ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

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

TÜV SÜD Product Service

Certificate of Conformity

No. ESY 090762 0096 Rev. 00

Holder of Certificate: **Pylon Technologies Co., Ltd.**
No.300, Miaoqiao Road, Kangqiao Town
Pudong New Area
201315 Shanghai
PEOPLE'S REPUBLIC OF CHINA

Product: **Energy Storage System**
Energy storage system
(Force H3X Energy storage system)

Model(s):
FH3X-8K-HY-3P-10, FH3X-8K-HY-3P-15, FH3X-8K-HY-3P-20, FH3X-8K-HY-3P-25, FH3X-8K-HY-3P-30, FH3X-8K-HY-3P-35, FH3X-10K-HY-3P-10, FH3X-10K-HY-3P-15, FH3X-10K-HY-3P-20, FH3X-10K-HY-3P-25, FH3X-10K-HY-3P-30, FH3X-10K-HY-3P-35, FH3X-12K-HY-3P-10, FH3X-12K-HY-3P-15, FH3X-12K-HY-3P-20, FH3X-12K-HY-3P-25, FH3X-12K-HY-3P-30, FH3X-12K-HY-3P-35, FH3X-15K-HY-3P-10, FH3X-15K-HY-3P-15, FH3X-15K-HY-3P-20, FH3X-15K-HY-3P-25, FH3X-15K-HY-3P-30, FH3X-15K-HY-3P-35

Parameters: See next pages.

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

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

Test report no.: 704092459614-00

Date, 2025-01-22

(Zhengdong Ma)

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Model	FH3X-8K-HY-3P-10, FH3X-8K-HY-3P-15, FH3X-8K-HY-3P-20, FH3X-8K-HY-3P-25, FH3X-8K-HY-3P-30, FH3X-8K-HY-3P-35	FH3X-10K-HY-3P-10, FH3X-10K-HY-3P-15, FH3X-10K-HY-3P-20, FH3X-10K-HY-3P-25, FH3X-10K-HY-3P-30, FH3X-10K-HY-3P-35
PV input parameters		
Max. input voltage	DC 1000 V	
Mppt voltage range	DC 200, ..., 850 V	
Max. input current	DC 20 A/20 A/20 A	
Isc PV (absolute maximum)	DC 30 A/30 A/30 A	
Grid output parameters		
Nominal grid voltage	3/N/PE~, 230/400 V	
Nominal grid frequency	50 Hz	
Max. (rated) continuous current to grid	AC 11.6 A	AC 14.5 A
Nominal active power to grid	8000 W	10000 W
Max. (rated) apparent power to grid	8000 VA	10000 VA
Power factor range	-0.8, …, +0.8	

Model	FH3X-12K-HY-3P-10, FH3X-12K-HY-3P-15, FH3X-12K-HY-3P-20, FH3X-12K-HY-3P-25, FH3X-12K-HY-3P-30, FH3X-12K-HY-3P-35	FH3X-15K-HY-3P-10, FH3X-15K-HY-3P-15, FH3X-15K-HY-3P-20, FH3X-15K-HY-3P-25, FH3X-15K-HY-3P-30, FH3X-15K-HY-3P-35
PV input parameters		
Max. input voltage	DC 1000 V	
Mppt voltage range	DC 200, ..., 850 V	
Max. input current	DC 20 A/20 A/20 A	
Isc PV (absolute maximum)	DC 30 A/30 A/30 A	
Grid output parameters		
Nominal grid voltage	3/N/PE~, 230/400 V	
Nominal grid frequency	50 Hz	
Max. (rated) continuous current to grid	AC 17.4 A	AC 21.7 A
Nominal active power to grid	12000 W	15000 W
Max. (rated) apparent power to grid	12000 VA	15000 VA
Power factor range	-0.8, …, +0.8	

Model	FH3X-8K-HY-3P-10, FH3X-10K-HY-3P-10, FH3X-12K-HY-3P-10, FH3X-15K-HY-3P-10	FH3X-8K-HY-3P-15, FH3X-10K-HY-3P-15, FH3X-12K-HY-3P-15, FH3X-15K-HY-3P-15	FH3X-8K-HY-3P-20, FH3X-10K-HY-3P-20, FH3X-12K-HY-3P-20, FH3X-15K-HY-3P-20
Battery parameters			
Battery module	FH10050		
Number of packs	2	3	4
Energy	10.24 kWh	15.36 kWh	20.48 kWh
Nominal voltage	DC 204.8 V	DC 307.2 V	DC 409.6 V

Model	FH3X-8K-HY-3P-25, FH3X-10K-HY-3P-25, FH3X-12K-HY-3P-25, FH3X-15K-HY-3P-25	FH3X-8K-HY-3P-30, FH3X-10K-HY-3P-30, FH3X-12K-HY-3P-30, FH3X-15K-HY-3P-30	FH3X-8K-HY-3P-35, FH3X-10K-HY-3P-35, FH3X-12K-HY-3P-35, FH3X-15K-HY-3P-35
Battery parameters			
Battery module	FH10050		
Number of packs	5	6	7
Energy	25.60 kWh	30.72 kWh	35.84 kWh
Nominal voltage	DC 512 V	DC 614.4 V	DC 716.8 V

