

# MOD 3~10KTL3-XH(BP)

- Battery ready, future proof
- Dual MPP Trackers
- Type II SPD on DC and AC side
- Active Arcing Protection
- 24h self-consumption monitoring



**G**ROWATT

P O W E R  
- I N G  
T O M O -  
R R O W

[www.ginverter.com](http://www.ginverter.com)

| Datasheet                                                                                                                                                                   | MOD 3000TL3-XH                              | MOD 4000TL3-XH | MOD 5000TL3-XH | MOD 6000TL3-XH | MOD 7000TL3-XH | MOD 8000TL3-XH | MOD 9000TL3-XH | MOD 10KTL3-XH |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|
| Input data (DC)                                                                                                                                                             |                                             |                |                |                |                |                |                |               |
| Max. recommended PV power (for module STC)                                                                                                                                  | 6000W                                       | 8000W          | 10000W         | 12000W         | 14000W         | 16000W         | 18000W         | 20000W        |
| Max. DC voltage                                                                                                                                                             | 1100V                                       |                |                |                |                |                |                |               |
| Start voltage                                                                                                                                                               | 160V                                        |                |                |                |                |                |                |               |
| Nominal voltage                                                                                                                                                             | 600V                                        |                |                |                |                |                |                |               |
| MPPT voltage range                                                                                                                                                          | 140V-1000V                                  |                |                |                |                |                |                |               |
| No. of MPP trackers/strings per MPP tracker                                                                                                                                 | 2/1                                         |                |                |                |                |                |                |               |
| Max. input current per MPP tracker                                                                                                                                          | 16A                                         |                |                |                |                |                |                |               |
| Max. short-circuit current per MPP tracker                                                                                                                                  | 20A                                         |                |                |                |                |                |                |               |
| Input data (DC battery)                                                                                                                                                     |                                             |                |                |                |                |                |                |               |
| Compatible battery                                                                                                                                                          | APX HV Battery System (5kWh-30kWh)          |                |                |                |                |                |                |               |
| Operating voltage range                                                                                                                                                     | 600 V-950 V                                 |                |                |                |                |                |                |               |
| Max.operating current                                                                                                                                                       | 11A                                         |                |                |                | 18.5A          |                |                |               |
| Max.charge power                                                                                                                                                            | 6000W                                       |                |                |                | 10000W         |                |                |               |
| Max.dlscharge power                                                                                                                                                         | 3300W                                       | 4400W          | 5500W          | 6600W          | 7700W          | 8800W          | 9900W          | 11000W        |
| Output data (AC)                                                                                                                                                            |                                             |                |                |                |                |                |                |               |
| AC nominal power                                                                                                                                                            | 3000W                                       | 4000W          | 5000W          | 6000W          | 7000W          | 8000W          | 9000W          | 10000W        |
| Max. AC apparent power                                                                                                                                                      | 3300VA                                      | 4400VA         | 5500VA         | 6600VA         | 7700VA         | 8800VA         | 9900VA         | 11000VA       |
| Nominal AC voltage (range*1)                                                                                                                                                | 220V/380V, 230V/400V (340-440V)             |                |                |                |                |                |                |               |
| AC grid frequency (range*1)                                                                                                                                                 | 50/60 Hz (45-55Hz/55-65 Hz)                 |                |                |                |                |                |                |               |
| Max. output current                                                                                                                                                         | 5.0A                                        | 6.7A           | 8.3A           | 10.0A          | 11.7A          | 13.3A          | 15.0A          | 16.7A         |
| Adjustable power factor                                                                                                                                                     | 0.8leading...0.8lagging                     |                |                |                |                |                |                |               |
| THDi                                                                                                                                                                        | <3%                                         |                |                |                |                |                |                |               |
| AC grid connection type                                                                                                                                                     | 3W+N+PE                                     |                |                |                |                |                |                |               |
| Output data (Backup*2)                                                                                                                                                      |                                             |                |                |                |                |                |                |               |
| Max. apparent power                                                                                                                                                         | 3000VA                                      | 4000VA         | 5000VA         | 6000VA         | 7000VA         | 8000VA         | 9000VA         | 10000VA       |
| Nominal AC voltage                                                                                                                                                          | 230V/400V                                   |                |                |                |                |                |                |               |
| AC grid frequency                                                                                                                                                           | 50/60Hz                                     |                |                |                |                |                |                |               |
| Efficiency                                                                                                                                                                  |                                             |                |                |                |                |                |                |               |
| MAX. efficiency                                                                                                                                                             | 98.3%                                       | 98.3%          | 98.3%          | 98.3%          | 98.6%          | 98.6%          | 98.6%          | 98.6%         |
| European efficiency                                                                                                                                                         | 97.5%                                       | 97.5%          | 97.5%          | 97.5%          | 98.1%          | 98.1%          | 98.1%          | 98.1%         |
| MPPT efficiency                                                                                                                                                             | 99.9%                                       |                |                |                |                |                |                |               |
| Protection devices                                                                                                                                                          |                                             |                |                |                |                |                |                |               |
| DC reverse polarity protection                                                                                                                                              | Yes                                         |                |                |                |                |                |                |               |
| DC Switch                                                                                                                                                                   | Yes                                         |                |                |                |                |                |                |               |
| AC/DC surge protection                                                                                                                                                      | Type II / Type II                           |                |                |                |                |                |                |               |
| Insulation resistance monitoring                                                                                                                                            | Yes                                         |                |                |                |                |                |                |               |
| AC short-circuit protection                                                                                                                                                 | Yes                                         |                |                |                |                |                |                |               |
| Ground fault monitoring                                                                                                                                                     | Yes                                         |                |                |                |                |                |                |               |
| Grid monitoring                                                                                                                                                             | Yes                                         |                |                |                |                |                |                |               |
| Anti-islanding protection                                                                                                                                                   | Yes                                         |                |                |                |                |                |                |               |
| Residual-current monitoring unit                                                                                                                                            | Yes                                         |                |                |                |                |                |                |               |
| String fault monitoring                                                                                                                                                     | Yes                                         |                |                |                |                |                |                |               |
| AFCI protection                                                                                                                                                             | Optional                                    |                |                |                |                |                |                |               |
| General data                                                                                                                                                                |                                             |                |                |                |                |                |                |               |
| Dimensions (W / H / D)                                                                                                                                                      | 425/387/147mm                               | 425/387/147mm  | 425/387/147mm  | 425/387/147mm  | 425/387/178mm  | 425/387/178mm  | 425/387/178mm  | 425/387/178mm |
| Weight                                                                                                                                                                      | 12.5kg                                      | 12.5kg         | 12.5kg         | 12.5kg         | 14kg           | 14kg           | 14kg           | 14kg          |
| Operating temperature range                                                                                                                                                 | - 25°C ... +60°C                            |                |                |                |                |                |                |               |
| Nighttime power consumption                                                                                                                                                 | < 5.5W                                      |                |                |                |                |                |                |               |
| Topology                                                                                                                                                                    | Transformerless                             |                |                |                |                |                |                |               |
| Cooling                                                                                                                                                                     | Natural convection                          |                |                |                |                |                |                |               |
| Protection degree                                                                                                                                                           | IP66                                        |                |                |                |                |                |                |               |
| Relative humidity                                                                                                                                                           | 0~100%                                      |                |                |                |                |                |                |               |
| Altitude                                                                                                                                                                    | 4000m                                       |                |                |                |                |                |                |               |
| DC connection                                                                                                                                                               | H4/MC4(Optional)                            |                |                |                |                |                |                |               |
| AC connection                                                                                                                                                               | Connector                                   |                |                |                |                |                |                |               |
| Display                                                                                                                                                                     | OLED+LED/WIFI+APP                           |                |                |                |                |                |                |               |
| Interfaces: USB/RS485/WIFI /GPRS/LAN/RF                                                                                                                                     | Yes/Yes/Optional/Optional/Optional/Optional |                |                |                |                |                |                |               |
| Warranty: 5 years /10 years                                                                                                                                                 | Yes/Optional                                |                |                |                |                |                |                |               |
| CE, VDE0126, Greece, EN50549, C10/C11, VFR 2019, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, N4105, TOR Erzeuger G98/G99, G100, AS4777, UNE217001, UNE206007, PO12.2 |                                             |                |                |                |                |                |                |               |

