

Certificate

No. **ESY 090313 0050 Rev. 00**

Unit Certificate

Holder of Certificate: Autarco Group BV

Torenallee 20
5617 BC Eindhoven
THE NETHERLANDS

**Product: Converter
Hybrid inverter**

**Model(s): S2.MH3000-MIII, S2.MH3600-MIII,
S2.MH5000-MIII, S2.MH6000-MIII,
S2.MH8000-MIII, S2.MH3000M-MIII,
S2.MH3600M-MIII, S2.MH5000M-MIII,
S2.MH6000M-MIII, S2.MH8000M-MIII.**

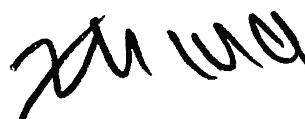
Parameters: See next pages.

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.: 704092534908-00

Date, 2025-12-18



(Zhengdong Ma)

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Model	S2.MH3000-MIII	S2.MH3600-MIII
PV input parameters:		
Max. input voltage	DC 500 V	
Mppt voltage range	DC 90, ..., 435 V	
Max. input current	DC 2*16 A	
Isc PV (absolute maximum)	DC 2*20 A	
AC output parameters:		
Max. (Rated) apparent output Power	3000 VA	3600 VA
Nominal output voltage	1/N/PE AC 230 V	
Nominal Frequency	50 Hz	
Max. (Rated) output current	AC 13.1 A	AC 15.7 A
Power factor range	-0.8, ..., 1, ..., +0.8	
Battery parameters:		
Battery Type	Li-ion/Lead-acid	
Battery Voltage range	DC 40, ..., 60 V	
Max. Charge/discharge current	DC 70/70 A	DC 80/80 A

Model	S2.MH5000-MIII	S2.MH6000-MIII
PV input parameters:		
Max. input voltage	DC 500 V	
Mppt voltage range	DC 90, ..., 435 V	
Max. input current	DC 2*16 A	
Isc PV (absolute maximum)	DC 2*20 A	
AC output parameters:		
Max. (Rated) apparent output Power	5000 VA	6000 VA
Nominal output voltage	1/N/PE AC 230 V	
Nominal Frequency	50 Hz	
Max. (Rated) output current	AC 21.8 A	AC 26.1 A
Power factor range	-0.8, ..., 1, ..., +0.8	
Battery parameters:		
Battery Type	Li-ion/Lead-acid	
Battery Voltage range	DC 40, ..., 60 V	
Max. Charge/discharge current	DC 112/112 A	DC 135/135 A

Model	S2.MH8000-MIII	S2.MH3000M-MIII
PV input parameters:		
Max. input voltage	DC 500 V	
Mppt voltage range	DC 90, ..., 435 V	
Max. input current	DC 2*32 A	DC 2*21 A
Isc PV (absolute maximum)	DC 2*40 A	DC 2*24 A
AC output parameters:		
Max. (Rated) apparent output Power	8000 VA	3000 VA
Nominal output voltage	1/N/PE AC 230 V	
Nominal Frequency	50 Hz	
Max. (Rated) output current	AC 34.8 A	AC 13.1 A
Power factor range	-0.8, ..., 1, ..., +0.8	
Battery parameters:		
Battery Type	Li-ion/Lead-acid	
Battery Voltage range	DC 40, ..., 60 V	
Max. Charge/discharge current	DC 190/190 A	DC 70/70 A

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Model	S2.MH3600M-MIII	S2.MH5000M-MIII
PV input parameters:		
Max. input voltage	DC 500 V	
Mppt voltage range	DC 90, ..., 435 V	
Max. input current	DC 2*21 A	
Isc PV (absolute maximum)	DC 2*24 A	
AC output parameters:		
Max. (Rated) apparent output Power	3600 VA	5000 VA
Nominal output voltage	1/N/PE AC 230 V	
Nominal Frequency	50 Hz	
Max. (Rated) output current	AC 15.7 A	AC 21.8 A
Power factor range	-0.8, ..., 1, ..., +0.8	
Battery parameters:		
Battery Type	Li-ion/Lead-acid	
Battery Voltage range	DC 40, ..., 60 V	
Max. Charge/discharge current	DC 80/80 A	DC 112/112 A

Model	S2.MH6000M-MIII	S2.MH8000M-MIII
PV input parameters:		
Max. input voltage	DC 500 V	
Mppt voltage range	DC 90, ..., 435 V	
Max. input current	DC 2*21 A	DC 2*42 A
Isc PV (absolute maximum)	DC 2*24 A	DC 2*48 A
AC output parameters:		
Max. (Rated) apparent output Power	6000 VA	8000 VA
Nominal output voltage	1/N/PE AC 230 V	
Nominal Frequency	50 Hz	
Max. (Rated) output current	AC 26.1 A	AC 34.8 A
Power factor range	-0.8, ..., 1, ..., +0.8	
Battery parameters:		
Battery Type	Li-ion/Lead-acid	
Battery Voltage range	DC 40, ..., 60 V	
Max. Charge/discharge current	DC 135/135 A	DC 190/190 A

