

Unit Certificate



FGW TG8 EZE

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No.: 968/GI 2211.01/25

Grid Integration of Distributed Energy Resources

Certificate Holder

NingBo Deye Inverter Technology
Co., Ltd.
No. 26 South YongJiang Road,
Daqi, Beilun NingBo,
315800 Zhejiang
P. R. China

Subject

Grid-Connected PV-Inverter
SUN-70K-G03, SUN-75K-G03, SUN-80K-G03, SUN-90K-G03, SUN-100K-G03,
SUN-110K-G03

Codes and Standards

VDE-AR-N 4110:2023
VDE-AR-N 4120:2018
FGW TG 4:2023 Revision 10
FGW TG 3:2023 Revision 26
FGW TG 8:2019 Revision 9

Scope and result

The power generating units mentioned above meet the requirements of standards listed above.

The conformity is declared by following documents:

Evaluation Report-No. : 968/GI 2211.01/25, 2024-04-30

Validation Report-No. : 968/GI 2211.00/25, 2024-04-30

Test Report No. : CN24DF7X 001, dated 2024-12-28

The manufacturer has provided proof of certification of the quality management system of his production facility in accordance with ISO 9001 or is subject to production monitoring.

Specific provisions

The deviations and conditions for conformity according to the evaluation report must be observed. The corresponding conditions and deviations are listed on page 2 of the certificate.

Valid until 2030-04-30

The issue of this certificate is based upon an evaluation in accordance with the Certification Program CERT GI3 V5.0:2021-11 in its actual version, whose results are documented in Report No. 968/GI 2211.01/25 dated 2025-04-30. This certificate is specifically valid for the above mentioned system only. It becomes invalid, if any unapproved changes are implemented without prior assessment/approval by the certification body. Authenticity and validity of this certificate can be verified through the above indicated QR-code or at <http://www.fs-products.com>.

TÜV Rheinland Industrie Service GmbH

Bereich Automation
Funktionale Sicherheit

Am Grauen Stein, 51105 Köln

Köln, 2025-04-30

Certification Body Safety & Security for Automation & Grid

Dipl.-Ing. Marco Klose

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Precisely Right.

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Technical data of the PGU:

Typ:	SUN-110K-G03	SUN-100K-G03	SUN-90K-G03	SUN-80K-G03	SUN-75K-G03	SUN-70K-G03
Rated apparent power:	110 kW	100 kW	90 kW	80 kW	75 kW	70 kW
Rated active power:	110 kW	100 kW	90 kW	80 kW	75 kW	70 kW
Max. active power (P ₆₀₀):	120.03 kW	110 kW	99 kW	88 kW	82.5 kW	77 kW
Rated voltage:	3L/N/PE 230/240V					
Nominal frequency:	50 Hz / 60 Hz					
Minimum required short-circuit power (only for type 1 PGU):	N/A					
Software-Version:	5322_0323					

Validated Simulation Model:

Reference name: SUN-(70-110)K-G03_VDE_V2_Encrypted.pfd

MD5 Checksum: 8f09628d62c091a6eab633052050e385

Simulation platform: DIgSILENT PowerFactory 2024 SP4A

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The following deviations and restrictions apply:

None

The following:

- The deviations and limitation according to chapter 4.3.2. have to be observed and evaluated during system certification.
 - To meet the PT1 control behavior requirements according to VDE-AR-N- 4120, an external PGS
 - A voltage deadband cannot be set. If required, this has to be implemented on PGS level (e.g. via PGS controller).
 - An external interface for specifying the reference voltage U/U_c is not implemented. If required, this has to be implemented on PGS level (e.g. via PGS controller).
 - The PGU control only supports six reference points for Q(P) control. If more reference points are needed, the Q(P) control must be implemented on PGS level (e.g. by PGS controller).
 - To meet the fixed Q control & fixed $\cos \varphi$ control requirements according to VDE-AR-N 4120, an external PGS controller is required.
 - If a permanent active power reduction (e.g. in favor of reactive power provision) is needed, this has to be implemented on PGS level (e.g. via external PGS controller) and evaluated during system certification.
- The PGU contains one single interface for active power setpoint by grid operator or any different third party (e.g. direct marketer). Separate implementation of the interfaces for the grid provider specification and other setpoint specifications, including implementation of the lowest value in accordance with VDE-AR-N 4110 or VDE-AR-N 4120, must therefore be implemented at the PGS level (e.g. in the PGS controller). This must be considered accordingly during system certification.
- Active power prioritization with regard to primary power supply has to be implemented on PGS level (e.g. by PGS-controller) and be evaluated as part of system certification, if required.
- The function tests with regard to compensation to ensure substation supply operation or rapid resynchronization were not performed during unit certification and have to be evaluated as part of system certification, if required.
- According to VDE-AR-N 4120, the reconnection shall also be possible after external release signal. This is not implemented in the PGU and therefore must be implemented on PGS level (e.g. via intermediate protection device and PGS controller) and be evaluated accordingly during system certification.

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- The certified product does not provide a test terminal. A connecting terminal plate has to be installed separately, if necessary. Alternatively, this requirement can be fulfilled on PGS level through an intermediate decoupling protection device with valid component certificate according to VDE-AR-N 4110 or VDE-AR-N 4120 and separate circuit breaker.
- In some cases, the measured tripping time was less than the tripping time set. This has to be considered accordingly during system certification.
- The validated simulation model of the PGUs specified shall be used in the certified version (see information above for details on file name and check sum (MD5)).

Schematic overview of PGU:

