ATTESTATION ◆ ATTESTATO ◆ ATESTACIÓN ◆ BESCHEINIGUNG ◆ ATTESTATION

Product Service

Compliance Document

No. D 119458 0021 Rev. 01

Holder of Certificate: **ESY SUNHOME CO., LTD**
101, Building 6, No.5-2, Inner Ring Road, Shanxia Community
Pinghu Street, Longgang District
518000 Shenzhen
PEOPLE'S REPUBLIC OF CHINA

Product: **Converter (Hybrid Inverter)**

Model(s): **ESYSUNHOME HM6, D-6K, ESYSUNHOME HM5**

Parameters: See page 2

Tested according to: RfG:2016
DOC-030221-GAP:2022

This Compliance document confirms the compliance with the listed standards on a voluntary basis. It refers only to the sample submitted for testing and certification and does not certify the quality or safety of the serial products. For details see: www.tuvsud.com/ps-cert

Test report no.: 64290233173302

Date, 2024-11-04

(Billy Qiu)

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Parameters:

Model	ESYSUNHOME HM6	D-6K	ESYSUNHOME HM5
PV terminal parameters			
Rated input voltage [V_{DC}]	360		
Maximum input voltage [V_{DC}]	550		
MPPT voltage range [V_{DC}]	100 - 540		
MPPT voltage range (full load) [V_{DC}]	250 - 450		
Maximum input current [A_{DC}]	15/15		
Maximum short circuit current [A_{DC}]	20/20		
Maximum input power [W]	8000		
Battery terminal parameters			
Battery type	Li-ion		
Rated voltage [V_{DC}]	51.2		
Battery voltage range [V_{DC}]	40.8 - 57.6		
Maximum charging current [A_{DC}]	100		
Maximum charging power [W]	5000		
Maximum discharging current [A_{DC}]	120		
Maximum discharging power [W]	6000		
Grid terminal input/output parameters			
Rated input/output voltage [V_{AC}]	230, L/N/PE		
Rated input/output frequency [Hz]	50		
Rated input/output current [A_{AC}]	26.09		21.74
Max. continuous input/output current [A_{AC}]	26.09		21.74
Rated input/output power [W]	6000		5000
Maximum input/output active power [W]	6000		5000
Maximum input active power from grid to battery [W]	5000		5000
Maximum output active power from battery to grid (without PV input) [W]	6000		5000
Maximum input/output apparent Power [VA]	6000		5000
Power factor	0.8 inductive(under-excited) to 0.8 capacitive(over-excited)		

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Remark: The equipment comply with the requirement of COMMISSION REGULATION (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for grid connection of generators with Irish technical implemen-tation of orders: Conditions Governing the Connection and Operation of Mini-Generation

Scope of assessment and results:

Clause of RfG:2016	Clause of Distribution Code Version 8.0	Clause of Conditions Governing the Connection and Operation of Mini-Generation	Requirement	Type A	Type B	Type C	Type D	Assessment Result
Article 13.1 (a)	DCC10.5.2 m) & DCC11.3.1	--	Frequency range	Y	--	--	--	Pass
Article 13.1 (b)	DCC11.3.1	3.9	Ability to withstand the rate of change of frequency (RoCoF)	Y	--	--	--	Pass
Article 13.2	DCC11.3.6	--	Limited frequency sensitive mode — overfrequency (LFSM-O)	Y	--	--	--	Pass
Article 13.4 & 13.5	DCC10.5.2 n) & DCC10.5.2 o)	--	Maximum power capability reduction with falling frequency	Y	--	--	--	Pass
Article 13.6	DCC10.5.2 q)	--	Remote ceasing active power	Y	--	--	--	Pass
Article 13.7	--	3.10	Automatic reconnection after a network outage	Y	--	--	--	Pass
Below requirement is added according to Distribution Code Version 8.0								
--	DCC6.8.3 a)	--	Power quality – Flicker	Y	--	--	--	Pass
--	DCC6.8.3 b)	--	Power quality – Harmonics & DC Injection	Y	--	--	--	Pass
--	DCC11.3.4	--	Ramp rates	Y	--	--	--	Pass
Below requirement is added according to Conditions Governing the Connection and Operation of Mini-Generation								
--	DCC10.2.3	3.2	Interface protection	Y	--	--	--	Pass
--	DCC10.6	3.8	Means to detect islanding situation	Y	--	--	--	Pass
--	--	3.15	Voltage control	Y	--	--	--	Pass
--	--	3.16	Overvoltage 10 minute mean protection	Y	--	--	--	Pass

Remark: The interface protection is evaluated according to EN 50549-1:2019+A1:2023 and tested according to EN 50549-10:2020.

