

# CERTIFICATE of Conformity



Registration No.: A3 50705507 0001

Report No.: CN254PZR 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 50549-1:2019+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 50705507 0002

Report No.: CN254PZR 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 CN254PZR 001 for details.

Tested acc. to: EN 50549-1:2019+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.

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Certification Body

Date 18.12.2025

  
A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

Certificate No.: A3 50705507 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 50549-1:2019+A1**  
Requirements for generating plants to be connected in parallel with distribution networks - Part 1: Connection to a LV 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.:** CN254PZR 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 50549-1:2019+A1 Annex C Parameter Table

| Clause(s) / sub-clause(s) of EN 50549-1:2019+A1                       | Parameter <sup>a</sup>                                                           | Remarks / additional information <sup>b</sup> | 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% $U_n$               |          |
|                                                                       | Lower limit                                                                      | 85% $U_c$                                     | not configurable    | 85% $U_n$                |          |
| 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      |
| 4.5.4 Over-voltage ride through (OVRT)                                | Voltage-Time-Diagram                                                             | Configurable (Default requirement)            | not configurable    | 1,5                      | 0,85     |
|                                                                       |                                                                                  |                                               |                     | 1 s                      |          |
|                                                                       |                                                                                  |                                               |                     | Time [s]                 | U [p.u.] |
|                                                                       |                                                                                  |                                               |                     | 0,0                      | 1,25     |
|                                                                       |                                                                                  |                                               |                     | 0,1                      | 1,25     |
|                                                                       |                                                                                  |                                               |                     | 0,1                      | 1,20     |
|                                                                       |                                                                                  |                                               |                     | 5,0                      | 1,20     |
| 4.5.5 – Phase jump immunity                                           | Phase jump immunity                                                              | Not configurable (Up to $\pm 180^\circ$ )     | Not configurable    | 5,0                      | 1,15     |
|                                                                       |                                                                                  |                                               |                     | 60                       | 1 15     |



|                                        |                                                         |                                |                                                               |                                                      |
|----------------------------------------|---------------------------------------------------------|--------------------------------|---------------------------------------------------------------|------------------------------------------------------|
| 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<br>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<br>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.<br>Q(U)<br>Q(P)<br>cos $\phi$ setp.<br>cos $\phi$ (P) | Q setpoint                                           |
| 4.7.2.3.2 Setpoint control modes       | Q setpoint and excitation                               | Configurable                   | 0 – 48 % PD, 0 – 33 %PD                                       | 0                                                    |
|                                        | Cos $\phi$ set point and excitation (ov and uv)         | Configurable                   | 1 – 0,9                                                       | 1                                                    |
|                                        | Time constant ( $\tau$ )                                | Configurable (3 – 60 s)        | 3s-60s                                                        | 3,33s                                                |



|                                                                           |                                   |                                              |                                                                                                                                                                               |                                                                  |
|---------------------------------------------------------------------------|-----------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| 4.7.2.3.3 Voltage related control modes                                   | Characteristic curve              | Configurable<br>$Q(U)$                       | $D_{bchar}$ :<br>-6% to +6 % $U_n$<br>$Q_{max char}$ :<br>10% – 100% of<br>$Q_{max over}$ and $Q_{max under}$<br>Slope of the steepest:<br>1% – 100% $Q_{max} / 1\%$<br>$U_n$ | indicate default characteristic<br>(Figure 33 of<br>EN 50549-10) |
|                                                                           | Time constant ( $\tau$ )          | Configurable<br>(3 s – 60 s)                 | 3 s – 60 s                                                                                                                                                                    | 10 s                                                             |
|                                                                           | Min $\cos \varphi$                | 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<br>$\cos \varphi (P)$<br>$Q(P)$ | $Q_{max char}$ :<br>10% – 100% of<br>$Q_{max over}$ and $Q_{max under}$<br>Slope of the steepest:<br>2% – 200% $Q_{max} / 10\%$<br>$P_n$                                      | indicate default characteristic<br>(Figure 36 of<br>EN 50549-10) |
|                                                                           | Time constant ( $\tau$ )          | 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                                                      |
| 4.7.4.2.2 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 % $U_n$ – 100 % $U_n$                                                                                                                                                      | 50 % $U_n$                                                       |



|                                                        |                                                                 |              |                   |    |
|--------------------------------------------------------|-----------------------------------------------------------------|--------------|-------------------|----|
| 4.9.2 Requirements on voltage and frequency protection | Threshold for protection as dedicated device [ in A or kW, kVA] | Configurable | 16 A – 250 kVA    | -- |
|                                                        | 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       | -- |



|                                                                                                                                                                                                                                                                                                                  |                                                                                                |              |                     |                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------|---------------------|--------------------------------------------------------------------------------------------|
| 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  | 85 % 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     | 85 % 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<br>(Digital input by dry contact)                                                       |
| 4.11.2 Reduction of active power on set point                                                                                                                                                                                                                                                                    | Remote operation<br>NOTE: If yes further definition is provided by the DSO                     | Configurable | yes   no            | No<br>(Digital input by dry contact)                                                       |
| 4.12 Remote information exchange                                                                                                                                                                                                                                                                                 | Remote information exchange required<br>NOTE: If yes further definition is provided by the DSO | Configurable | yes   no            | No<br>(The protocols will be agreed between the local DSO and PGUs at final installation.) |
| Supplementary:<br><i>Complémentaire</i><br>ov: Over-excited; uv: Under-excited<br><sup>a</sup> If additional parameters have been evaluated during the test, these shall be added as additional lines in the table.<br><sup>b</sup> This column should be used for manufacturer specific parameter descriptions. |                                                                                                |              |                     |                                                                                            |

