

Prototype Confirmation

Shenzhen Sinexcel Electric Co., Ltd.
Building 6, BaiWangXin High-tech Industrial Park, Nanshan District,
518108 Shenzhen City,
PEOPLE'S REPUBLIC OF CHINA

Type of unit	Type 2, Storage system		
Description of unit	PWS1-160M-H-EX		
Technical data	Rated active power:	P_{rE}	= 160 kW
	Rated apparent power:	S_{rE}	= 176 kVA
	Rated voltage:	U_r	= 400 V a.c, 3P3W+PE/3P4W+PE
	Nominal frequency:	f_n	= 50 Hz
Certification scheme	FGW TG 8 (Rev. 9) (incl. Supplement 1, 2 & 3) P30VA01e Rev. 10/06.25	Certification of the Electrical Characteristics of Power Generating Units, Systems and Storage Systems as well as their Components on the Grids	
		TÜV NORD: Certification Process for Grid Integration Certification	
Standard	VDE-AR-N 4110 2023-09	Technical requirements for the connection and operation of customer installations to the medium voltage network (TAR medium voltage)	

In accordance with the above-mentioned guidelines, the power generating unit is a significant technical innovation. A plausibility check based on the manufacturer's declaration has shown that the unit is basically capable of fulfilling the requirements of Chapter 12 of the above-mentioned guidelines with a restriction.

Further technical data can be found in annex 1, consisting of 4 pages. More detailed test results are given in the assessment report. The validity of the prototype confirmation is two years after commissioning of the first prototype production unit in Germany

Certificate Registration No. 44 797 23053402
 Evaluation Report No. 3540 4411

Valid from 2025-08-15
 Valid to 2027-08-14
 Type 5a Certificate

Essen, 2025-08-15
 Rev. 1.0

Certification Body at TÜV NORD CERT GmbH

TÜV NORD CERT GmbH
 Am TÜV 1, 45307 Essen
www.tuev-nord-cert.com

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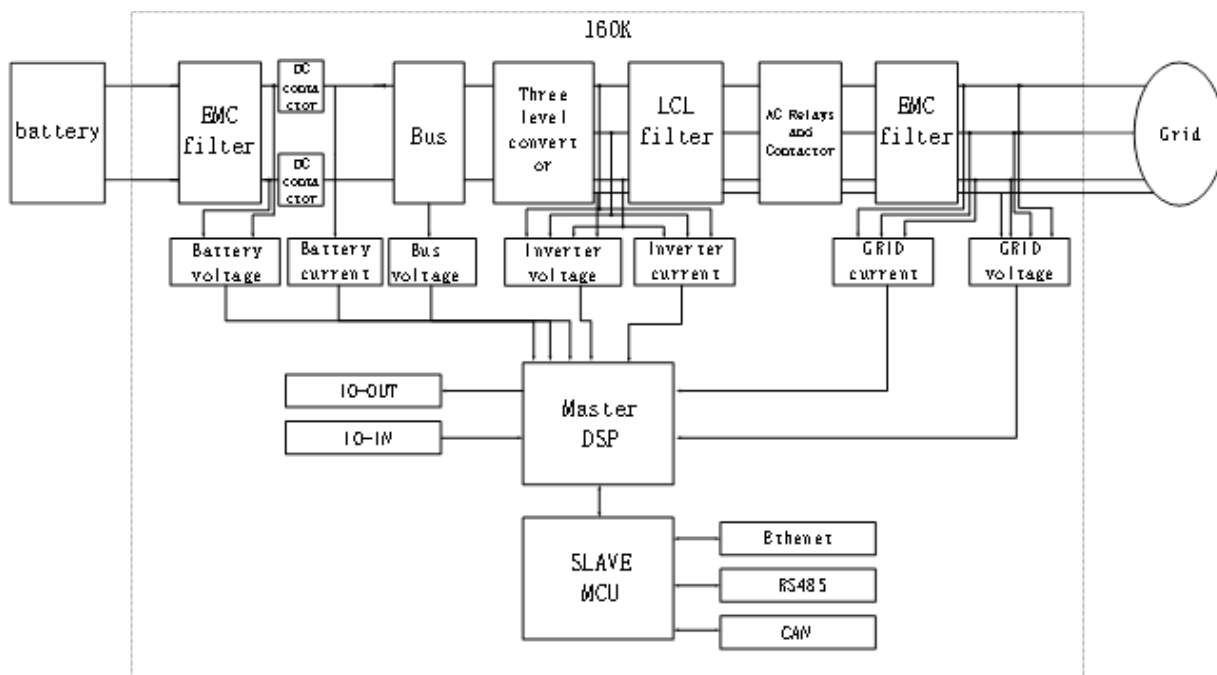


Annex

to Prototype Confirmation Registration No. 44 797 23053402

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Schematic structure



The system boundaries of the evaluated PGU within the scope of certification are framed in dotted lines.

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Technical Data

General information	
Model designation	PWS1-160M-H-EX
Type of model	Type 2, inverter for storage systems
Grid input/output terminal parameters	
Rated input/output voltage	400 V _{a.c.} , 3P3W+PE/3P4W+PE
Rated input/output frequency	50 Hz
Rated continuous input/output current	231 A _{a.c.}
Maximum continuous input/output current	255 A _{a.c.}
Rated input/output active power, P_{rE}	160 kW
Rated input/output apparent power, S_{rE}	160 kVA
Maximum input/output active power	176 kW
Maximum input/output apparent power	176 kVA
Power factor range	100% S_{rE} inductive to 100% S_{rE} capacitive
Reactive power setting range	-160 to +160 kvar
Battery input/output terminal parameters	
Battery type	LFP/Lithium battery
Rated voltage	1200 V _{d.c.}
Battery voltage range	720 V _{d.c.} -1500 V _{d.c.}
Number of branches	1
Rated charging power	160 kW
Rated discharging power	160 kW
Maximum charging power	176 kW
Maximum discharging power	176 kW

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Rated charging current	133 A d.c.
Rated discharging current	133 A d.c.
Maximum charging current	230 A d.c.
Maximum discharging current	230 A d.c.
Protection device	
Manufacturer	Xiamen Hongfa
Type	HF167F-270 (Integrated protective device)
Software version	V1.0

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Remark None

Restrictions **VDE-AR-N 4110:2023-09**

Chapter 6.3.4.5 - Interfaces for protective function tests

The integrated voltage/frequency protection is provided but without test terminal strips for function tests on-site for power generation system.

Chapter 10.2.2.4 - Procedure for providing reactive power

For the control method d) displacement factor $\cos \varphi$ mode, the PGU can only provide with a minimum configurable step size of 0.01 of $\cos \varphi$, instead of the VDE4110 requirement of a minimum configurable step size of 0.005 of $\cos \varphi$.

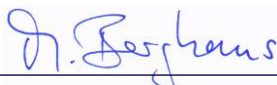
Appendix to the certificate

A1 Evaluation report no. 3540 4411 version 1.0

A2 Manufacture declaration of PWS1-160M-H-EX

(File name: *U1_PROTOTYPE__DECLARATION__160KW__VDE4110*)

MD5 - Checksum: 037C65D2C8CEB37088710496F064B4CF



Certification Body at TÜV NORD CERT GmbH

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