\*1 The AC voltage range and frequency range may vary depending on specific country grid standard. All specifications are subject to change without notice.

\*2 The backup function is ready for the BP version with Backup table by using the SYN 50-XH-30 device.

# MID 15~25KTL3-X

- Max. efficiency 98.75%
- Dual MPP trackers
- Supports export control
- Touch key and OLED display
- Type II SPD on AC and DC side



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T O M O R R O W

| Datasheet                                                                                                                                                                         | MID 15KTL3-X                                 | MID 17KTL3-X | MID 20KTL3-X | MID 22KTL3-X | MID 25KTL3-X |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------|--------------|--------------|--------------|
| Input data (DC)                                                                                                                                                                   |                                              |              |              |              |              |
| Max. recommended PV power (for module STC)                                                                                                                                        | 22500W                                       | 25500W       | 30000W       | 33000W       | 37500W       |
| Max. DC voltage                                                                                                                                                                   | 1100V                                        |              |              |              |              |
| Start Voltage                                                                                                                                                                     | 250V                                         |              |              |              |              |
| Nominal voltage                                                                                                                                                                   | 580V                                         |              |              |              |              |
| MPPT voltage range                                                                                                                                                                | 160V-1000V                                   |              |              |              |              |
| No. of MPP trackers                                                                                                                                                               | 2                                            |              |              |              |              |
| No. of PV strings per MPP tracker                                                                                                                                                 | 2                                            | 2            | 2            | 2            | 2/3          |
| Max. input current per MPPT tracker*                                                                                                                                              | 27A                                          | 27A          | 27A          | 27A          | 27A/40.5A    |
| Max. short circuit current per MPPT                                                                                                                                               | 33.8A                                        | 33.8A        | 33.8A        | 33.8A        | 33.8A/50.7A  |
| Output data (AC)                                                                                                                                                                  |                                              |              |              |              |              |
| Rated AC output power                                                                                                                                                             | 15000W                                       | 17000W       | 20000W       | 22000W       | 25000W       |
| Max. AC apparent power                                                                                                                                                            | 16600VA                                      | 18800VA      | 22000VA      | 24400VA      | 27700VA      |
| Nominal AC voltage(range*)                                                                                                                                                        | 220V/380V, 230V/400V (340-440V)              |              |              |              |              |
| AC grid frequency;(range*)                                                                                                                                                        | 50/60 Hz (45-55Hz/55-65 Hz)                  |              |              |              |              |
| Max. output current                                                                                                                                                               | 24.2A                                        | 27.4A        | 31.9A        | 35.5A        | 40.2A        |
| Adjustable power factor                                                                                                                                                           | 0.8leading...0.8lagging                      |              |              |              |              |
| THDi                                                                                                                                                                              | <3%                                          |              |              |              |              |
| AC grid connection type                                                                                                                                                           | 3W + N + PE                                  |              |              |              |              |
| Efficiency                                                                                                                                                                        |                                              |              |              |              |              |
| Max.efficiency                                                                                                                                                                    | 98.75%                                       |              |              |              |              |
| European efficiency                                                                                                                                                               | 98.6%                                        |              |              |              |              |
| MPPT efficiency                                                                                                                                                                   | 99.9%                                        |              |              |              |              |
| Protection devices                                                                                                                                                                |                                              |              |              |              |              |
| DC reverse polarity protection                                                                                                                                                    | Yes                                          |              |              |              |              |
| DC Switch                                                                                                                                                                         | Yes                                          |              |              |              |              |
| AC/DC surge protection                                                                                                                                                            | TypeII/Type II                               |              |              |              |              |
| Insulation resistance monitoring                                                                                                                                                  | Yes                                          |              |              |              |              |
| AC short-circuit protection                                                                                                                                                       | Yes                                          |              |              |              |              |
| Ground fault monitoring                                                                                                                                                           | Yes                                          |              |              |              |              |
| Grid monitoring                                                                                                                                                                   | Yes                                          |              |              |              |              |
| Anti-islanding protection                                                                                                                                                         | Yes                                          |              |              |              |              |
| Residual-current monitoring unit                                                                                                                                                  | Yes                                          |              |              |              |              |
| String monitoring                                                                                                                                                                 | Yes                                          |              |              |              |              |
| AFCI protection                                                                                                                                                                   | Optional                                     |              |              |              |              |
| General data                                                                                                                                                                      |                                              |              |              |              |              |
| Dimensions (W / H / D)                                                                                                                                                            | 525/395/222mm                                |              |              |              |              |
| Weight                                                                                                                                                                            | 23kg                                         |              |              |              |              |
| Operating temperature range                                                                                                                                                       | -25 °C ... +60 °C                            |              |              |              |              |
| Self-Consumption (night)                                                                                                                                                          | <1W                                          |              |              |              |              |
| Topology                                                                                                                                                                          | Transformerless                              |              |              |              |              |
| Cooling                                                                                                                                                                           | Smart air cooling                            |              |              |              |              |
| Protection degree                                                                                                                                                                 | IP65                                         |              |              |              |              |
| Relative Humidity                                                                                                                                                                 | 0~100%                                       |              |              |              |              |
| Altitude                                                                                                                                                                          | 4000m                                        |              |              |              |              |
| DC connection                                                                                                                                                                     | H4/MC4(Optional)                             |              |              |              |              |
| AC connection                                                                                                                                                                     | Cable gland+ OT terminal                     |              |              |              |              |
| Display                                                                                                                                                                           | OLED+LED/WIFI+APP                            |              |              |              |              |
| Interfaces: RS485 / USB / WIFI/ GPRS / RF/ LAN                                                                                                                                    | Yes/Yes /Optional/Optional/Optional/Optional |              |              |              |              |
| Warranty: 5 years / 10 years                                                                                                                                                      | Yes /Optional                                |              |              |              |              |
| CE, VDE0126, Greece, EN50549, C10/C11, UTE C 15-712, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, N4105, TOR Erzeuger, G98/G99, G100, UNE217001, UNE206007, PO12.2, KSC8565 |                                              |              |              |              |              |

\* The AC voltage range and frequency range may vary depending on specific country grid standard.All specifications are subject to change without notice.