E

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.4 Unit certificate

Unit certificate	No. 704092459614-00	
Manufacturer	Pylon Technologies Co., Ltd. No.300, Miaoqiao Road, Kangqiao Town, Pudong New Area, 201315 Shanghai, PEOPLE'S REPUBLIC OF CHINA	
Power generation unit type	FH3X-8K-HY-3P-10, FH3X-8K-HY-3P-15, FH3X-8K-HY-3P-20, FH3X-8K-HY-3P-25, FH3X-8K-HY-3P-30, FH3X-8K-HY-3P-35, FH3X-10K-HY-3P-10, FH3X-10K-HY-3P-15, FH3X-10K-HY-3P-20, FH3X-10K-HY-3P-25, FH3X-10K-HY-3P-30, FH3X-10K-HY-3P-35, FH3X-12K-HY-3P-10, FH3X-12K-HY-3P-15, FH3X-12K-HY-3P-20, FH3X-12K-HY-3P-25, FH3X-12K-HY-3P-30, FH3X-12K-HY-3P-35, FH3X-15K-HY-3P-10, FH3X-15K-HY-3P-15, FH3X-15K-HY-3P-20, FH3X-15K-HY-3P-25, FH3X-15K-HY-3P-30, FH3X-15K-HY-3P-35 Remark: certified on representative model FH3X-15K-HY-3P-35 of family design products, results of the measurement of FH3X-15K-HY-3P-35 can be transferred to the other models based on transferability rule of measurements in DIN VDE V 0124-100 (VDE V 0124-100):2020.	
☑ Inverter	☐ Asynchronous generator	☐ Synchronous generator
☐ Stirling generator	☐ Fuel cell	☐ others
Assessment values	Max. active power P_{Emax}	15 kW (FH3X-15K-HY-3P-35)
	Max. apparent power S_{Emax}	15 kVA (FH3X-15K-HY-3P-35)
	Rated voltage	3/N/PE~, 230/400 V (FH3X-15K-HY-3P-35)
Rated values	Rated current (AC) I_r	21.7 A (FH3X-15K-HY-3P-35)
Rated values	Max. current (AC) I_{max}	21.7 A (FH3X-15K-HY-3P-35)
Rated values	Initial short-circuit current I_k"	50 A (FH3X-15K-HY-3P-35)
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 4105:2018.		

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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. 704092459614-00
Generation unit manufacturer:	Pylon Technologies Co., Ltd. No.300, Miaoqiao Road, Kangqiao Town, Pudong New Area, 201315 Shanghai, PEOPLE'S REPUBLIC OF CHINA	
Manufacturer indications:	Type of system	Energy storage system (Force H3X Energy storage system)
	Max. active power P_{Emax}	15 kW (FH3X-15K-HY-3P-10, FH3X-15K-HY-3P-15, FH3X-15K-HY-3P-20, FH3X-15K-HY-3P-25, FH3X-15K-HY-3P-30, FH3X-15K-HY-3P-35) 12 kW FH3X-12K-HY-3P-10, FH3X-12K-HY-3P-15, FH3X-12K-HY-3P-20, FH3X-12K-HY-3P-25, FH3X-12K-HY-3P-30, FH3X-12K-HY-3P-35) 10 kW FH3X-10K-HY-3P-10, FH3X-10K-HY-3P-15, FH3X-10K-HY-3P-20, FH3X-10K-HY-3P-25, FH3X-10K-HY-3P-30, FH3X-10K-HY-3P-35) 8 kW (FH3X-8K-HY-3P-10, FH3X-8K-HY-3P-15, FH3X-8K-HY-3P-20, FH3X-8K-HY-3P-25, FH3X-8K-HY-3P-30, FH3X-8K-HY-3P-35)
	Rated voltage	3/N/PE~, 230/400 V
Period of measurement:	From 2024-10-21 to 2024-12-23	

Flicker (DIN EN 61000-3-11)			Model: FH3X-15K-HY-3P-35		
Test no.	Phase	P_{st}	d(t) - 500ms [%]	dc [%]	dmax [%]
Limit		1.0	3.3%	3.3%	4%
1	L1-/L2-/L3	0.19/0.19/0.17	0.00/0.00/0.00	0.39/0.22/0.13	0.46/0.26/0.26
2	L1-/L2-/L3	0.18/0.18/0.18	0.00/0.00/0.00	0.32/0.33/0.35	0.38/0.45/0.45
3	L1-/L2-/L3	0.18/0.18/0.17	0.00/0.00/0.00	0.34/0.20/0.21	0.42/0.26/0.27
4	L1-/L2-/L3	0.17/0.17/0.17	0.00/0.00/0.00	0.28/0.30/0.34	0.38/0.39/0.44
5	L1-/L2-/L3	0.18/0.16/0.18	0.00/0.00/0.00	0.30/0.32/0.13	0.42/0.37/0.25
6	L1-/L2-/L3	0.22/0.22/0.22	0.00/0.00/0.00	0.38/0.34/0.34	0.42/0.42/0.43
7	L1-/L2-/L3	0.19/0.18/0.19	0.00/0.00/0.00	0.38/0.35/0.40	0.41/0.44/0.48
8	L1-/L2-/L3	0.18/0.19/0.18	0.00/0.00/0.00	0.32/0.16/0.18	0.42/0.23/0.27
9	L1-/L2-/L3	0.17/0.17/0.17	0.00/0.00/0.00	0.35/0.32/0.35	0.43/0.42/0.45
10	L1-/L2-/L3	0.17/0.18/0.17	0.00/0.00/0.00	0.30/0.19/0.14	0.43/0.22/0.25
11	L1-/L2-/L3	0.22/0.22/0.21	0.00/0.00/0.00	0.36/0.32/0.37	0.42/0.42/0.47
12	L1-/L2-/L3	0.21/0.18/0.18	0.00/0.00/0.00	0.32/0.37/0.36	0.36/0.44/0.46

$P_{lt\ measured}$	0.22/0.22/0.22	$P_{lt\ limit}$	0.65
	d(t) - 500ms [%]	dc [%]	dmax [%]
Start	0.00/0.00/0.00	0.05/0.08/0.07	0.09/0.09/0.09
Stop	0.00/0.00/0.00	0.09/0.02/0.08	0.49/0.53/0.63
Limit	3.3%	3.3%	4%