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E.4 Unit certificate

Unit certificate	No. 704092534908-00	
Manufacturer	Autarco Group BV Torenallee 20, 5617 BC, Eindhoven, THE NETHERLANDS	
Power generation unit type	[Hybrid inverter]: S2.MH3000-MIII, S2.MH3600-MIII, S2.MH5000-MIII, S2.MH6000-MIII, S2.MH8000-MIII, S2.MH3000M-MIII, S2.MH3600M-MIII, S2.MH5000M-MIII, S2.MH6000M-MIII, S2.MH8000M-MIII Remark: certified on representative model S2.MH8000-MIII of family design products, results of the measurement of S2.MH8000-MIII can be transferred to the other models based on transferability rule of measurements in DIN VDE V 0124-100 (VDE V 0124-100):2020.	
<input checked="" type="checkbox"/> Inverter	<input type="checkbox"/> Asynchronous generator	<input type="checkbox"/> Synchronous generator
<input type="checkbox"/> Stirling generator	<input type="checkbox"/> Fuel cell	<input type="checkbox"/> others
Assessment values	Max. active power $P_{E_{max}}$	8 kW
	Max. apparent power $S_{E_{max}}$	8 kVA
	Rated voltage	1/N/PE AC 230 V
Rated values	Rated current (AC) I_r	34.8 Aa.c.
Rated values	Max. current (AC) I_{max}	34.8 Aa.c.
Rated values	Initial short-circuit current I_k''	43.0 Aa.c.
Network connection rules	VDE-AR-N 4105:2018-11/Corrigendum 1:2020-10 Generators connected to the low-voltage distribution network - Technical requirements for the connection to and parallel operation with low-voltage distribution networks.	
Test requirement	DIN VDE V 0124-100 (VDE V 0124-100):2020-06 "Network integration of power generation system – Low voltage" Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network.	
The above mentioned power generation unit meets the requirements of VDE-AR-N 4105.		

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

Extract from test report for unit certificate "Determination of electrical properties"		No. 704092534908-00
Generation unit manufacturer:	<u>Autarco Group BV</u> <u>Torenallee 20, 5617 BC, Eindhoven, THE NETHERLANDS</u>	
Manufacturer indications:	Type of system	Inverter for PV and Battery
	Max. active power $P_{E_{max}}$	3.0 kW (S2.MH3000-MIII) 3.0 kW (S2.MH3000M-MIII) 3.6 kW (S2.MH3600-MIII) 3.6 kW (S2.MH3600M-MIII) 5.0 kW (S2.MH5000-MIII) 5.0 kW (S2.MH5000M-MIII) 6.0 kW (S2.MH6000-MIII) 6.0 kW (S2.MH6000M-MIII) 8.0 kW (S2.MH8000-MIII) 8.0 kW (S2.MH8000M-MIII)
	Rated voltage	1/N/PE ~ 230 V
Period of measurement:	From 2024-10-07 to 2024-11-13 and from 2025-06-15 to 2025-08-04, 2025-11-18	

Rapid voltage changes and flicker (DIN EN 61000-3-11)					
Phase		P_{st}	d(t) - 500ms [%]	dc [%]	dmax [%]
Limit		1.0	3.3%	3.3%	4%
1	L-N	0.09	0.00	0.24	0.52
2	L-N	0.08	0.00	0.07	0.31
3	L-N	0.08	0.00	0.28	0.48
4	L-N	0.08	0.00	0.16	0.40
5	L-N	0.08	0.00	0.20	0.42
6	L-N	0.08	0.00	0.13	0.36
7	L-N	0.08	0.00	0.29	0.49
8	L-N	0.08	0.00	0.23	0.45
9	L-N	0.08	0.00	0.27	0.49
10	L-N	0.07	0.00	0.12	0.38
11	L-N	0.08	0.00	0.42	0.47
12	L-N	0.07	0.00	0.17	0.37
P_{It} measured		0.09	P_{It} limit		0.65
		d(t) - 500ms [%]	dc [%]		dmax [%]
START		0.00	0.09		0.49
STOP		0.00	0.05		0.09
LIMIT		3.3%	3.3%		4%
Supplementary information:					