\* Only the latest version with max. input current 13.5A per string, for details please contact Growatt.

# Zertifikat

# Certificate



Zertifikat Nr. *Certificate No.*  
R 50522915

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0001

Ihr Zeichen *Client Reference*  
168330510

Unser Zeichen *Our Reference*  
02--CN21VWR3 001

Ausstellungsdatum *Date of Issue*  
16.11.2021 (day/mo/yr)

## Genehmigungsinhaber *License Holder*

Shenzhen Growatt New Energy  
Co., Ltd.  
4-13/F, Building A,  
Sino-German(Europe) Industrial Park  
Hangcheng Ave,  
Bao'an District, Shenzhen, Guangdong  
P.R. China

## Fertigungsstätte *Manufacturing Plant*

Refer to latest revision  
of the annex list of factories

## Prüfzeichen *Test Mark*



## Geprüft nach *Tested acc. to*

EN 62109-1:2010  
EN 62109-2:2011  
IEC 62109-1:2010  
IEC 62109-2:2011

## Zertifiziertes Produkt (Geräteidentifikation) *Certified Product (Product Identification)*

## Lizenzentgelte - Einheit *License Fee - Unit*

### PV-Inverter (Hybrid Inverter)

Type Designation : MOD 3000TL3-XH, MOD 4000TL3-XH, MOD 5000TL3-XH, MOD 6000TL3-XH, MOD 7000TL3-XH, MOD 8000TL3-XH, MOD 9000TL3-XH, MOD 10KTL3-XH 17

Vmax PV [Vd.c.] : 1100

Isc PV [Ad.c.] : 20/20

MPP Voltage Range [Vd.c.] : 140-1000

Max. Input Current [Ad.c.] : 16/16

Battery Operating voltage Range [Vd.c.] : 600-950

Battery Operating Current Range [Ad.c.] : 11

Overvoltage Category (OVC) : II for DC Side

Rated Output Volt. [Va.c.] : 3W/N/PE, 230/400

Rated Output Freq. [Hz] : 50 / 60

Rated Output Power. [kW] : 3, 4, 5, 6, 7, 8, 9, 10

Max. Output Current. [Aa.c.] : 5, 6.7, 8.3, 10.0, 11.7, 13.3, 15.0, 16.7

Power Factor : [-0.80, 0.80]

Overvoltage Category (OVC) : III for AC mains

Continued on page 0002

### ANLAGE (Appendix) : 1.0

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.

This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg

<http://www.tuv.com/safety> E-mail: [markcheck@tuv.com](mailto:markcheck@tuv.com)  
Fax: +49 221 806-3935



A. Chen

# Zertifikat

# Certificate



Zertifikat Nr. *Certificate No.*  
R 50522915

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0002

| Ihr Zeichen <i>Client Reference</i> | Unser Zeichen <i>Our Reference</i> | Ausstellungsdatum <i>Date of Issue</i> |
|-------------------------------------|------------------------------------|----------------------------------------|
| 168330510                           | 02--CN21VWR3 001                   | 16.11.2021<br>(day/mo/yr)              |

## Genehmigungsinhaber *License Holder*

Shenzhen Growatt New Energy  
Co., Ltd.  
4-13/F, Building A,  
Sino-German(Europe) Industrial Park  
Hangcheng Ave,  
Bao'an District, Shenzhen, Guangdong  
P.R. China

## Fertigungsstätte *Manufacturing Plant*

Refer to latest revision  
of the annex list of factories

## Prüfzeichen *Test Mark*



## Geprüft nach *Tested acc. to*

EN 62109-1:2010  
EN 62109-2:2011  
IEC 62109-1:2010  
IEC 62109-2:2011

## Zertifiziertes Produkt (Geräteidentifikation) *Certified Product (Product Identification)*

## Lizenzentgelte - Einheit *License Fee - Unit*

PV-Inverter (Hybrid Inverter)

as page 0001 continuation

Protective Class : Class I  
Ingress Protection (IP) : IP66  
Pollution Degree (PD) : PD3  
Altitude[m] : ≤3000  
Operating Temperature [°C] : -30 to 60 (> 45 derating)  
Type of Inverter : Non-isolated

Remark(s): The installation has to be carried out according  
the attached installation instruction.  
Any additional requirements in countries where the product  
is going to be marketed have to be considered additionally.

ANLAGE (Appendix): 1.0

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität  
des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen  
in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich  
betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.  
This certificate is based on our Testing and Certification Regulation and states the conformity  
of the product with the standards and testing requirements as indicated above. Any additional  
requirements in countries where the product is going to be marketed have to be considered  
additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg

<http://www.tuv.com/safety> E-mail: [markcheck@tuv.com](mailto:markcheck@tuv.com)  
Fax: +49 221 806-3935



A. Chen

**Anlage Fertigungsstättenliste**  
**/Attachment List of Factories**



R 50522915 0001

- 1 Guangdong Growatt New Energy Co., Ltd.  
Growatt Industrial Park, No.17 Pingheng  
Road Pingtan Town, Huiyang District,  
Huizhou,  
P.R. China



Dieser Anhang ersetzt den Vorgänger vom/  
This annex replaces the previous annex dated

Datum / Date 16.11.2021



Zertifizierungsstelle  
/ Certification Body

A handwritten signature in blue ink, appearing to be "A. Chen", is written over a horizontal line.

A. Chen

Shenzhen Growatt New Energy Co.,  
Ltd.

Date : 16.11.2021  
Our ref. : 02  
Your ref.: 168330510

4-13/F, Building A,  
Sino-German(Europe) Industrial  
Park,  
Hangcheng Ave,  
Bao'an District, Shenzhen,

**Ref : R TÜV-Mark Approval**

Type of Equipment : Hybrid Inverter  
Model Designation : See Certificate  
Certificate No. : R 50522915 0001  
Report No. : CN21VWR3 001

Dear Ladies and Gentlemen,

The above specified equipment has been tested and found to be in  
accordance with the relevant requirements.

Please find enclosed your certificate as specified above.

If cancellation of the certificate is submitted by 15 November in a  
given year, no fee will be charged for the following year.

The certificate is issued with the reservation that the license holder  
applies all information required in § 6 of the ProdSG related to name  
and address of the manufacturer or his authorized representative /  
importer, including their respective contact addresses on the product  
prior to marketing of the product in the European Economic Area.

