.003	0.003	0.004	0.003	0.003	0.003	0.004	0.004	0.004	0.006	-
27	0.003	0.016	0.013	0.014	0.035	0.032	0.028	0.025	0.023	0.019	0.014	-
28	0.004	0.003	0.003	0.003	0.003	0.004	0.003	0.004	0.004	0.004	0.004	-
29	0.005	0.020	0.018	0.008	0.028	0.026	0.022	0.020	0.018	0.015	0.012	-
30	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	-
31	0.005	0.016	0.017	0.009	0.029	0.027	0.025	0.023	0.020	0.017	0.011	-
32	0.004	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.003	-
33	0.006	0.019	0.019	0.006	0.026	0.025	0.022	0.019	0.017	0.016	0.011	-
34	0.005	0.002	0.003	0.003	0.002	0.003	0.003	0.003	0.003	0.004	0.003	-
35	0.004	0.019	0.019	0.006	0.026	0.024	0.024	0.021	0.020	0.016	0.012	-
36	0.005	0.002	0.002	0.003	0.002	0.002	0.002	0.003	0.003	0.003	0.003	-
37	0.005	0.018	0.020	0.005	0.023	0.022	0.021	0.019	0.017	0.015	0.010	-
38	0.005	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.003	-
39	0.006	0.018	0.021	0.005	0.022	0.022	0.021	0.020	0.018	0.017	0.014	-
40	0.005	0.003	0.002	0.003	0.002	0.003	0.003	0.003	0.003	0.004	0.003	-
THC/I_{ref}	0.052	0.347	0.244	0.413	0.495	0.435	0.421	0.576	0.996	1.531	1.735	23
PWHC/I_{ref}	0.166	0.327	0.331	0.374	0.685	0.604	0.528	0.463	0.422	0.366	0.296	23
Remark: Iref=20.0A												

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