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Harmonics (IEC 61000-3-2 (≤ 16A))												
Power P/Pn[%]	5	10	20	30	40	50	60	70	80	90	100	Limit
Ordinal number	A	A	A	A	A	A	A	A	A	A	A	A
2	0.010	0.011	0.011	0.013	0.014	0.015	0.014	0.014	0.012	0.013	0.015	1.080
3	0.077	0.196	0.269	0.251	0.237	0.218	0.214	0.209	0.222	0.232	0.246	2.300
4	0.005	0.003	0.003	0.004	0.003	0.005	0.004	0.005	0.003	0.004	0.003	0.430
5	0.113	0.066	0.097	0.115	0.110	0.121	0.123	0.140	0.144	0.159	0.167	1.140
6	0.003	0.006	0.002	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.300
7	0.034	0.062	0.077	0.109	0.128	0.123	0.134	0.130	0.142	0.139	0.148	0.770
8	0.001	0.003	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.230
9	0.031	0.076	0.025	0.052	0.063	0.070	0.064	0.064	0.059	0.063	0.061	0.400
10	0.003	0.004	0.002	0.002	0.002	0.004	0.002	0.002	0.002	0.002	0.002	0.184
11	0.025	0.049	0.019	0.059	0.059	0.077	0.079	0.080	0.079	0.078	0.082	0.330
12	0.002	0.002	0.002	0.002	0.001	0.001	0.002	0.001	0.001	0.002	0.002	0.153
13	0.019	0.016	0.010	0.033	0.041	0.036	0.046	0.046	0.053	0.048	0.044	0.210
14	0.002	0.002	0.002	0.002	0.002	0.001	0.003	0.002	0.002	0.002	0.001	0.131
15	0.019	0.010	0.012	0.032	0.047	0.043	0.047	0.055	0.057	0.062	0.056	0.150
16	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.003	0.001	0.001	0.001	0.115
17	0.014	0.023	0.021	0.019	0.031	0.035	0.029	0.030	0.031	0.035	0.041	0.132
18	0.001	0.003	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.001	0.002	0.102
19	0.011	0.021	0.020	0.019	0.031	0.037	0.037	0.033	0.037	0.039	0.045	0.118
20	0.001	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.092

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21	0.010	0.010	0.017	0.009	0.022	0.026	0.028	0.025	0.023	0.023	0.021	0.107
22	0.001	0.002	0.002	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.084
23	0.006	0.007	0.017	0.009	0.025	0.028	0.030	0.032	0.028	0.028	0.028	0.098
24	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.077
25	0.004	0.013	0.010	0.004	0.017	0.022	0.023	0.025	0.023	0.021	0.020	0.090
26	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.071
27	0.002	0.015	0.009	0.004	0.018	0.023	0.025	0.025	0.028	0.027	0.025	0.083
28	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.001	0.002	0.066
29	0.003	0.009	0.004	0.005	0.013	0.019	0.021	0.021	0.022	0.020	0.019	0.078
30	0.002	0.001	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.002	0.061
31	0.005	0.009	0.005	0.004	0.010	0.019	0.020	0.022	0.021	0.025	0.024	0.073
32	0.002	0.002	0.002	0.001	0.002	0.002	0.001	0.002	0.002	0.001	0.001	0.058
33	0.004	0.010	0.002	0.006	0.007	0.016	0.019	0.020	0.020	0.019	0.019	0.068
34	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.002	0.054
35	0.006	0.009	0.004	0.005	0.007	0.016	0.020	0.021	0.022	0.021	0.022	0.064
36	0.002	0.001	0.002	0.002	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.051
37	0.005	0.004	0.006	0.003	0.003	0.011	0.016	0.017	0.017	0.016	0.017	0.061
38	0.002	0.002	0.002	0.001	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.048
39	0.005	0.004	0.008	0.003	0.002	0.011	0.017	0.018	0.020	0.020	0.020	0.058
40	0.002	0.001	0.002	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.046