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Flicker (DIN EN 61000-3-3)				Model: FH3X-8K-HY-3P-35	
Test no.	Phase	P_{st}	d(t) - 500ms [%]	dc [%]	dmax [%]
Limit		1.0	3.3%	3.3%	4%
1	L1-/L2-/L3	0.19/0.19/0.16	0.00/0.00/0.00	0.33/0.23/0.15	0.43/0.23/0.27
2	L1-/L2-/L3	0.17/0.17/0.17	0.00/0.00/0.00	0.36/0.33/0.35	0.40/0.41/0.47
3	L1-/L2-/L3	0.17/0.17/0.17	0.00/0.00/0.00	0.30/0.20/0.16	0.39/0.23/0.27
4	L1-/L2-/L3	0.18/0.19/0.17	0.00/0.00/0.00	0.36/0.36/0.34	0.39/0.44/0.43
5	L1-/L2-/L3	0.19/0.19/0.18	0.00/0.00/0.00	0.31/0.21/0.15	0.40/0.22/0.26
6	L1-/L2-/L3	0.22/0.23/0.22	0.00/0.00/0.00	0.37/0.39/0.39	0.40/0.46/0.48
7	L1-/L2-/L3	0.19/0.18/0.18	0.00/0.00/0.00	0.33/0.34/0.37	0.38/0.42/0.44
8	L1-/L2-/L3	0.18/0.17/0.17	0.00/0.00/0.00	0.36/0.20/0.22	0.44/0.25/0.28
9	L1-/L2-/L3	0.17/0.17/0.18	0.00/0.00/0.00	0.30/0.33/0.39	0.36/0.42/0.50
10	L1-/L2-/L3	0.18/0.18/0.17	0.00/0.00/0.00	0.34/0.30/0.20	0.43/0.36/0.24
11	L1-/L2-/L3	0.22/0.23/0.22	0.00/0.00/0.00	0.35/0.33/0.34	0.43/0.43/0.40
12	L1-/L2-/L3	0.19/0.19/0.19	0.00/0.00/0.00	0.30/0.35/0.44	0.38/0.43/0.52

$P_{lt\ measured}$	0.22/0.23/0.22	$P_{lt\ limit}$	0.65
	d(t) - 500ms [%]	dc [%]	dmax [%]
Start	0.00/0.00/0.00	0.60/0.42/0.35	1.19/0.96/1.21
Stop	0.00/0.00/0.00	0.51/0.20/0.26	1.09/1.03/1.11
Limit	3.3%	3.3%	4%

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Harmonics (DIN EN 61000-3-12(>16 A and ≤75 A)) (FH3X-15K-HY-3P-35)												
L1												
Active Power P/Pn[%]	0	10	20	30	40	50	60	70	80	90	100	Limit
Ordinal number	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
2	0.219	0.262	0.273	0.315	0.287	0.274	0.283	0.281	0.283	0.287	0.292	8.0
3	0.088	0.040	0.033	0.063	0.064	0.052	0.081	0.094	0.090	0.119	0.135	-
4	0.029	0.013	0.021	0.043	0.047	0.042	0.036	0.035	0.031	0.024	0.032	4.0
5	0.092	0.194	0.150	0.131	0.111	0.108	0.130	0.113	0.103	0.119	0.116	10.7
6	0.027	0.023	0.016	0.018	0.014	0.019	0.018	0.016	0.020	0.017	0.015	2.67
7	0.085	0.054	0.134	0.153	0.166	0.162	0.170	0.200	0.202	0.189	0.207	7.2
8	0.009	0.014	0.011	0.007	0.009	0.008	0.012	0.009	0.008	0.011	0.010	2.0
9	0.236	0.013	0.269	0.336	0.377	0.364	0.351	0.387	0.399	0.390	0.371	-
10	0.022	0.009	0.008	0.037	0.038	0.032	0.020	0.028	0.024	0.014	0.016	1.6
11	0.064	0.040	0.092	0.114	0.128	0.146	0.161	0.150	0.160	0.179	0.199	3.1
12	0.031	0.020	0.021	0.018	0.024	0.015	0.017	0.011	0.020	0.017	0.009	1.33
13	0.010	0.039	0.045	0.080	0.085	0.092	0.103	0.115	0.100	0.105	0.119	2.0
14	0.003	0.006	0.005	0.022	0.017	0.019	0.015	0.015	0.013	0.008	0.008	-
15	0.071	0.086	0.047	0.124	0.167	0.195	0.219	0.254	0.271	0.272	0.271	-
16	0.006	0.005	0.004	0.009	0.010	0.011	0.012	0.012	0.012	0.009	0.008	-
17	0.018	0.022	0.010	0.022	0.028	0.034	0.036	0.034	0.048	0.050	0.051	-
18	0.008	0.008	0.005	0.014	0.014	0.015	0.005	0.008	0.012	0.016	0.018	-
19	0.007	0.007	0.003	0.017	0.023	0.029	0.029	0.031	0.029	0.037	0.033	-
20	0.002	0.003	0.002	0.006	0.006	0.005	0.006	0.005	0.005	0.004	0.004	-
21	0.014	0.009	0.004	0.015	0.028	0.036	0.045	0.053	0.055	0.064	0.070	-
22	0.003	0.002	0.003	0.004	0.003	0.003	0.003	0.004	0.003	0.003	0.003	-
23	0.006	0.008	0.002	0.006	0.008	0.009	0.012	0.013	0.014	0.011	0.017	-
24	0.003	0.003	0.002	0.003	0.003	0.002	0.002	0.003	0.003	0.003	0.003	-
25	0.003	0.006	0.002	0.004	0.007	0.008	0.010	0.012	0.013	0.011	0.010	-
26	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	-
27	0.005	0.008	0.002	0.003	0.006	0.009	0.013	0.015	0.020	0.022	0.021	-
28	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.003	-
29	0.003	0.004	0.002	0.004	0.003	0.003	0.004	0.005	0.005	0.008	0.006	-

