

# Certificate of Conformity

No. ESY 105515 0090 Rev. 00

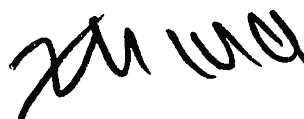
**Holder of Certificate:** **Suzhou Hypontech Co., Ltd.**  
No.1508 Xiangjiang Road,  
SND,  
215010 Suzhou  
PEOPLE'S REPUBLIC OF CHINA

**Product:** **PV inverter**  
**Solar inverter**

This Certificate of Conformity 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](http://www.tuvsud.com/ps-cert)

**Test report no.:** 5040922010524-00

**Date,** 2023-04-12



( Zhengdong Ma )



Product Service

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**Model(s):** HMS-600W, HMS-600W-C, HMS-800W, HMS-800W-C

**Parameters:**  
Please see pages 3 to 9.

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

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Model	HMS-600W/HMS-600W-C	HMS-800W/HMS-800W-C
PV input port:		
Max. input voltage	d.c. 60 V	
MPP voltage range	d.c. 25 V, ..., 55 V	
Max. input current	d.c. 15/15 A	
Isc PV (absolute maximum)	d.c. 20/20 A	
AC output port:		
Rated active power	600 W	800 W
Max. apparent power	600 VA	800 VA
Rated voltage	1/N/PE~ 230 V	
Rated frequency	50 Hz	
Max. AC current	a.c. 2.7 A	a.c. 3.6 A
Power factor	>0.99	

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## E.4 Unit certificate

<b>Unit certificate</b>	No. 50.409.22.0105.24-00	
<b>Manufacturer</b>	Suzhou Hypontech Co., Ltd. No.1508 Xiangjiang Road, SND, 215010, Suzhou, PEOPLE'S REPUBLIC OF CHINA	
<b>Power generation unit type</b>	HMS-600W, HMS-600W-C, HMS-800W, HMS-800W-C Remark: certified on representative model HMS-800W of family design products, results of the measurement of HMS-800W 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
<b>Assessment values</b>	Max. active power $P_{E_{max}}$	803 W (HMS-800W)
	Max. apparent power $S_{E_{max}}$	804 VA (HMS-800W)
	Rated voltage	1/N/PE~, 230 V
<b>Rated values</b>	Rated current (AC) $I_r$	3.5A (HMS-800W)
<b>Rated values</b>	Max. current (AC) $I_{max}$	3.6 A (HMS-800W)
<b>Rated values</b>	Initial short-circuit current $I_k$ "	3.6 A (HMS-800W)
<b>Network connection rules</b>	<b>VDE-AR-N 4105:2018-11/Corrigendum 1:2020-10</b> Generators connected to the low-voltage distribution network - Technical requirements for the connection to and parallel operation with low-voltage distribution networks.	
<b>Test requirement</b>	<b>DIN VDE V 0124-100 (VDE V 0124-100):2020-06 "Network integration of power generation system – Low voltage"</b> 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. 50.409.22.0105.24-00
Generation unit manufacturer:	Suzhou Hypontech Co., Ltd. No.1508 Xiangjiang Road, SND, 215010, Suzhou, PEOPLE'S REPUBLIC OF CHINA	
Manufacturer indications:	Type of system	Inverter for PV system
	Max. active power $P_{E_{max}}$	600 W (HMS-600W/ HMS-600W-C) 800 W (HMS-800W/ HMS-800W-C)
	Rated voltage	1/N/PE~, 230 V
Period of measurement:	From 2023-01-02 to 2023-02-20	

Flicker (EN 61000-3-3) (HMS-800W)					
Test condition	$d_{(t) - 500ms}$ [%]	$d_c$ [%]	$d_{max}$ [%]	$P_{st}$	$P_{it}$
Continuous operation	0	0	0	0.08	0.08
Start	0	0.54	0.82	-	-
Stop	0	0.66	0.87	-	-
Limit	3.3%	3.3%	4%	1.0	0.65

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Harmonics (EN 61000-3-2) (HMS-800W)												
P/Pn [%]	0	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	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	1.080
3	0.018	0.015	0.008	0.008	0.009	0.014	0.029	0.032	0.034	0.039	0.051	2.300
4	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.430
5	0.019	0.015	0.008	0.007	0.006	0.002	0.012	0.001	0.007	0.006	0.004	1.140
6	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.300
7	0.015	0.015	0.008	0.005	0.006	0.004	0.005	0.009	0.004	0.001	0.001	0.770
8	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.230
9	0.012	0.010	0.006	0.004	0.003	0.003	0.002	0.002	0.010	0.009	0.006	0.400
10	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.184
11	0.008	0.009	0.005	0.003	0.004	0.004	0.009	0.003	0.006	0.012	0.012	0.330
12	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.153
13	0.006	0.006	0.005	0.005	0.006	0.007	0.003	0.012	0.006	0.010	0.015	0.210
14	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.131
15	0.006	0.006	0.006	0.007	0.008	0.010	0.011	0.013	0.013	0.011	0.015	0.150
16	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.115
17	0.007	0.008	0.007	0.009	0.010	0.013	0.012	0.009	0.018	0.014	0.014	0.132
18	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.102
19	0.008	0.009	0.008	0.010	0.012	0.014	0.010	0.014	0.016	0.017	0.013	0.118
20	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.092
21	0.009	0.010	0.009	0.010	0.012	0.014	0.016	0.016	0.013	0.018	0.012	0.107
22	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.084
23	0.009	0.010	0.009	0.010	0.012	0.014	0.011	0.012	0.014	0.015	0.012	0.098
24	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.077
25	0.008	0.009	0.008	0.009	0.011	0.013	0.011	0.010	0.015	0.012	0.012	0.090
26	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.071
27	0.007	0.008	0.007	0.008	0.010	0.011	0.011	0.012	0.012	0.010	0.010	0.083
28	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.066
29	0.006	0.006	0.006	0.007	0.008	0.009	0.006	0.009	0.007	0.010	0.007	0.078
30	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.061
31	0.007	0.005	0.005	0.005	0.006	0.007	0.007	0.005	0.006	0.008	0.004	0.073
32	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.058
33	0.008	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.004	0.002	0.068
34	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.054
35	0.007	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.002	0.064
36	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.051
37	0.004	0.002	0.003	0.004	0.004	0.004	0.003	0.005	0.005	0.005	0.003	0.061
38	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.048
39	0.002	0.002	0.003	0.004	0.005	0.006	0.006	0.006	0.006	0.005	0.004	0.058
40	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.046

