

CERTIFICATE of Conformity



Registration No.: A3 50706340 0001

Report No.: CN25AHMX 001

Holder: GoodWe Technologies Co., Ltd.
No.90 Zijin Rd., New District
215011 Suzhou
P.R. China

Product: PV-Inverter
(Hybrid Inverter)

Identification: Type Designation :
GWxxK-BTA-G20 ,
(xx=5, 6, 8, 9.999, 10, 12, 15, 20, 25, 29.999, 30)
GWxxK-ETA-G20
(xx=5, 6, 8, 9.999, 10, 12, 15, 20, 25, 29.999, 30)
Firmware Version : 010101
Continued on page 0002

Tested acc. to: EN 50549-2:2019+A1
EN 50549-10:2022

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.

Durch die DAkkS nach
DIN EN ISO/IEC 17065:2013
akkreditierte Zertifizierungsstelle.
Die Akkreditierung gilt nur für den in der
Urkundenanlage D-ZE-14169-01-02
aufgeführten Akkreditierungsumfang.

Certification Body

Date 18.12.2025


A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

CERTIFICATE of Conformity



Registration No.: A3 50706340 0002

Report No.: CN25AHMX 001

Holder: GoodWe Technologies Co., Ltd.
No.90 Zijin Rd., New District
215011 Suzhou
P.R. China

Product: PV-Inverter
(Hybrid Inverter)

Identification: As page 0001 continuation
Remark : In case of voltage below U_n , the apparent power of power unit will reduce to maintain the current limit. To reach full power on plant level, the permanent power derating or redundant amount of units could be implemented. Refer to report CN25AHMX 001 for details.

Tested acc. to: EN 50549-2:2019+A1
EN 50549-10:2022

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.

Durch die DAkkS nach
DIN EN ISO/IEC 17065:2013
akkreditierte Zertifizierungsstelle.
Die Akkreditierung gilt nur für den in der
Urkundenanlage D-ZE-14169-01-02
aufgeführten Akkreditierungsumfang.

Certification Body

Date 18.12.2025


A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

Certificate No.: A3 50706340 0001-0002

Certificate Of Conformity

License holder: **GoodWe Technologies Co., Ltd.**
No.90 Zijin Rd., New District 215011 Suzhou P.R. China

Type of product: Hybrid Inverter

Model: GWxxK-BTA-G20 (xx=5, 6, 8, 9.999, 10, 12, 15, 20, 25, 29.999, 30)
GWxxK-ETA-G20 (xx=5, 6, 8, 9.999, 10, 12, 15, 20, 25, 29.999, 30)

Firmware version: 010101

Standard: **EN 50549-2:2019+A1**
Requirements for generating plants to be connected in parallel with distribution networks - Part 2: Connection to a MV distribution network -Generating plants up to and including Type B
EN 50549-10:2022
Requirements for generating plants to be connected in parallel with distribution networks - Part 10: Tests for conformity assessment of generating units

Report No.: CN25AHMX 001

Date of issue: 18.12.2025

Remark: In case of voltage below U_n , the apparent power of power unit will reduce to maintain the current limit. To reach full power on plant level, the permanent power derating or redundant amount of units could be implemented.

The verification of conformity refers to the above mentioned product. This is to verify that the specimen is in conformity with the assessment requirement mentioned above. This verification does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.



A. Chen
Certifier



EN 50549-2:2019+A1 Annex C Parameter Table

Clause(s) / sub-clause(s) of EN 50549-2:2019+A1	Parameter ^a	Remarks / additional information ^b	Typical value range	Value default	
4.4.2 Operating frequency range	47,0 – 47,5 Hz Duration	Unlimited	0 – 20 s	0s	
	47,5 – 48,5 Hz Duration	Unlimited	30 – 90 min	30 min	
	48,5 – 49,0 Hz Duration	Unlimited	30 – 90 min	30 min	
	49,0 -51,0 Hz Duration	Unlimited	not configurable	unlimited	
	51,0 – 51,5 Hz Duration	Unlimited	30 – 90 min	30 min	
	51, 5 – 52 Hz Duration	Unlimited	0 – 15 min	0 s	
4.4.3 Minimal requirement for active power delivery at underfrequency	Reduction threshold	Not configurable	49 Hz – 49,5 Hz	49,5 Hz	
	Maximum reduction rate	No reduction ($\leq 10\% P_M / \text{Hz}$)	2– 10 % PM/Hz	$\leq 2\% \text{ PM/Hz}$	
4.4.4 Continuous operating voltage range	Upper limit	110% U_c	not configurable	110% U_c	
	Lower limit	90% U_c	not configurable	90% U_c	
4.5.2 Rate of change of frequency (ROCOF) immunity	ROCOF withstand capability (defined with a sliding measurement window of 500 ms)	Up to $\pm 3.5 \text{ Hz/s}$	not defined	$\pm 2 \text{ Hz/s}$	
4.5.3.2 Generating plant with non-synchronous generating technology	Maximum power resumption time	Not configurable	not defined	1 s	
	Voltage-Time-Diagram	Configurable (Default requirement)	see Figure 6	Time [s]	U [p.u.]
				0,0	0,2
				0,15	0,2
				1,5	0,85
				180	0,85
				180	0,90
4.5.4 Over-voltage ride through (OVRT)	Maximum power resumption time	Not configurable	Not configurable	1 s	
	Voltage-Time-Diagram	Configurable (Default requirement)	not	Time [s]	U [p.u.]
				0.0	1,25
				1	1,25
				1	1,20
				0	1,20
				0	1,15
				0	1,15
				0	1,10