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30	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.002	0.002	-
31	0.002	0.002	0.002	0.003	0.003	0.003	0.004	0.004	0.005	0.005	0.006	-
32	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	-
33	0.003	0.003	0.002	0.003	0.002	0.003	0.004	0.004	0.006	0.007	0.009	-
34	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
35	0.003	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.003	0.003	0.003	-
36	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
37	0.003	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.003	0.003	0.003	-
38	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
39	0.003	0.002	0.002	0.003	0.003	0.002	0.002	0.003	0.003	0.003	0.003	-
40	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
THC/I_{ref}	0.375	0.352	0.450	0.545	0.573	0.569	0.590	0.632	0.646	0.653	0.661	13
$PWHC/I_{ref}$	0.306	0.362	0.200	0.515	0.690	0.808	0.906	1.045	1.119	1.139	1.143	22

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L2												
Active Power P/Pn[%]	0	10	20	30	40	50	60	70	80	90	100	Limit
Ordinal number	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
2	0.198	0.195	0.226	0.107	0.093	0.088	0.109	0.102	0.120	0.158	0.166	8.0
3	0.080	0.049	0.033	0.035	0.040	0.032	0.052	0.060	0.062	0.084	0.098	-
4	0.027	0.024	0.023	0.008	0.030	0.030	0.019	0.028	0.022	0.017	0.028	4.0
5	0.065	0.156	0.146	0.155	0.153	0.153	0.173	0.160	0.152	0.176	0.176	10.7
6	0.024	0.028	0.025	0.008	0.006	0.008	0.007	0.009	0.015	0.017	0.008	2.67
7	0.065	0.049	0.123	0.150	0.163	0.165	0.176	0.205	0.205	0.188	0.207	7.2
8	0.008	0.011	0.015	0.024	0.017	0.015	0.022	0.016	0.013	0.012	0.013	2.0
9	0.220	0.022	0.289	0.361	0.403	0.393	0.378	0.414	0.427	0.416	0.396	-
10	0.015	0.006	0.014	0.039	0.035	0.029	0.028	0.007	0.014	0.014	0.010	1.6
11	0.079	0.020	0.072	0.112	0.127	0.153	0.161	0.155	0.167	0.187	0.206	3.1
12	0.028	0.021	0.021	0.012	0.018	0.009	0.008	0.009	0.014	0.013	0.007	1.33
13	0.012	0.034	0.035	0.069	0.088	0.093	0.104	0.105	0.097	0.107	0.128	2.0
14	0.007	0.006	0.005	0.016	0.010	0.015	0.013	0.012	0.012	0.009	0.009	-
15	0.074	0.096	0.059	0.133	0.169	0.198	0.221	0.256	0.272	0.274	0.277	-
16	0.007	0.005	0.004	0.008	0.010	0.008	0.009	0.009	0.010	0.006	0.005	-
17	0.021	0.026	0.012	0.021	0.028	0.033	0.035	0.037	0.051	0.051	0.050	-
18	0.008	0.007	0.004	0.014	0.015	0.015	0.006	0.007	0.012	0.017	0.018	-
19	0.009	0.011	0.005	0.015	0.023	0.027	0.032	0.030	0.032	0.039	0.037	-
20	0.003	0.003	0.002	0.003	0.003	0.004	0.005	0.005	0.005	0.005	0.003	-
21	0.013	0.008	0.005	0.020	0.027	0.035	0.041	0.049	0.052	0.061	0.068	-
22	0.003	0.002	0.002	0.003	0.003	0.003	0.004	0.005	0.003	0.003	0.003	-
23	0.007	0.006	0.003	0.006	0.007	0.010	0.012	0.014	0.014	0.012	0.016	-
24	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.004	0.004	0.003	0.003	-
25	0.003	0.005	0.003	0.005	0.008	0.009	0.010	0.011	0.013	0.011	0.011	-
26	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.003	0.003	-
27	0.004	0.008	0.005	0.007	0.008	0.009	0.010	0.013	0.017	0.020	0.018	-
28	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.002	-
29	0.003	0.005	0.003	0.004	0.005	0.005	0.004	0.005	0.006	0.007	0.006	-

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30	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.003	0.005	0.003	-
31	0.002	0.003	0.003	0.003	0.004	0.005	0.005	0.005	0.005	0.006	0.006	-
32	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.004	-
33	0.003	0.004	0.003	0.003	0.003	0.004	0.005	0.005	0.005	0.007	0.008	-
34	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.004	-
35	0.002	0.003	0.003	0.002	0.003	0.003	0.003	0.004	0.004	0.003	0.003	-
36	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	-
37	0.002	0.003	0.003	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.003	-
38	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
39	0.002	0.002	0.003	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004	-
40	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
THC/I_{ref}	0.343	0.286	0.430	0.479	0.530	0.539	0.557	0.601	0.621	0.635	0.643	13
$PWHC/I_{ref}$	0.319	0.402	0.246	0.547	0.696	0.815	0.910	1.048	1.120	1.144	1.160	22