With kind regards,

Certification Body



A. Chen

Enclosure

证书的详细资料请登陆[www.certipedia.com](http://www.certipedia.com)查阅,或拨打我司客服热线800 999 3668 / 400 883 1300咨询

## CE Declaration of Conformity

In terms of the Guidelines of the European Community

- Electromagnetic Compliance Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- RoHS Directive 2011/65/EU and its amendment EU 2015/863

The devices stated below have been developed, constructed and manufactured according to the above mentioned directives. The applied harmonized standards are shown in the following list.

|                                     | Growatt      | Growatt            | Growatt          | Growatt      | Growatt       | Growatt        | Growatt         |
|-------------------------------------|--------------|--------------------|------------------|--------------|---------------|----------------|-----------------|
| <b>Growatt Product</b>              | MIC 600TL-X  | MIN 2500TL-X/XE/XH | MOD 3000TL3-X/XH | MID 15KTL3-X | MID 17KTL3-X1 | MAX 50KTL3 LV  | MAC 30KTL3-X LV |
|                                     | MIC 750TL-X  | MIN 3000TL-X/XE/XH | MOD 4000TL3-X/XH | MID 17KTL3-X | MID 20KTL3-X1 | MAX 60KTL3 LV  | MAC 40KTL3-X LV |
|                                     | MIC 1000TL-X | MIN 3600TL-X/XE/XH | MOD 5000TL3-X/XH | MID 20KTL3-X | MID 22KTL3-X1 | MAX 70KTL3 LV  | MAC 50KTL3-X LV |
|                                     | MIC 1500TL-X | MIN 4200TL-X/XE/XH | MOD 6000TL3-X/XH | MID 25KTL3-X | MID 25KTL3-X1 | MAX 80KTL3 LV  | MAC 60KTL3-X LV |
|                                     | MIC 2000TL-X | MIN 4600TL-X/XE/XH | MOD 7000TL3-X/XH |              | MID 30KTL3-X  | MAX 60KTL3 MV  | MAC 50KTL3-X MV |
|                                     | MIC 2500TL-X | MIN 5000TL-X/XE/XH | MOD 8000TL3-X/XH |              | MID 33KTL3-X  | MAX 70KTL3 MV  | MAC 60KTL3-X MV |
|                                     | MIC 3000TL-X | MIN 6000TL-X/XE/XH | MOD 9000TL3-X/XH |              | MID 40KTL3-X  | MAX 80KTL3 MV  | MAC 70KTL3-X MV |
|                                     | MIC 3300TL-X |                    | MOD 10KTL3-X/XH  |              |               | MAX 90KTL3 MV  |                 |
| <b>EMC directive<br/>2014/30/EU</b> |              |                    | MOD 11KTL3-X     |              |               | MAX 100KTL3 MV |                 |
|                                     |              |                    | MOD 12KTL3-X     |              |               |                |                 |
|                                     |              |                    | MOD 13KTL3-X     |              |               |                |                 |
|                                     |              |                    | MOD 15KTL3-X     |              |               |                |                 |
| EN 61000-6-1: 2007                  | √            | √                  | √                | √            |               |                |                 |
| EN 61000-6-2: 2005                  | √            | √                  | √                | √            | √             | √              | √               |
| EN 61000-6-3:<br>2007+A1: 2011      | √            | √                  | √                | √            | √             |                | √               |
| EN 61000-6-4:                       | √            | √                  | √                | √            |               | √              |                 |

|                                     |   |   |   |   |                                                                                     |   |   |
|-------------------------------------|---|---|---|---|-------------------------------------------------------------------------------------|---|---|
| 2007+A1:2011                        |   |   |   |   |                                                                                     |   |   |
| EN 61000-3-11: 2000                 |   |   |   |   | √                                                                                   |   | √ |
| EN 61000-3-12: 2011                 |   |   |   |   | √                                                                                   |   | √ |
| <b>LVD directive<br/>2014/35/EU</b> |   |   |   |   |                                                                                     |   |   |
| EN 62109-1: 2010                    | √ | √ | √ | √ | √                                                                                   | √ | √ |
| EN 62109-2: 2011                    | √ | √ | √ | √ | √                                                                                   | √ | √ |
|                                     |   |   |   |   |  |   |   |

#### Information:

This declaration of conformity is not valid any longer, unless there is an explicit written confirmation by Growatt

Shenzhen, 15.12.2021

Shenzhen Growatt New Energy Co., Ltd

- If the product is modified, supplemented or changed in any other way,
- Components, which are not part of the Growatt accessories kit, are integrated in the product, as well as in case the product is used or installed improperly.

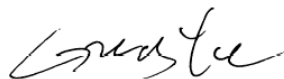
# Certificate of Conformity

Certificate Number: CN-PV-200078

On the basis of the tests undertaken, the samples of the below product have been found to comply with the requirements of the referenced specifications /standards at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture. The manufacturer shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

|                                                       |                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>                                     | Shenzhen Growatt New Energy Technology CO.,Ltd<br>1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park, #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan District, Shenzhen, P. R. China                                                                                         |
| <b>Product:</b>                                       | PV Grid inverter                                                                                                                                                                                                                                                                                              |
| <b>Ratings &amp; Principle Characteristics:</b>       | See Appendix to Certificate of Conformity                                                                                                                                                                                                                                                                     |
| <b>Models:</b>                                        | MID 10KTL3-X, MID 12KTL3-X, MID 15KTL3-X, MID 17KTL3-X, MID 20KTL3-X,<br>MID 22KTL3-X, MID 25KTL3-X                                                                                                                                                                                                           |
| <b>Brand Name:</b>                                    | Growatt                                                                                                                                                                                                                                                                                                       |
| <b>Tested according to:</b>                           | EN 50549-1: February 2019<br>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<br>Compliant with COMMISSION REGULATION(EU)2016/631(NC RfG)<br>Type approval for type B |
| <b>Certificate Issuing Office Name &amp; Address:</b> | Intertek Testing Services Ltd. Shanghai<br>2/F (West Side), No. 707, Zhangyang Road, Free Trade Experimental Area, Shanghai, P. R. China                                                                                                                                                                      |
| <b>Test Reports No:</b>                               | 190416198GZU-001, Revision 1: 14 Jul 2020                                                                                                                                                                                                                                                                     |