TÜV Rheinland LGA Products GmbH
Am Grauen Stein 29 · 51105 Köln · Germany

4.5.5 – Phase jump immunity	Phase jump immunity	Not configurable (Up to $\pm 180^\circ$)	Not configurable	$\pm 180^\circ$
4.6.1 Power response to over frequency	Threshold frequency f_1	Configurable	50,2 Hz – 52 Hz	50,2 Hz
	Droop	Configurable	2 % – 12 %	5 %
	Power reference	Configurable	PM Pmax	Pmax, for synchronous generating technology and EESS
	Intentional delay	Configurable	0 – 2 s	0s
	Deactivation threshold f_{stop}	Configurable	50,0 Hz – f_1	deactivated
	Deactivation time t_{stop}	Configurable	0 – 600 s	-
	Acceptance of staged disconnection	Not configurable	yes no	yes
4.6.2 Power response to underfrequency	Threshold frequency f_1	Configurable	49,8 Hz – 46 Hz	49,8 Hz
	Droop	Configurable	2 – 12 %	5 %
	Power reference	Not configurable (P _{max})	PM Pmax	Pmax
	Intentional delay	Configurable	0 – 2 s	0 s
4.7.2.2 Capabilities	Active factor / Reactive power (%Pd) range overexcited	0,8– 1 / 60% P _n – 0	0,9 – 1 / 48 %Pd - 0 0,95 – 1 / 33 %Pd - 0	0,8– 1 / 60% P _n – 0
	Active factor / Reactive power (%Pd) range underexcited	0,8 – 1 / -60% P _n – 0	0,9 – 1 / 48 %Pd - 0 0,95 – 1 / 33 %Pd - 0	0,8 – 1 / -60% P _n – 0
4.7.2.3 Control modes	Enabled control mode	Configurable	Q setp. Q(U) Q(P) cos ϕ setp. cos ϕ (P)	Q setpoint
4.7.2.3.2 Setpoint control modes	Q setpoint and excitation	Configurable	0 – 48 % PD, 0 – 33 %PD	0
	Cos ϕ set point and excitation (ov and uv)	Configurable	1 – 0,9	1
	Time constant (τ)	Configurable (3 – 60 s)	3s-60s	3,33s
4.7.2.3.3 Voltage related control modes	Characteristic curve	Configurable Q(U)	D _{bchar} : -6% to +6 % U _n Q _{max char} : 10% – 100% of Q _{max over} and Q _{max und}	indicate default



			Slope of the steepest: $1\% - 100\% Q_{\max} / 1\% U_n$	
	Time constant	Configurable (3 s – 60 s)	3 s – 60 s	10 s
	Min cos φ	Configurable	0,0 – 1	0,4
	Lock in power(P/P _n)	Configurable	0 % – 20 %	deactivated
	Lock out power(P/P _n)	Configurable	0 % – 20 %	deactivated
4.7.2.3.4 Power related control mode	Characteristic curve	Configurable Cos φ (P) Q(P)	$Q_{\max}$ char: 10% – 100% of $Q_{\max}$ over and $Q_{\max}$ under Slope of the steepest: $2\% - 200\% Q_{\max} / 10\% P_n$	indicate default characteristic (Figure 36 of EN 50549-10)
	Time constant (τ)	Configurable	3 s – 60 s	3 s
	Lock-in voltage (U/U _n)	Configurable	100% – 110%	deactivated
	Lock-out voltage (U/U _n)	Configurable	90% – 100%	deactivated
4.7.4.2.1 – Voltage support during faults and voltage steps – General / Generating Plant with non-synchronous generator	Enabling	Configurable	Enable Disable	Disable
	Static voltage range overvoltage	Configurable	100% – 120% U _c	110%U _n
	Static voltage range undervoltage	Configurable	20% – 100% U _c	90%U _n
	Insensitivity range of $\Delta U_{50\text{per}}$	Configurable	0% – 15%	5%
	Gradient k ₁	Configurable	0 – 6	2
	Gradient k ₂	Configurable	0 – 6	2
4.7.4.2.1.2 – Optional Modes / Generating Plant with non-synchronous generator	Active power priority	Configurable No threshold	Enable Disable	No threshold Disable
	Reactive current limitation [% rated current]	Configurable No threshold	0% – 100%	No threshold Disable
	Zero current threshold	Configurable	20% – 100% U _c	disable
4.7.4.2.2 Zero current mode for converter connected generating technology	Enabling	Configurable	enable disable	disabled
	Static voltage range overvoltage	Configurable	100 % U _n – 120 % U _n	120 % U _n
	Static voltage range undervoltage	Configurable	20 % U _n –	% U _n