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Certificate of Conformity

No. ESY 090762 0096 Rev. 00

L3												
Active Power P/Pn[%]	0	10	20	30	40	50	60	70	80	90	100	Limit
Ordinal number	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
2	0.197	0.208	0.241	0.130	0.135	0.136	0.136	0.139	0.142	0.153	0.158	8.0
3	0.102	0.068	0.051	0.086	0.084	0.080	0.097	0.121	0.110	0.149	0.162	-
4	0.030	0.031	0.020	0.061	0.034	0.024	0.024	0.016	0.014	0.010	0.016	4.0
5	0.082	0.167	0.129	0.141	0.113	0.130	0.141	0.144	0.126	0.150	0.139	10.7
6	0.012	0.031	0.024	0.035	0.029	0.019	0.022	0.014	0.010	0.009	0.008	2.67
7	0.077	0.070	0.125	0.135	0.156	0.141	0.158	0.176	0.184	0.165	0.184	7.2
8	0.017	0.008	0.013	0.031	0.020	0.017	0.017	0.020	0.014	0.011	0.011	2.0
9	0.235	0.017	0.282	0.359	0.392	0.380	0.365	0.401	0.412	0.403	0.382	-
10	0.009	0.011	0.009	0.039	0.034	0.028	0.020	0.019	0.018	0.010	0.012	1.6
11	0.068	0.034	0.082	0.106	0.121	0.155	0.150	0.157	0.166	0.198	0.206	3.1
12	0.027	0.022	0.023	0.024	0.020	0.009	0.010	0.010	0.012	0.008	0.008	1.33
13	0.015	0.041	0.041	0.063	0.067	0.084	0.101	0.091	0.096	0.097	0.124	2.0
14	0.010	0.009	0.006	0.029	0.028	0.029	0.019	0.026	0.014	0.011	0.005	-
15	0.075	0.093	0.056	0.129	0.166	0.187	0.224	0.256	0.266	0.275	0.271	-
16	0.007	0.006	0.004	0.018	0.020	0.017	0.016	0.010	0.018	0.005	0.008	-
17	0.017	0.021	0.009	0.023	0.032	0.029	0.033	0.043	0.048	0.055	0.052	-
18	0.005	0.007	0.005	0.015	0.016	0.016	0.010	0.007	0.013	0.017	0.019	-
19	0.006	0.011	0.003	0.014	0.021	0.022	0.019	0.026	0.031	0.029	0.036	-
20	0.003	0.003	0.002	0.008	0.006	0.006	0.010	0.010	0.003	0.008	0.004	-
21	0.014	0.009	0.002	0.017	0.030	0.034	0.038	0.043	0.058	0.061	0.066	-
22	0.003	0.002	0.002	0.005	0.006	0.006	0.009	0.008	0.005	0.003	0.007	-
23	0.006	0.006	0.002	0.007	0.010	0.011	0.011	0.009	0.011	0.017	0.012	-
24	0.002	0.003	0.003	0.005	0.004	0.004	0.003	0.005	0.005	0.003	0.003	-
25	0.004	0.008	0.002	0.004	0.006	0.009	0.009	0.008	0.008	0.010	0.012	-
26	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.006	0.004	0.004	-
27	0.004	0.009	0.002	0.004	0.007	0.010	0.013	0.012	0.014	0.015	0.024	-
28	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.004	0.005	0.003	-

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29	0.002	0.005	0.002	0.003	0.004	0.004	0.005	0.006	0.005	0.006	0.005	-
30	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.003	-
31	0.002	0.003	0.002	0.002	0.003	0.004	0.004	0.005	0.005	0.006	0.007	-
32	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.003	0.006	-
33	0.003	0.003	0.003	0.002	0.004	0.004	0.004	0.005	0.007	0.006	0.007	-
34	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.004	-
35	0.002	0.003	0.003	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.005	-
36	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
37	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.003	-
38	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	-
39	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.003	0.003	0.004	0.004	-
40	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	-
THC/I_{ref}	0.361	0.310	0.431	0.484	0.520	0.528	0.543	0.593	0.607	0.625	0.626	13
$PWHC/I_{ref}$	0.319	0.388	0.230	0.545	0.689	0.779	0.915	1.045	1.105	1.146	1.142	22

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Harmonics (DIN EN 61000-3-2(≤16 A)) (FH3X-8K-HY-3P-35)												
L1												
Active Power 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	0.275	0.437	0.510	0.542	0.530	0.527	0.521	0.513	0.507	0.508	0.509	1.080
3	0.189	0.142	0.068	0.049	0.061	0.069	0.116	0.111	0.089	0.077	0.079	2.300
4	0.109	0.028	0.045	0.062	0.064	0.055	0.058	0.063	0.061	0.055	0.051	0.430
5	0.153	0.246	0.362	0.316	0.272	0.246	0.247	0.215	0.202	0.201	0.202	1.140
6	0.043	0.062	0.039	0.012	0.016	0.025	0.010	0.012	0.016	0.016	0.017	0.300
7	0.190	0.105	0.119	0.217	0.256	0.275	0.290	0.313	0.306	0.306	0.319	0.770
8	0.039	0.015	0.021	0.020	0.018	0.021	0.017	0.018	0.018	0.016	0.014	0.230
9	0.245	0.410	0.142	0.384	0.525	0.595	0.649	0.694	0.712	0.699	0.679	0.400
10	0.041	0.063	0.036	0.026	0.029	0.028	0.023	0.027	0.025	0.020	0.015	0.184
11	0.074	0.164	0.050	0.123	0.174	0.203	0.228	0.240	0.246	0.270	0.292	0.330
12	0.023	0.046	0.031	0.030	0.038	0.030	0.025	0.024	0.028	0.016	0.021	0.153
13	0.054	0.036	0.064	0.038	0.097	0.132	0.147	0.165	0.167	0.172	0.180	0.210
14	0.040	0.016	0.019	0.018	0.019	0.015	0.015	0.012	0.015	0.014	0.008	0.131
15	0.057	0.050	0.151	0.016	0.118	0.199	0.252	0.292	0.329	0.361	0.383	0.150
16	0.010	0.007	0.013	0.008	0.007	0.009	0.008	0.008	0.009	0.008	0.007	0.115
17	0.022	0.044	0.042	0.011	0.019	0.034	0.041	0.051	0.059	0.063	0.064	0.132
18	0.015	0.018	0.016	0.007	0.010	0.008	0.008	0.008	0.009	0.008	0.021	0.102
19	0.008	0.023	0.016	0.014	0.007	0.022	0.033	0.041	0.047	0.052	0.055	0.118
20	0.008	0.014	0.009	0.006	0.004	0.005	0.006	0.005	0.005	0.004	0.005	0.092
21	0.009	0.022	0.023	0.017	0.008	0.018	0.033	0.045	0.054	0.064	0.071	0.107
22	0.006	0.005	0.004	0.005	0.004	0.004	0.004	0.004	0.005	0.005	0.004	0.084
23	0.007	0.012	0.010	0.011	0.005	0.008	0.011	0.013	0.015	0.017	0.019	0.098
24	0.006	0.008	0.005	0.006	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.077
25	0.004	0.010	0.008	0.007	0.005	0.004	0.009	0.012	0.014	0.015	0.016	0.090
26	0.003	0.007	0.006	0.006	0.004	0.004	0.004	0.005	0.004	0.004	0.004	0.071
27	0.007	0.012	0.014	0.011	0.005	0.006	0.006	0.008	0.013	0.016	0.019	0.083
28	0.004	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.066
29	0.006	0.006	0.009	0.008	0.004	0.006	0.006	0.007	0.005	0.006	0.007	0.078