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Harmonics IEC 61000-3-12(>16 A and ≤75 A)													
Power P/Pn [%]	5	10	20	30	40	50	60	70	80	90	100	IEC 61000-3-12 limit	
Ordinal number	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	1 phase [%]	3 phase [%]
2	0.028	0.031	0.032	0.038	0.039	0.044	0.041	0.039	0.034	0.036	0.042	8%	8%
3	0.221	0.564	0.774	0.721	0.681	0.627	0.615	0.602	0.639	0.667	0.707	21.6%	Not stated
4	0.016	0.009	0.010	0.011	0.010	0.013	0.013	0.013	0.010	0.012	0.009	4%	4%
5	0.325	0.190	0.280	0.331	0.315	0.349	0.355	0.402	0.415	0.456	0.481	10.7%	10.7%
6	0.009	0.018	0.006	0.011	0.007	0.009	0.009	0.009	0.008	0.009	0.009	2.67%	2.67%
7	0.097	0.177	0.220	0.314	0.367	0.354	0.386	0.375	0.409	0.400	0.425	7.2%	7.2%
8	0.004	0.008	0.007	0.007	0.007	0.004	0.006	0.005	0.006	0.006	0.008	2%	2%
9	0.089	0.217	0.072	0.150	0.181	0.200	0.183	0.184	0.168	0.182	0.174	3.8%	Not stated
10	0.008	0.011	0.005	0.005	0.005	0.011	0.005	0.006	0.005	0.007	0.004	1.6%	1.6%
11	0.072	0.141	0.054	0.169	0.171	0.222	0.226	0.230	0.228	0.225	0.236	3.1%	3.1%
12	0.007	0.006	0.007	0.005	0.003	0.004	0.004	0.004	0.004	0.006	0.005	1.33%	1.33%
13	0.055	0.046	0.029	0.095	0.118	0.105	0.133	0.131	0.152	0.137	0.128	2%	2%
14	0.007	0.006	0.006	0.007	0.004	0.004	0.007	0.005	0.004	0.004	0.004	-	-
15	0.055	0.028	0.035	0.092	0.135	0.125	0.135	0.158	0.163	0.179	0.161	-	-
16	0.004	0.005	0.006	0.005	0.005	0.004	0.004	0.007	0.004	0.004	0.004	-	-
17	0.041	0.065	0.061	0.056	0.089	0.100	0.083	0.086	0.090	0.101	0.117	-	-
18	0.004	0.010	0.007	0.005	0.006	0.004	0.004	0.005	0.007	0.004	0.005	-	-
19	0.032	0.061	0.057	0.055	0.090	0.105	0.107	0.094	0.107	0.112	0.128	-	-
20	0.004	0.005	0.005	0.006	0.004	0.004	0.004	0.004	0.005	0.004	0.004	-	-

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21	0.028	0.029	0.050	0.027	0.063	0.076	0.082	0.072	0.067	0.066	0.060	-	-
22	0.004	0.005	0.006	0.005	0.004	0.005	0.004	0.004	0.004	0.004	0.004	-	-
23	0.017	0.020	0.049	0.026	0.071	0.081	0.086	0.091	0.082	0.082	0.079	-	-
24	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.003	0.004	-	-
25	0.011	0.036	0.028	0.013	0.050	0.063	0.066	0.071	0.067	0.059	0.059	-	-
26	0.005	0.007	0.005	0.006	0.007	0.005	0.005	0.004	0.004	0.005	0.005	-	-
27	0.007	0.043	0.026	0.012	0.051	0.065	0.073	0.072	0.080	0.077	0.071	-	-
28	0.005	0.004	0.005	0.005	0.004	0.004	0.005	0.004	0.005	0.004	0.005	-	-
29	0.007	0.025	0.011	0.015	0.036	0.054	0.062	0.060	0.063	0.058	0.054	-	-
30	0.005	0.004	0.004	0.005	0.004	0.005	0.003	0.003	0.003	0.004	0.005	-	-
31	0.015	0.026	0.013	0.011	0.029	0.054	0.058	0.063	0.062	0.071	0.068	-	-
32	0.005	0.006	0.005	0.004	0.006	0.006	0.004	0.004	0.005	0.004	0.004	-	-
33	0.012	0.028	0.007	0.016	0.021	0.046	0.054	0.057	0.057	0.054	0.055	-	-
34	0.005	0.003	0.004	0.003	0.004	0.004	0.004	0.003	0.003	0.003	0.005	-	-
35	0.016	0.025	0.010	0.013	0.019	0.046	0.057	0.060	0.064	0.061	0.064	-	-
36	0.005	0.004	0.005	0.005	0.006	0.004	0.005	0.003	0.004	0.003	0.003	-	-
37	0.015	0.010	0.019	0.008	0.008	0.032	0.045	0.048	0.049	0.047	0.048	-	-
38	0.004	0.005	0.005	0.004	0.005	0.004	0.005	0.003	0.004	0.003	0.003	-	-
39	0.014	0.013	0.024	0.009	0.005	0.032	0.050	0.052	0.058	0.057	0.056	-	-
40	0.004	0.004	0.005	0.005	0.004	0.005	0.004	0.004	0.004	0.003	0.003	-	-
THC/ref	0.436	0.687	0.867	0.899	0.910	0.901	0.914	0.924	0.971	1.007	1.054	23%	13%
PWHD	0.409	0.610	0.590	0.563	1.001	1.225	1.333	1.376	1.416	1.442	1.435	23%	22%