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 17 July 2020

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

## APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-200078

### Ratings & Principle Characteristics:

Maximum d.c. input voltage: 1100 Vdc  
Input voltage range: 160-1000Vdc  
MPPT voltage range (full Load): 280-850 V (for MID 10KTL3-X, MID 12KTL3-X);  
420-850 V (for MID 15KTL3-X); 480-850 V (for MID 17KTL3-X, MID 20KTL3-X);  
520-850 V (for MID 22KTL3-X, MID 25KTL3-X);  
Max. input current: 2×25A (for the models except MID 25KTL3-X),  
25/37.5A (for MID 25KTL3-X)  
PV Isc: 2×32A (for the models except MID 25KTL3-X), 32/48A (for MID 25KTL3-X)  
Nominal output voltage: 3W/N/PE 230V/400Vac  
Max. output current: 16.1A (for MID 10KTL3-X); 19.3A (for MID 12KTL3-X);  
24.2A (for MID 15KTL3-X); 27.4A (for MID 17KTL3-X); 31.9 A (for MID 20KTL3-X);  
35.5A (for MID 22KTL3-X); 40.2 A (for MID 25KTL3-X)  
Nominal frequency: 50/60 Hz  
Max. output power: 10000W (for MID 10KTL3-X); 12000W (for MID 12KTL3-X);  
15000W (for MID 15KTL3-X); 17000W (for MID 17KTL3-X); 20000W (for MID 20KTL3-X);  
22000W (for MID 22KTL3-X); 25000W (for MID 25KTL3-X)  
Max. apparent power: 11100VA (for MID 10KTL3-X); 13300VA (for MID 12KTL3-X);  
16600VA (for MID 15KTL3-X); 18800VA (for MID 17KTL3-X); 22000VA (for MID 20KTL3-X);  
24400VA (for MID 22KTL3-X); 27700VA (for MID 25KTL3-X)  
Power factor range: 0.8leading ~ 0.8lagging  
Safety level: Class I  
Ingress protection: IP65  
Operating temperature range: -25 ~ +60°C  
Software Version: TJ1.0

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

## EU Declaration of Conformity

We, the manufacture:

**Shenzhen Growatt New Energy Co., Ltd**  
4-13/F, Building A, Sino-German(Europe) Industrial Park,  
Hangcheng, Ave, Bao'an District, Shenzhen, China

Hereby to declare under our sole responsibility that the products list below comply with the following EU directives and regulations:

- **2014/35/EU Low Voltage Directive (LVD)**
- **2014/30/EU Electromagnetic Compatibility (EMC) Directive**
- **RoHS Directive 201 1/65/EU and its subsequent amendments & Directive (EU) 2015/863**

The following standards were applied for the products in accordance with the mentioned directives.

| Product      | Solar Inverter                                                                                                                                                                                                                              |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model</b> | MOD 3000TL3-XH, MOD 4000TL3-XH,<br>MOD 5000TL3-XH, MOD 6000TL3-XH,<br>MOD 7000TL3-XH, MOD 8000TL3-XH,<br>MOD 9000TL3-XH, MOD 10KTL3-XH,                                                                                                     |
| <b>EMC</b>   | EN IEC 61000-6-1:2019, EN IEC 61000-6-2:2019,<br>EN 61000-6-3:2007+A1:2011, IEC 61000-6-3:2011<br>EN 61000-6-4:2007+A1:2011, IEC 61000-6-4:2018<br>EN 61000-3-2:2014, EN 61000-3-3:2013,<br>EN 62920:2017, IEC 62920:2017,<br>EN 55011:2016 |
| <b>LVD</b>   | EN 62109-1:2010, IEC 62109-1:2010<br>EN 62109-2:2011, IEC 62109-2:2011                                                                                                                                                                      |

Documentation evidencing conformity with the above the directives and standards is available for inspection.  
This declaration becomes invalid if any change is made to the unit or the unit is improperly installed.



CE Marking Date: 2023-4-10

Shenzhen Growatt New Energy Co., Ltd

*Zhu peng*

Zhu Peng (Signature)

Regulation Compliance Manager



**CCIC Southern Testing Co., Ltd.**

## ***Attestation Of Conformity***

**CERTIFICATE NO.: SET2020-00162**

**Product:** PV Grid Inverter

**Model:** MID 25KTL3-X

**Applicant:** Shenzhen Growatt New Energy Technology Co., LTD

**Address:** 1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park, #28,  
GuangHui Road, LongTeng Community, Shiyan Street, Baoan District,  
Shenzhen, P.R.China

This is to certify that, on the basis of the tests undertaken as per Report No.  
**SET2019-17174**, the submitted sample of the above item complies with:

EN 61000-6-2:2005  
EN 61000-6-3:2007+A1:2011

and fulfils testing requirement of the EMC directive 2014/30/EU



Note: The model MID 10KTL3-X/ MID 12KTL3-X/ MID 15KTL3-X/ MID 17KTL3-X/ MID 20KTL3-X/  
MID 22KTL3-X/ MID 25KTL3-X the difference as below: same appearance and structure, the  
control circuits and power circuit have same schemem, different only in electrical rating  
and voltage sampling circuit.

Signed for and on behalf of

**CCIC Southern Testing Co., Ltd.**

*Zhao Yan Ni*

Date of Issue: Jan. 07, 2020

Zhao Yan Ni, Vice Director

**CCIC Southern Testing Co., Ltd.**

Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District,

Shenzhen, 518055, P. R. China

Tel:86-0755-26627338 Fax:86-0755-26627238 <http://www.ccic-set.com>

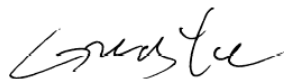
# Certificate of Conformity

Certificate Number: CN-PV-200078

On the basis of the tests undertaken, the samples of the below product have been found to comply with the requirements of the referenced specifications /standards at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture. The manufacturer shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

|                                                       |                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>                                     | Shenzhen Growatt New Energy Technology CO.,Ltd<br>1st East & 3rd Floor of Building A, Building B, Jiayu Industrial Park, #28, GuangHui Road, LongTeng Community, Shiyan Street, Baoan District, Shenzhen, P. R. China                                                                                         |
| <b>Product:</b>                                       | PV Grid inverter                                                                                                                                                                                                                                                                                              |
| <b>Ratings &amp; Principle Characteristics:</b>       | See Appendix to Certificate of Conformity                                                                                                                                                                                                                                                                     |
| <b>Models:</b>                                        | MID 10KTL3-X, MID 12KTL3-X, MID 15KTL3-X, MID 17KTL3-X, MID 20KTL3-X,<br>MID 22KTL3-X, MID 25KTL3-X                                                                                                                                                                                                           |
| <b>Brand Name:</b>                                    | Growatt                                                                                                                                                                                                                                                                                                       |
| <b>Tested according to:</b>                           | EN 50549-1: February 2019<br>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<br>Compliant with COMMISSION REGULATION(EU)2016/631(NC RfG)<br>Type approval for type B |
| <b>Certificate Issuing Office Name &amp; Address:</b> | Intertek Testing Services Ltd. Shanghai<br>2/F (West Side), No. 707, Zhangyang Road, Free Trade Experimental Area, Shanghai, P. R. China                                                                                                                                                                      |
| <b>Test Reports No:</b>                               | 190416198GZU-001, Revision 1: 14 Jul 2020                                                                                                                                                                                                                                                                     |