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30	0.004	0.004	0.003	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.004	0.061
31	0.004	0.006	0.006	0.006	0.003	0.004	0.005	0.006	0.004	0.006	0.007	0.073
32	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.058
33	0.005	0.007	0.006	0.007	0.004	0.006	0.005	0.005	0.005	0.005	0.005	0.068
34	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.054
35	0.005	0.005	0.005	0.005	0.006	0.004	0.005	0.006	0.005	0.004	0.004	0.064
36	0.004	0.004	0.004	0.004	0.004	0.005	0.004	0.004	0.004	0.004	0.004	0.051
37	0.004	0.005	0.004	0.005	0.004	0.004	0.004	0.005	0.005	0.004	0.004	0.061
38	0.003	0.004	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.048
39	0.004	0.005	0.004	0.005	0.004	0.004	0.005	0.005	0.004	0.004	0.004	0.058
40	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.046

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L2												
Active Power 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	0.349	0.313	0.291	0.290	0.303	0.316	0.336	0.345	0.329	0.341	0.364	1.080
3	0.137	0.136	0.088	0.065	0.062	0.062	0.060	0.070	0.063	0.059	0.059	2.300
4	0.073	0.061	0.047	0.025	0.012	0.016	0.026	0.035	0.051	0.053	0.047	0.430
5	0.076	0.201	0.297	0.291	0.271	0.289	0.298	0.290	0.282	0.282	0.287	1.140
6	0.032	0.040	0.033	0.035	0.035	0.020	0.022	0.011	0.014	0.010	0.015	0.300
7	0.169	0.078	0.100	0.184	0.232	0.254	0.286	0.305	0.307	0.309	0.322	0.770
8	0.053	0.032	0.027	0.034	0.027	0.036	0.020	0.027	0.022	0.021	0.017	0.230
9	0.235	0.409	0.141	0.395	0.557	0.640	0.694	0.739	0.763	0.752	0.733	0.400
10	0.014	0.050	0.023	0.028	0.044	0.042	0.047	0.030	0.040	0.028	0.027	0.184
11	0.076	0.176	0.027	0.100	0.148	0.183	0.202	0.225	0.254	0.280	0.292	0.330
12	0.026	0.038	0.026	0.034	0.044	0.030	0.034	0.026	0.026	0.015	0.015	0.153
13	0.075	0.063	0.054	0.029	0.073	0.107	0.137	0.152	0.160	0.168	0.184	0.210
14	0.015	0.018	0.017	0.007	0.012	0.016	0.011	0.016	0.014	0.014	0.010	0.131
15	0.038	0.058	0.172	0.031	0.138	0.217	0.264	0.302	0.335	0.365	0.387	0.150
16	0.006	0.007	0.008	0.006	0.010	0.013	0.009	0.010	0.011	0.011	0.011	0.115
17	0.029	0.051	0.049	0.012	0.024	0.034	0.040	0.049	0.055	0.060	0.062	0.132
18	0.010	0.010	0.010	0.009	0.007	0.008	0.010	0.008	0.011	0.010	0.024	0.102
19	0.017	0.033	0.026	0.011	0.011	0.021	0.031	0.038	0.043	0.051	0.055	0.118
20	0.006	0.004	0.005	0.007	0.004	0.005	0.004	0.006	0.005	0.007	0.007	0.092
21	0.011	0.013	0.020	0.030	0.014	0.029	0.040	0.046	0.058	0.060	0.066	0.107
22	0.005	0.005	0.005	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.006	0.084
23	0.010	0.013	0.009	0.017	0.007	0.011	0.012	0.013	0.015	0.016	0.020	0.098
24	0.005	0.006	0.005	0.007	0.004	0.004	0.004	0.004	0.005	0.004	0.004	0.077
25	0.004	0.014	0.007	0.011	0.004	0.009	0.009	0.015	0.016	0.016	0.018	0.090
26	0.004	0.004	0.004	0.006	0.004	0.004	0.005	0.004	0.004	0.003	0.005	0.071
27	0.009	0.010	0.014	0.014	0.006	0.009	0.011	0.015	0.015	0.017	0.018	0.083
28	0.004	0.005	0.004	0.005	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.066
29	0.006	0.006	0.010	0.009	0.006	0.005	0.008	0.007	0.009	0.009	0.009	0.078