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## E.6 Certificate of the network and system protection

<b>Certificate of NS protection</b>	No. 50.409.22.0105.24-00		
<b>Manufacturer</b>	Suzhou Hypontech Co., Ltd. No.1508 Xiangjiang Road, SND, 215010, Suzhou, PEOPLE'S REPUBLIC OF CHINA		
<b>Type of NS protection</b>			
<b>Central NS protection</b>	<input type="checkbox"/>		
<b>Integrated NS protection</b>	<input checked="" type="checkbox"/>	Assigned to power generation unit type	HMS-600, HMS-600W-C, HMS-800, HMS-800W-C
<b>Network connection rules</b>	<b>VDE-AR-N 4105:2018-11/Corrigendum 1:2020-10</b> <b>Generators connected to the low-voltage distribution network</b> - Technical requirements for the connection to and parallel operation with low-voltage distribution networks.		
<b>Test requirement</b>	<b>DIN VDE V 0124-100 (VDE V 0124-100):2020-06</b> <b>"Network integration of power generation system – Low voltage"</b> Test requirements for power generation units intended for connection to and parallel operation on the low-voltage network.		
The network and system protection mentioned above meets the requirements of VDE-AR-N 4105.			

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## E.7 Requirement for the test report for the NS protection

<b>Extract from test report for NS protection</b> "Determination of electrical properties"		No. 50.409.22.0105.24-00	
<b>NS protection test report</b>			
<b>Type of NS system:</b>	Integrated NS protection	<b>Other Manufacturer indications</b>	
<b>Software version:</b>	V1.0.0.05		
<b>Manufacturer:</b>	Suzhou Hypontech Co., Ltd. No.1508 Xiangjiang Road, SND, 215010, Suzhou, PEOPLE'S REPUBLIC OF CHINA		
<b>Measuring period:</b>	From 2023-01-02 to 2023-02-20		
	<b>Inverter</b>		
	<b>directly coupled synchronous and asynchronous generators with Pn &gt; 50 kW</b>		
<b>Protection function</b>	<b>Setting value</b>	<b>Tripping value</b>	<b>Break time NS protection *</b>
Rise-in-voltage protection $U >>$	$1.25 * U_n$	288 V	188 ms
Rise-in-voltage protection $U >$	$1.10 * U_n$	$1.0 * U_n$	ms**
Voltage drop protection $U <$	$0.8 * U_n$	183 V	3088 ms
Voltage drop protection $U <<$	$0.45 * U_n$	103 V	385 ms
Frequency decrease protection $f <$	47.5 Hz	47.49 Hz	176 ms
Frequency increase protection $f >$	51.5 Hz	51.50 Hz	174 ms
*: The tripping time includes the period from the limit value violation $U/f$ until the tripping signal to the interface switch.  The disconnection time (sum of tripping time of the NS protection plus response time of the interface switch) shall not exceed 200 ms.  **: Verification disconnection time of moving 10-min-average value.  Disconnecting time as below: <ol style="list-style-type: none"> <li>1. 499 s (from 600s@<math>U_n</math> to 112%<math>U_n</math>)</li> <li>2. Continuous operation (from 600s@<math>U_n</math> to 108%<math>U_n</math>)</li> <li>3. 238 s (from 600s@106%<math>U_n</math> to 114%<math>U_n</math>)</li> </ol>			



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<input checked="" type="checkbox"/> as integrated NS protection	
Assigned to power generation unit type	HMS-600W , HMS-600W-C HMS-800W , HMS-800W-C
Integrated interface switch type	1. First interface switch is power relay each for both the neutral conductor and the line conductor; Relay type: HF115F/012-2ZS4 2.The second interface switch is electronic switching components of the inverter bridge plus HF/LF transformer provided galvanic isolation between DC input and AC output MOSFET type:TPB80R180M  Remark: The generation unit has a galvanic isolation between DC input and AC output (HF/LF transformer). The output is switched off with single-fault-tolerance by the inverter bridge and relay. This allows a safe disconnection of the generation unit from the mains even in case of a fault.
Response time of interface switch for integrated NS protection	Response time of the power relay: Release time: Max. 8 ms Operate time: Max. 15 ms
Verification of the entire functional chain "integrated NS protection – interface switch" has resulted in successful disconnection.	<input checked="" type="checkbox"/>