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 17 July 2020

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

## APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-200078

### Ratings & Principle Characteristics:

Maximum d.c. input voltage: 1100 Vdc  
Input voltage range: 160-1000Vdc  
MPPT voltage range (full Load): 280-850 V (for MID 10KTL3-X, MID 12KTL3-X);  
420-850 V (for MID 15KTL3-X); 480-850 V (for MID 17KTL3-X, MID 20KTL3-X);  
520-850 V (for MID 22KTL3-X, MID 25KTL3-X);  
Max. input current: 2×25A (for the models except MID 25KTL3-X),  
25/37.5A (for MID 25KTL3-X)  
PV Isc: 2×32A (for the models except MID 25KTL3-X), 32/48A (for MID 25KTL3-X)  
Nominal output voltage: 3W/N/PE 230V/400Vac  
Max. output current: 16.1A (for MID 10KTL3-X); 19.3A (for MID 12KTL3-X);  
24.2A (for MID 15KTL3-X); 27.4A (for MID 17KTL3-X); 31.9 A (for MID 20KTL3-X);  
35.5A (for MID 22KTL3-X); 40.2 A (for MID 25KTL3-X)  
Nominal frequency: 50/60 Hz  
Max. output power: 10000W (for MID 10KTL3-X); 12000W (for MID 12KTL3-X);  
15000W (for MID 15KTL3-X); 17000W (for MID 17KTL3-X); 20000W (for MID 20KTL3-X);  
22000W (for MID 22KTL3-X); 25000W (for MID 25KTL3-X)  
Max. apparent power: 11100VA (for MID 10KTL3-X); 13300VA (for MID 12KTL3-X);  
16600VA (for MID 15KTL3-X); 18800VA (for MID 17KTL3-X); 22000VA (for MID 20KTL3-X);  
24400VA (for MID 22KTL3-X); 27700VA (for MID 25KTL3-X)  
Power factor range: 0.8leading ~ 0.8lagging  
Safety level: Class I  
Ingress protection: IP65  
Operating temperature range: -25 ~ +60°C  
Software Version: TJ1.0

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中国认可  
国际互认  
检测  
TESTING  
CNAS L2291



# Certificate of Conformity

NO.: ES210415023P

The following product has been tested by us with the listed standards and found in conformity with the council LVD directive 2014/35/EU & EMC directive 2014/30/EU. It is possible to use CE marking to demonstrate the conformity with this LVD Directive & EMC directive.

Applicant : Shenzhen Growatt New Energy Co., Ltd.

Address : 2F and 3F, Building 4, Jiayu Company Industrial Park, Xibianling, Shangyu Village, Shiyuan Street, Bao'an District, Shenzhen

Manufacturer : Shenzhen Growatt New Energy Co., Ltd.

Address : 2F and 3F, Building 4, Jiayu Company Industrial Park, Xibianling, Shangyu Village, Shiyuan Street, Bao'an District, Shenzhen

Trade Mark : 

EUT : AC series of charging piles

M/N : THOR 03AS-P, THOR 03AS-S  
THOR 07AS-P, THOR 07AS-S  
THOR 11AS-P, THOR 11AS-S  
THOR 22AS-P, THOR 22AS-S

Technical Data : Refer to test report

Test report : ES210415023P , ES210415023E

Test Standards : EN IEC 61851-1:2019  
EN 61000-6-3:2007+A1:2011+AC:2012  
EN 61000-6-1:2007

Version : Ver.1.0



David Lee  
Technical Manager  
April 16, 2021

The certificate is based on a single evaluation of one sample of above-mentioned products, It does not imply an assessment of the whole production and does not permit the use of the test lab. logo.

EMTEK (Shenzhen) Co., Ltd.

Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China [Http://www.emtek.com.cn](http://www.emtek.com.cn) E-mail: [cs.rep@emtek.com.cn](mailto:cs.rep@emtek.com.cn)

# MID 15~25KTL3-X

- Max. efficiency 98.75%
- Dual MPP trackers
- Supports export control
- Touch key and OLED display
- Type II SPD on AC and DC side



**G**ROWATT

P O W E R  
- I N G O  
T O M O -  
R R O W O

[www.ginverter.com](http://www.ginverter.com)

| Datasheet                                                                                                                                                                         | MID 15KTL3-X                                 | MID 17KTL3-X | MID 20KTL3-X | MID 22KTL3-X | MID 25KTL3-X |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|--------------|--------------|--------------|--------------|
| Input data (DC)                                                                                                                                                                   |                                              |              |              |              |              |
| Max. recommended PV power (for module STC)                                                                                                                                        | 22500W                                       | 25500W       | 30000W       | 33000W       | 37500W       |
| Max. DC voltage                                                                                                                                                                   | 1100V                                        |              |              |              |              |
| Start Voltage                                                                                                                                                                     | 250V                                         |              |              |              |              |
| Nominal voltage                                                                                                                                                                   | 580V                                         |              |              |              |              |
| MPPT voltage range                                                                                                                                                                | 160V-1000V                                   |              |              |              |              |
| No. of MPP trackers                                                                                                                                                               | 2                                            |              |              |              |              |
| No. of PV strings per MPP tracker                                                                                                                                                 | 2                                            | 2            | 2            | 2            | 2/3          |
| Max. input current per MPPT tracker*                                                                                                                                              | 27A                                          | 27A          | 27A          | 27A          | 27A/40,5A    |
| Max. short circuit current per MPPT                                                                                                                                               | 33,8A                                        | 33,8A        | 33,8A        | 33,8A        | 33,8A/50,7A  |
| Output data (AC)                                                                                                                                                                  |                                              |              |              |              |              |
| Rated AC output power                                                                                                                                                             | 15000W                                       | 17000W       | 20000W       | 22000W       | 25000W       |
| Max. AC apparent power                                                                                                                                                            | 16600VA                                      | 18800VA      | 22000VA      | 24400VA      | 27700VA      |
| Nominal AC voltage(range*)                                                                                                                                                        | 220V/380V, 230V/400V (340-440V)              |              |              |              |              |
| AC grid frequency(range*)                                                                                                                                                         | 50/60 Hz (45-55Hz/55-65 Hz)                  |              |              |              |              |
| Max. output current                                                                                                                                                               | 24,2A                                        | 27,4A        | 31,9A        | 35,5A        | 40,2A        |
| Adjustable power factor                                                                                                                                                           | 0.8leading...0.8lagging                      |              |              |              |              |
| THDI                                                                                                                                                                              | <3%                                          |              |              |              |              |
| AC grid connection type                                                                                                                                                           | 3W+N+PE                                      |              |              |              |              |
| Efficiency                                                                                                                                                                        |                                              |              |              |              |              |
| Max.efficiency                                                                                                                                                                    | 98,75%                                       |              |              |              |              |
| European efficiency                                                                                                                                                               | 98,6%                                        |              |              |              |              |
| MPPT efficiency                                                                                                                                                                   | 99,9%                                        |              |              |              |              |
| Protection devices                                                                                                                                                                |                                              |              |              |              |              |
| DC reverse polarity protection                                                                                                                                                    | Yes                                          |              |              |              |              |
| DC Switch                                                                                                                                                                         | Yes                                          |              |              |              |              |
| AC/DC surge protection                                                                                                                                                            | TypeII/Type II                               |              |              |              |              |
| Insulation resistance monitoring                                                                                                                                                  | Yes                                          |              |              |              |              |
| AC short-circuit protection                                                                                                                                                       | Yes                                          |              |              |              |              |
| Ground fault monitoring                                                                                                                                                           | Yes                                          |              |              |              |              |
| Grid monitoring                                                                                                                                                                   | Yes                                          |              |              |              |              |
| Anti-islanding protection                                                                                                                                                         | Yes                                          |              |              |              |              |
| Residual-current monitoring unit                                                                                                                                                  | Yes                                          |              |              |              |              |
| String monitoring                                                                                                                                                                 | Yes                                          |              |              |              |              |
| AFCI protection                                                                                                                                                                   | Optional                                     |              |              |              |              |
| General data                                                                                                                                                                      |                                              |              |              |              |              |
| Dimensions (W / H / D)                                                                                                                                                            | 525/395/222mm                                |              |              |              |              |
| Weight                                                                                                                                                                            | 23kg                                         |              |              |              |              |
| Operating temperature range                                                                                                                                                       | -25 °C ... +60 °C                            |              |              |              |              |
| Self-Consumption (night)                                                                                                                                                          | < 1W                                         |              |              |              |              |
| Topology                                                                                                                                                                          | Transformerless                              |              |              |              |              |
| Cooling                                                                                                                                                                           | Smart air cooling                            |              |              |              |              |
| Protection degree                                                                                                                                                                 | IP65                                         |              |              |              |              |
| Relative Humidity                                                                                                                                                                 | 0~100%                                       |              |              |              |              |
| Altitude                                                                                                                                                                          | 4000m                                        |              |              |              |              |
| DC connection                                                                                                                                                                     | H4/MC4(Optional)                             |              |              |              |              |
| AC connection                                                                                                                                                                     | Cable gland+OT terminal                      |              |              |              |              |
| Display                                                                                                                                                                           | OLED+LED/WIFI+APP                            |              |              |              |              |
| Interfaces: RS485 / USB / WIFI/ GPRS / RF/ LAN                                                                                                                                    | Yes/Yes /Optional/Optional/Optional/Optional |              |              |              |              |
| Warranty: 5 years / 10 years                                                                                                                                                      | Yes /Optional                                |              |              |              |              |
| CE, VDE0126, Greece, EN50549, C10/C11, UTE C 15-712, IEC62116, IEC61727, IEC 60068, IEC 61683, CEI0-21, N4105, TOR Erzeuger, G98/G99, G100, UNE217001, UNE206007, PO12.2, KSC8565 |                                              |              |              |              |              |