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30	0.004	0.004	0.004	0.005	0.004	0.003	0.004	0.004	0.004	0.004	0.004	0.061
31	0.006	0.005	0.007	0.006	0.005	0.004	0.007	0.006	0.009	0.008	0.008	0.073
32	0.003	0.003	0.004	0.004	0.005	0.003	0.003	0.004	0.004	0.004	0.004	0.058
33	0.006	0.003	0.006	0.007	0.006	0.004	0.006	0.007	0.007	0.007	0.009	0.068
34	0.003	0.004	0.003	0.004	0.005	0.004	0.004	0.003	0.004	0.004	0.004	0.054
35	0.005	0.004	0.006	0.006	0.005	0.003	0.003	0.006	0.004	0.006	0.006	0.064
36	0.003	0.004	0.003	0.003	0.004	0.003	0.003	0.004	0.004	0.004	0.004	0.051
37	0.004	0.005	0.005	0.005	0.004	0.004	0.003	0.005	0.004	0.006	0.005	0.061
38	0.003	0.003	0.004	0.003	0.004	0.003	0.003	0.003	0.003	0.004	0.003	0.048
39	0.005	0.005	0.005	0.005	0.005	0.004	0.003	0.004	0.005	0.004	0.006	0.058
40	0.003	0.004	0.004	0.003	0.004	0.004	0.003	0.003	0.004	0.003	0.364	0.046

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L3												
Active Power 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	0.416	0.368	0.331	0.311	0.322	0.319	0.321	0.337	0.338	0.338	0.363	1.080
3	0.204	0.179	0.122	0.116	0.090	0.096	0.173	0.162	0.127	0.120	0.122	2.300
4	0.043	0.086	0.106	0.106	0.066	0.037	0.028	0.025	0.019	0.031	0.025	0.430
5	0.087	0.225	0.313	0.273	0.233	0.239	0.269	0.224	0.209	0.227	0.236	1.140
6	0.080	0.021	0.055	0.064	0.068	0.047	0.028	0.015	0.022	0.017	0.015	0.300
7	0.205	0.071	0.150	0.221	0.235	0.240	0.264	0.300	0.279	0.266	0.288	0.770
8	0.040	0.041	0.015	0.038	0.038	0.043	0.032	0.028	0.021	0.018	0.017	0.230
9	0.241	0.423	0.141	0.396	0.557	0.640	0.689	0.722	0.741	0.733	0.716	0.400
10	0.016	0.053	0.026	0.020	0.033	0.031	0.032	0.031	0.026	0.024	0.023	0.184
11	0.079	0.175	0.043	0.099	0.164	0.194	0.214	0.209	0.243	0.286	0.311	0.330
12	0.044	0.048	0.028	0.044	0.053	0.041	0.044	0.034	0.034	0.016	0.018	0.153
13	0.071	0.052	0.066	0.035	0.081	0.112	0.128	0.133	0.130	0.146	0.170	0.210
14	0.021	0.006	0.029	0.013	0.028	0.029	0.022	0.031	0.028	0.030	0.012	0.131
15	0.047	0.055	0.164	0.024	0.132	0.211	0.265	0.298	0.320	0.346	0.373	0.150
16	0.010	0.023	0.023	0.006	0.017	0.019	0.018	0.016	0.017	0.018	0.018	0.115
17	0.021	0.040	0.039	0.010	0.024	0.038	0.050	0.054	0.060	0.060	0.061	0.132
18	0.006	0.015	0.012	0.010	0.009	0.012	0.014	0.011	0.013	0.010	0.025	0.102
19	0.011	0.031	0.023	0.011	0.008	0.023	0.032	0.039	0.044	0.042	0.041	0.118
20	0.005	0.008	0.008	0.008	0.004	0.007	0.008	0.009	0.005	0.008	0.007	0.092
21	0.011	0.020	0.024	0.023	0.007	0.025	0.036	0.049	0.055	0.065	0.069	0.107
22	0.004	0.005	0.004	0.009	0.004	0.005	0.005	0.006	0.005	0.006	0.006	0.084
23	0.007	0.011	0.009	0.010	0.004	0.009	0.013	0.016	0.019	0.023	0.024	0.098
24	0.006	0.005	0.005	0.008	0.004	0.006	0.006	0.005	0.005	0.005	0.004	0.077
25	0.006	0.012	0.012	0.009	0.004	0.005	0.011	0.010	0.014	0.015	0.016	0.090
26	0.005	0.004	0.005	0.007	0.004	0.004	0.006	0.005	0.004	0.004	0.005	0.071
27	0.008	0.008	0.016	0.013	0.003	0.005	0.009	0.011	0.015	0.017	0.022	0.083
28	0.004	0.004	0.005	0.005	0.004	0.004	0.004	0.005	0.004	0.004	0.005	0.066

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29	0.005	0.005	0.009	0.008	0.004	0.004	0.005	0.008	0.007	0.007	0.008	0.078
30	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.061
31	0.006	0.006	0.007	0.006	0.004	0.004	0.004	0.008	0.005	0.008	0.008	0.073
32	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.004	0.058
33	0.006	0.005	0.006	0.006	0.003	0.004	0.004	0.006	0.007	0.007	0.006	0.068
34	0.003	0.003	0.003	0.004	0.005	0.004	0.004	0.004	0.004	0.003	0.004	0.054
35	0.005	0.004	0.005	0.005	0.005	0.004	0.004	0.005	0.007	0.004	0.005	0.064
36	0.004	0.004	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.004	0.004	0.051
37	0.005	0.004	0.005	0.004	0.004	0.003	0.004	0.004	0.005	0.004	0.006	0.061
38	0.004	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.048
39	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.004	0.006	0.004	0.058
40	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.046

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E.6 Certificate of the network and system protection