4.9.2 Requirements on voltage and frequency protection	Undervoltage threshold stage 1	Configurable	0,2 Un – 1 Un	--
	Undervoltage operate time stage 1	Configurable	0,1 s – 100 s	--
	Undervoltage threshold stage 2	Configurable	0,2 Un – 1 Un	--
	Undervoltage operate time stage 2	Configurable	0,1 s – 5 s	--
	Overvoltage threshold stage 1	Configurable	1,0 Un – 1,2 Un	--
	Overvoltage operate time stage 1	Configurable	0,1 s – 100 s	--
	Overvoltage threshold stage 2	Configurable	1,0 Un – 1,3 Un	--
	Overvoltage operate time stage 2	Configurable	0,1 s – 5 s	--
	Overvoltage threshold 10 min mean protection	Configurable	1,0 Un – 1,15 Un	--
	Underfrequency threshold stage 1	Configurable	47,0 Hz– 50,0 Hz	--
	Underfrequency operate time stage 1	Configurable	0,1 s – 100 s	--
	Underfrequency threshold stage 2	Configurable	47,0 Hz – 50,0 Hz	--
	Underfrequency operate time stage 2	Configurable	0,1 s – 5 s	--
	Overfrequency threshold stage 1	Configurable	50,0 Hz – 52,0 Hz	--
	Overfrequency operate time stage 1	Configurable	0,1 s – 100 s	--
	Overfrequency threshold stage 2	Configurable	50,0 Hz – 52,0 Hz	--
	Overfrequency operate time stage 2	Configurable	0,1 s – 5 s	--
	Positive sequence under-voltage protection threshold	Configurable No threshold	20% – 100%	--
	Positive sequence under-voltage protection operate time	Configurable No threshold	0.2 – 100 s	--
	Negative sequence over-voltage protection threshold	Configurable No threshold	1 % – 100 %	--
	Negative sequence over-voltage protection operate time	Configurable No threshold	0,2 s – 100 s	--
	Zero sequence over-voltage protection threshold	Configurable No threshold	0 % – 100 %	--



	Zero sequence over-voltage protection operate time	Configurable No threshold	0,2 s – 100 s	--
4.10.2 Automatic reconnection after tripping	Lower frequency	Configurable	47,0 Hz – 50,0 Hz	49,5 Hz
	Upper frequency	Configurable	50,0 Hz – 52,0 Hz	50,2 Hz
	Lower voltage	Configurable	50 % Un – 100 % Un	90 % Un
	Upper voltage	Configurable	100 % Un – 120 % Un	110 % Un
	Observation time	Configurable	10 s – 600 s	60 s
	Active power increase gradient	Configurable	6 % – 3000 %/min	10 % /min
4.10.3 Starting to generate electrical power	Lower frequency	Configurable	47,0 Hz – 50,0 Hz	49,5 Hz
	Upper frequency	Configurable	50,0 Hz – 52,0 Hz	50,1 Hz
	Lower voltage	Configurable	50 % – 100 % Un	90 % Un
	Upper voltage	Configurable	100 % – 120 % Un	110 % Un
	Observation time	Configurable	10 s – 600 s	60 s
	Active power increase gradient	Configurable	6 % – 3000 %/min	disabled
4.11.1 Ceasing active power	Remote operation of the logic interface	Configurable	yes no	No (Digital input by RS485/Wi-Fi port))
4.11.2 Reduction of active power on set point	Remote operation NOTE: If yes further definition is provided by the DSO	Configurable	yes no	No (Digital input by RS485/Wi-Fi port)
4.12 Remote information exchange	Remote information exchange required NOTE: If yes further definition is provided by the DSO	Configurable	yes no	No (The protocols will be agreed between the local DSO and PGUs at final installation.)
Supplementary: Complémentaire ov: Over-excited; uv: Under-excited ^a If additional parameters have been evaluated during the test, these shall be added as additional lines in the table. ^b This column should be used for manufacturer specific parameter descriptions.				