\* The AC voltage range and frequency range may vary depending on specific country grid standard. All specifications are subject to change without notice.

\* Only the latest version with max. input current 13.5A per string, for details please contact Growatt.

# Certificate of The Network and System Protection Zertifikat für den Netz- und Anlagenschutz

Certificate No. (Zertifikats-Nr.): CN-PV-210284

On the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specification(s)/standard(s) at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture(s). The manufacturer(s) shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

Anhand der durchgeführten Tests wurde festgestellt, dass die Probe (n) des nachstehenden Produkts zum Zeitpunkt der Durchführung der Tests den Anforderungen der angegebenen Spezifikation (n) / Norm (en) entsprachen. Dies bedeutet nicht, dass Intertek die Herstellung (en) überwacht oder kontrolliert hat. Der Hersteller stellt sicher, dass der Herstellungsprozess die Übereinstimmung der Produktionseinheiten mit den in diesem Zertifikat genannten geprüften Produkten sicherstellt.

**Applicant:**  
(Antragsteller)

**Shenzhen Growatt New Energy Co., Ltd**  
**4-13/F, Building A, Sino-German (Europe) Industrial Park, Hangcheng Ave, Bao'an District, Shenzhen, China**

**Type of NS protection:**  
(Typ NA-Schutz)

**Integrierter NA-Schutz**

**Assigned to power generation unit of type:**  
(Zugeordnet zu Erzeugungseinheit Typ)

**MOD 3000TL3-X, MOD 4000TL3-X, MOD 5000TL3-X, MOD 6000TL3-X, MOD 7000TL3-X, MOD 8000TL3-X, MOD 9000TL3-X, MOD 10KTL3-X, MOD 11KTL3-X, MOD 12KTL3-X, MOD 13KTL3-X, MOD 15KTL3-X, MOD 3000TL3-XH, MOD 4000TL3-XH, MOD 5000TL3-XH, MOD 6000TL3-XH, MOD 7000TL3-XH, MOD 8000TL3-XH, MOD 9000TL3-XH, MOD 10KTL3-XH**  
**DL 1.0**

**Firmware version:**  
(Firmwareversion)

**Brandname:**  
(Markenname)

**Growatt**

**Network connection rule:**  
(Netzanschlussregel)

**VDE-AR-N 4105:2018-11 "Erzeugungsanlagen am Niederspannungsnetz"**  
Technische Mindestanforderungen für Anschluss und Parallelbetrieb von Erzeugungsanlagen am Niederspannungsnetz

**DIN VDE V 0124-100 (VDE V 0124-100):2020-06 "Netzintegration von Erzeugungsanlagen – Niederspannung"**

Prüfanforderungen an Erzeugungseinheiten vorgesehen zum Anschluss und Parallelbetrieb am Niederspannungsnetz

**Test Report No.:**  
(Prüfbericht-Nr.)

**200427173GZU-001, Revision 1: 29 Nov 2021**

**Certificate Issuing Office:**  
(Stelle des ausgestellten Zertifikats)

**Intertek Testing Services Ltd. Shanghai**  
**West Area, 2<sup>nd</sup> Floor, No. 707, Zhangyang Road**  
**China (Shanghai) Pilot Free Trade Zone, Shanghai, P. R. China**

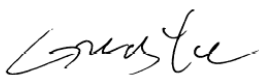
Accredited by China National Accreditation Service for Conformity Assessment (CNAS C058-P) in accordance with ISO/IEC 17065:2012

Certification procedure: SMS-PV-OP-19

Product certification scheme type: Type test

The network and system protection designated above meets the requirements of VDE-AR-N 4105: 2018.

Der oben bezeichnete Netz- und Anlagenschutz erfüllt die Anforderungen der VDE-AR-N 4105: 2018.