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Harmonics data:

It is design test referring to the test method and evaluation in IEC 61000-3-12												
Phase L1												
Harmon. Nr.	P/P_{Emax}											Limit
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
	I_v/I_n [%]											
1	1.484	9.554	19.356	29.261	39.182	49.115	59.039	68.965	78.929	88.895	98.825	--
2	0.060	0.040	0.035	0.065	0.059	0.056	0.058	0.081	0.099	0.120	0.139	--
3	0.122	0.195	0.257	0.269	0.402	0.432	0.599	0.832	1.083	1.356	1.601	21.6%
4	0.081	0.022	0.026	0.026	0.023	0.033	0.095	0.062	0.040	0.068	0.098	--
5	0.101	0.091	0.194	0.211	0.321	0.318	0.228	0.189	0.225	0.295	0.399	10.7%
6	0.076	0.023	0.022	0.057	0.059	0.025	0.031	0.039	0.057	0.079	0.084	--
7	0.070	0.018	0.139	0.156	0.225	0.240	0.267	0.319	0.354	0.395	0.383	7.2%
8	0.054	0.022	0.051	0.031	0.033	0.032	0.063	0.055	0.066	0.079	0.063	--
9	0.055	0.064	0.122	0.140	0.180	0.208	0.275	0.285	0.282	0.253	0.236	3.8%
10	0.043	0.019	0.031	0.018	0.033	0.055	0.035	0.052	0.076	0.074	0.047	--
11	0.043	0.085	0.089	0.116	0.151	0.153	0.151	0.158	0.170	0.209	0.209	3.1%
12	0.039	0.032	0.018	0.031	0.039	0.024	0.060	0.051	0.052	0.064	0.036	--
13	0.033	0.065	0.067	0.100	0.132	0.126	0.146	0.182	0.206	0.205	0.203	2.0%
14	0.033	0.040	0.021	0.036	0.027	0.046	0.036	0.054	0.047	0.059	0.028	--
15	0.028	0.044	0.063	0.086	0.113	0.129	0.124	0.120	0.121	0.125	0.124	--
16	0.023	0.023	0.029	0.022	0.046	0.035	0.048	0.040	0.054	0.055	0.029	--
17	0.026	0.048	0.069	0.083	0.111	0.120	0.114	0.121	0.139	0.157	0.172	--
18	0.018	0.016	0.033	0.023	0.036	0.028	0.034	0.043	0.050	0.050	0.033	--
19	0.020	0.047	0.045	0.071	0.079	0.095	0.111	0.115	0.109	0.110	0.115	--
20	0.014	0.018	0.019	0.050	0.024	0.053	0.039	0.043	0.050	0.051	0.034	--
21	0.019	0.046	0.043	0.063	0.080	0.088	0.100	0.096	0.108	0.118	0.131	--
22	0.016	0.020	0.020	0.022	0.037	0.027	0.035	0.044	0.041	0.046	0.027	--
23	0.028	0.041	0.044	0.057	0.077	0.078	0.086	0.107	0.102	0.093	0.096	--
24	0.017	0.017	0.018	0.018	0.027	0.029	0.031	0.038	0.034	0.036	0.021	--
25	0.017	0.035	0.044	0.049	0.057	0.069	0.074	0.072	0.076	0.085	0.078	--
26	0.016	0.018	0.029	0.031	0.021	0.023	0.029	0.036	0.035	0.035	0.020	--
27	0.016	0.020	0.030	0.041	0.038	0.043	0.044	0.057	0.069	0.066	0.060	--
28	0.015	0.020	0.022	0.019	0.024	0.021	0.028	0.030	0.036	0.032	0.025	--
29	0.017	0.031	0.027	0.028	0.041	0.046	0.051	0.059	0.060	0.059	0.055	--
30	0.015	0.015	0.016	0.016	0.023	0.031	0.028	0.037	0.033	0.025	0.016	--
31	0.018	0.025	0.030	0.029	0.038	0.044	0.054	0.052	0.065	0.071	0.071	--
32	0.014	0.016	0.022	0.029	0.026	0.027	0.029	0.029	0.032	0.027	0.021	--
33	0.020	0.030	0.038	0.037	0.036	0.043	0.046	0.055	0.056	0.055	0.048	--
34	0.013	0.017	0.028	0.030	0.025	0.027	0.029	0.033	0.031	0.026	0.020	--
35	0.014	0.025	0.031	0.021	0.030	0.038	0.044	0.045	0.048	0.058	0.059	--
36	0.010	0.017	0.023	0.018	0.024	0.025	0.025	0.025	0.030	0.025	0.023	--
37	0.013	0.023	0.022	0.018	0.025	0.031	0.036	0.042	0.046	0.044	0.047	--
38	0.007	0.016	0.013	0.018	0.018	0.019	0.023	0.027	0.028	0.025	0.032	--
39	0.014	0.023	0.019	0.023	0.027	0.031	0.035	0.043	0.042	0.046	0.054	--
40	0.008	0.015	0.010	0.021	0.014	0.020	0.020	0.022	0.024	0.020	0.027	--
THC/I_{ref}	0.259%	0.297%	0.431%	0.490%	0.682%	0.721%	0.846%	1.046%	1.282%	1.549%	1.782%	23%
$PWHC/I_{ref}$	0.458%	0.709%	0.821%	0.988%	1.178%	1.323%	1.413%	1.528%	1.608%	1.661%	1.640%	23%
Remark: I_{ref}=26.09 A_{AC}, R_{sec}=33.												

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