Certificate of NS protection	No. 7040924596l4-00		
Manufacturer	Pylon Technologies Co., Ltd. No.300, Miaoqiao Road, Kangqiao Town, Pudong New Area, 201315 Shanghai, PEOPLE'S REPUBLIC OF CHINA		
Type of NS protection			
Central NS protection	☐		
Integrated NS protection	☑	Assigned to power generation unit type	FH3X-8K-HY-3P-10, FH3X-8K-HY-3P-15, FH3X-8K-HY-3P-20, FH3X-8K-HY-3P-25, FH3X-8K-HY-3P-30, FH3X-8K-HY-3P-35, FH3X-10K-HY-3P-10, FH3X-10K-HY-3P-15, FH3X-10K-HY-3P-20, FH3X-10K-HY-3P-25, FH3X-10K-HY-3P-30, FH3X-10K-HY-3P-35, FH3X-12K-HY-3P-10, FH3X-12K-HY-3P-15, FH3X-12K-HY-3P-20, FH3X-12K-HY-3P-25, FH3X-12K-HY-3P-30, FH3X-12K-HY-3P-35, FH3X-15K-HY-3P-10, FH3X-15K-HY-3P-15, FH3X-15K-HY-3P-20, FH3X-15K-HY-3P-25, FH3X-15K-HY-3P-30, FH3X-15K-HY-3P-35
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 network and system protection mentioned above meets the requirements of VDE-AR-N 4105:2018.			

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

Extract from test report for NS protection "Determination of electrical properties"		No. 704092459614-00
NS protection test report		
Type of NS system:	Integrated NS protection	**Other Manufacturer indications**
Software version:	BMS: V1.0; Inverter: V1.0.0.5	
Manufacturer:	Pylon Technologies Co., Ltd. No.300, Miaoqiao Road, Kangqiao Town, Pudong New Area, 201315 Shanghai, PEOPLE'S REPUBLIC OF CHINA	
Measuring period:	From 2024-10-21 to 2024-12-23	

	Inverter		
Protection function	**Setting value**	**Tripping value**	**Break time NS protection ***
Rise-in-voltage protection *U* >>	1,25 * U_n	L1-N/L2-N/L3/N: 287.4 V / 287.5 V / 287.3 V L1-N: 287.5 V L2-N: 287.4 V L3-N: 287.7 V L1-L2: 497.4 V L2-L3: 497.4 V L3-L1: 497.8 V	L1-N/L2-N/L3/N: 130.0 ms L1-N: 123.0 ms L2-N: 118.0 ms L3-N: 135.0 ms L1-L2: 113.0 ms L2-L3: 117.0 ms L3-L1: 126.0 ms
Rise-in-voltage protection *U* >	1,10 * U_n	1.10 * Un	ms**
Voltage drop protection *U* <	0,8 * U_n	L1-N/L2-N/L3/N: 184.2 V / 184.4 V / 184.1 V L1-N: 184.2 V L2-N: 184.1 V L3-N: 184.0 V L1-L2: 320.2 V L2-L3: 319.8 V L3-L1: 320.3 V	L1-N/L2-N/L3/N: 3035 ms L1-N: 3008 ms L2-N: 3029 ms L3-N: 3014 ms L1-L2: 3023 ms L2-L3: 3017 ms L3-L1: 3025 ms
Voltage drop protection *U* <<	0,45 * U_n	L1-N/L2-N/L3/N: 103.6 V / 103.5 V / 103.6 V L1-N: 103.6 V L2-N: 103.5 V L3-N: 103.6 V L1-L2: 179.3 V L2-L3: 179.3 V L3-L1: 179.4 V	L1-N/L2-N/L3/N: 326.0 ms L1-N: 316.0 ms L2-N: 303.0 ms L3-N: 318.0 ms L1-L2: 317.0 ms L2-L3: 316.0 ms L3-L1: 320.0 ms
Frequency decrease protection *f* <	47,5 Hz	47.5 Hz	119.0 ms
Frequency increase protection *f* >	51,5 Hz	51.5 Hz	131.0 ms

*: The tripping time includes the period from the limit value violation *U*/*f* until the tripping signal to the interface switch.
When planning the power generation system, the response time of the interface switch shall be added to the maximum time value obtained as indicated above.
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:

1. 511.24 s (L1-N) / 512.56 s (L2-N) / 508.32 s (L3-N) (from 600s@U_n to 112%U_n)
2. Continuous operation (L1-N/L2-N/L3-N) (from 600s@U_n to 108%U_n)
3. 307.16 s (L1-N) / 338.71 s (L2-N) / 323.80 s (L3-N) (from 600s@106%U_n to 114%U_n)

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☑ **as integrated NS protection**	
Assigned to power generation unit type	FH3X-8K-HY-3P-10, FH3X-8K-HY-3P-15, FH3X-8K-HY-3P-20, FH3X-8K-HY-3P-25, FH3X-8K-HY-3P-30, FH3X-8K-HY-3P-35, FH3X-10K-HY-3P-10, FH3X-10K-HY-3P-15, FH3X-10K-HY-3P-20, FH3X-10K-HY-3P-25, FH3X-10K-HY-3P-30, FH3X-10K-HY-3P-35, FH3X-12K-HY-3P-10, FH3X-12K-HY-3P-15, FH3X-12K-HY-3P-20, FH3X-12K-HY-3P-25, FH3X-12K-HY-3P-30, FH3X-12K-HY-3P-35, FH3X-15K-HY-3P-10, FH3X-15K-HY-3P-15, FH3X-15K-HY-3P-20, FH3X-15K-HY-3P-25, FH3X-15K-HY-3P-30, FH3X-15K-HY-3P-35
Integrated interface switch type	Series-connected relays for both line and neutral conductors Relay type: HF161F-40W/12-HTF(A38)
Response time of interface switch for integrated NS protection	Operate time: Max. 20 ms Release time: Max. 10 ms
Verification of the entire functional chain “integrated NS protection – interface switch” has resulted in successful disconnection.	☑

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