**Signature: (Unterschrift)**

**Certification Manager: Grady Ye**

**Date (Datum): 02 Dec. 2021**



中国认可  
国际互认  
产品  
**PRODUCT**  
**CNAS C058-P**

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# APPENDIX (ANHANG)

Annex to Certificate No. (Anhang zur Zertifikatsnummer): CN-PV-210284

E.7 of (von) VDE-AR-N 4105:2018-11

Requirements for the test report for the NS protection (Anforderungen an den Prüfbericht zum NA-Schutz)

|                                                                                                                                                                                    |                                                                                                                                                                                              |                                 |                                                                 |                                                                                                                                                         |                                 |                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------|
| Extract of the test report for NS protection (Auszug aus dem Prüfbericht für den NA-Schutz) “Determination of electrical properties” („Bestimmung der elektrischen Eigenschaften“) |                                                                                                                                                                                              |                                 |                                                                 | No. (Nr.): YYYY – nnnn<br>(consecutive no. (laufende Nr.))                                                                                              |                                 |                                                                    |
| Test report NS protection (Prüfbericht NA-Schutz)                                                                                                                                  |                                                                                                                                                                                              |                                 |                                                                 |                                                                                                                                                         |                                 |                                                                    |
| Type of NS Protection:<br>(Typ NA-Schutz)                                                                                                                                          | Integrierter NA-Schutz                                                                                                                                                                       |                                 |                                                                 | Further manufacturer indications<br>(weitere Herstellerangaben)                                                                                         |                                 |                                                                    |
| Software Version:                                                                                                                                                                  | DL 1.0                                                                                                                                                                                       |                                 |                                                                 |                                                                                                                                                         |                                 |                                                                    |
| Manufacturer:<br>(Hersteller)                                                                                                                                                      | Shenzhen Growatt New Energy Co., Ltd<br>4-13/F, Building A, Sino-German (Europe)<br>Industrial Park, Hangcheng Ave, Bao’an District, Shenzhen, China.                                        |                                 |                                                                 |                                                                                                                                                         |                                 |                                                                    |
| Measurement Period:<br>(Messzeitraum)                                                                                                                                              | 2020-04-27 bis 2020-11-03                                                                                                                                                                    |                                 |                                                                 |                                                                                                                                                         |                                 |                                                                    |
|                                                                                                                                                                                    | Stirling generators, fuel cells<br>(Stirlinggeneratoren, Brennstoffzellen)                                                                                                                   |                                 |                                                                 | Inverter(s)<br>(Umrichter)                                                                                                                              |                                 |                                                                    |
|                                                                                                                                                                                    | Synchronous and asynchronous generators with<br>Pn ≤ 50 kW coupled directly or via inverters<br>(direkt oder über Umrichter gekoppelte Synchron-<br>und Asynchrongeneratoren mit Pn ≤ 50 kW) |                                 |                                                                 | Directly coupled synchronous and<br>asynchronous generators with Pn > 50 kW<br>(direkt gekoppelte Synchron- und<br>Asynchrongeneratoren mit Pn > 50 kW) |                                 |                                                                    |
| Protective function<br>(Schutzfunktion)                                                                                                                                            | Set value<br>(Einstellwert<br>t)                                                                                                                                                             | Tripping value<br>(Auslösewert) | Tripping time NS<br>protection *<br>(Auslösezeit<br>NA-Schutz*) | Set value<br>(Einstellwert<br>t)                                                                                                                        | Tripping value<br>(Auslösewert) | Tripping<br>time NS<br>protection *<br>(Auslösezeit<br>NA-Schutz*) |
| Rise-in-voltage protection<br>(Spannungssteigerungsschutz<br>) U >>                                                                                                                | --                                                                                                                                                                                           | --                              | --                                                              | 1,25 * Un                                                                                                                                               | 1.257* Un                       | 67.38ms                                                            |
| Rise-in-voltage protection<br>(Spannungssteigerungsschutz<br>) U >                                                                                                                 | --                                                                                                                                                                                           | --                              | --                                                              | 1,10 * Un                                                                                                                                               | 1.10* Un                        | 482s                                                               |
| Voltage drop protection<br>(Spannungsrückgangsschutz)<br>U <                                                                                                                       | --                                                                                                                                                                                           | --                              | --                                                              | 0,8 * Un                                                                                                                                                | 0.798* Un                       | 3.04s                                                              |
| Voltage drop protection<br>(Spannungsrückgangsschutz)<br>U <<                                                                                                                      | --                                                                                                                                                                                           |                                 |                                                                 | 0,45* Un                                                                                                                                                | 0.446* Un                       | 337.8ms                                                            |
| Frequency decrease<br>protection<br>(Frequenzrückgangsschutz)<br>f <                                                                                                               | --                                                                                                                                                                                           | --                              | --                                                              | 47,5 Hz                                                                                                                                                 | 47.51Hz                         | 32.73ms                                                            |
| Frequency increase<br>protection<br>(Frequenzsteigerungsschutz)<br>f >                                                                                                             | --                                                                                                                                                                                           | --                              | --                                                              | 51,5 Hz                                                                                                                                                 | 51.46Hz                         | 32.48ms                                                            |

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## APPENDIX (ANHANG)

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- \* The tripping time includes the period from the limit value violation U/f until the tripping signal to the interface switch.
- \* Die Auslösezeit umfasst den Zeitraum von der Grenzwertverletzung U/f bis zum Auslösesignal an den Kuppelschalter.

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.

Bei der Planung der Erzeugungsanlage ist die Eigenzeit des Kuppelschalters zum höchsten oben ermittelten Zeitwert zu addieren.

Die Abschaltzeit (Summe der Auslösezeit NA-Schutz zzgl. Eigenzeit des Kuppelschalters) darf 200 ms nicht überschreiten.

☒ **For integrated NS protection (Bei integriertem NA-Schutz)**

|                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Assigned to power generation unit of type<br>zugeordnet zu Erzeugungseinheit Typ                                                                                                                                                                                    | MOD 3000TL3-X, MOD 4000TL3-X, MOD 5000TL3-X,<br>MOD 6000TL3-X, MOD 7000TL3-X, MOD 8000TL3-X,<br>MOD 9000TL3-X, MOD 10KTL3-X, MOD 11KTL3-X,<br>MOD 12KTL3-X, MOD 13KTL3-X, MOD 15KTL3-X,<br>MOD 3000TL3-XH, MOD 4000TL3-XH,<br>MOD 5000TL3-XH, MOD 6000TL3-XH,<br>MOD 7000TL3-XH, MOD 8000TL3-XH,<br>MOD 9000TL3-XH, MOD 10KTL3-XH |
| Type integrated interface switch<br>Typ integrierter Kuppelschalter                                                                                                                                                                                                 | Typ Schalteinrichtung 1: HF161F-W<br>Typ Schalteinrichtung 2: CHFN-V-112HA2<br>Typ Schalteinrichtung 2: ALFG2PF12                                                                                                                                                                                                                 |
| Response time of interface switch for integrated NS protection<br>Eigenzeit des Kuppelschalters bei integriertem NA-Schutz                                                                                                                                          | 20ms                                                                                                                                                                                                                                                                                                                              |
| Verification of the entire functional chain "integrated NS protection – interface switch" has resulted in successful disconnection.<br>Die Überprüfung der Gesamtwirkungskette „integrierter NA-Schutz – Kuppelschalter“ führte zu einer erfolgreichen Abschaltung. |                                                                                                                                                                                                                                                                                                                                   |

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