





Growatt New Energy Technology Co., Ltd

best solar solution



Contents

01.Introduction

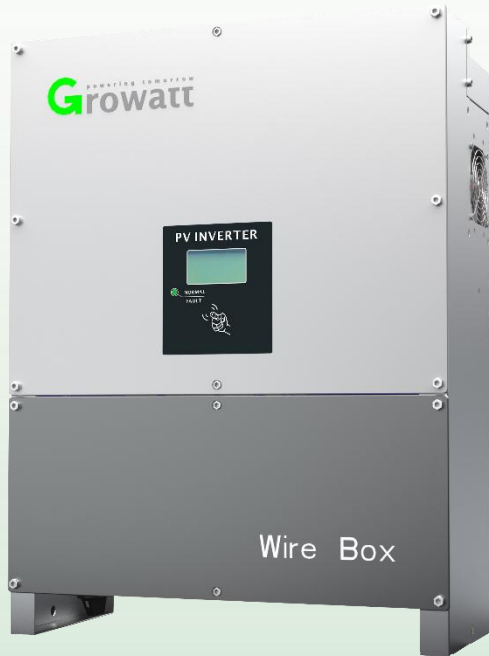
02.Application

03.Specification

04.Protection

05.Modular function

Growatt 10000/12000/18000/20000TL3-US



Leading-edge Technology

- High efficiency of 97.5% delivery more energy
- Dual independent MPP tracking lead to optimal energy harvesting
- Internal DC switch
- Consistent and stable performance across entire input voltage and output power range
- True three-phase transformerless GT topology
- Bluetooth/RF technology/Zigbee/Wi-fi
- Comprehensive protection for IGBTs, overvoltage, islanding, short-circuit, overload, overheat, etc
- Flexible system design with safety fuse module and lightning proof module
- Sound control
- Easy installation

High efficiency and yielding

- 96.5% CEC efficiency, 97.5% maximum efficiency
- Flat output power curve ensure full power operation in high-temp condition
- Dual MPP tracker enable the high reliability of maximum power point
- Easy installation and maintenance reduce the investment

High reliability and stable

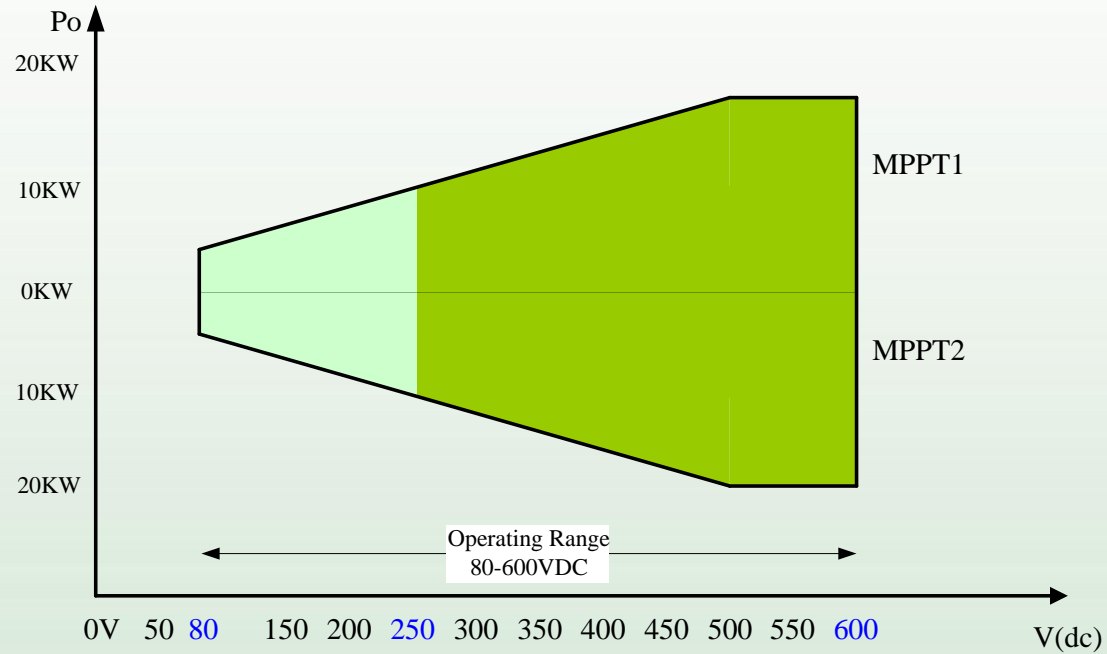
- Comprehensive detecting and protecting solution. Including over-voltage, islanding, short-circuit, overload, overheat and IGBT protection
- Advanced topology and high-quality components could extend the leading technology and operating life longer
- NEMA 3R protection support outdoor installation

Flexible, safe, best ROI

- Integrated combiner box and multi fuse-protection strings
- Optional SPD module and lightning proof module
- Big LCD display for checking information
- AC source supply enable to do monitoring and updating anytime
- Full range monitoring and remote communication RS485(RJ45 and BCH), Wi-Fi, Zigbee
- Optional AFCI module meet the new requirement of NEC

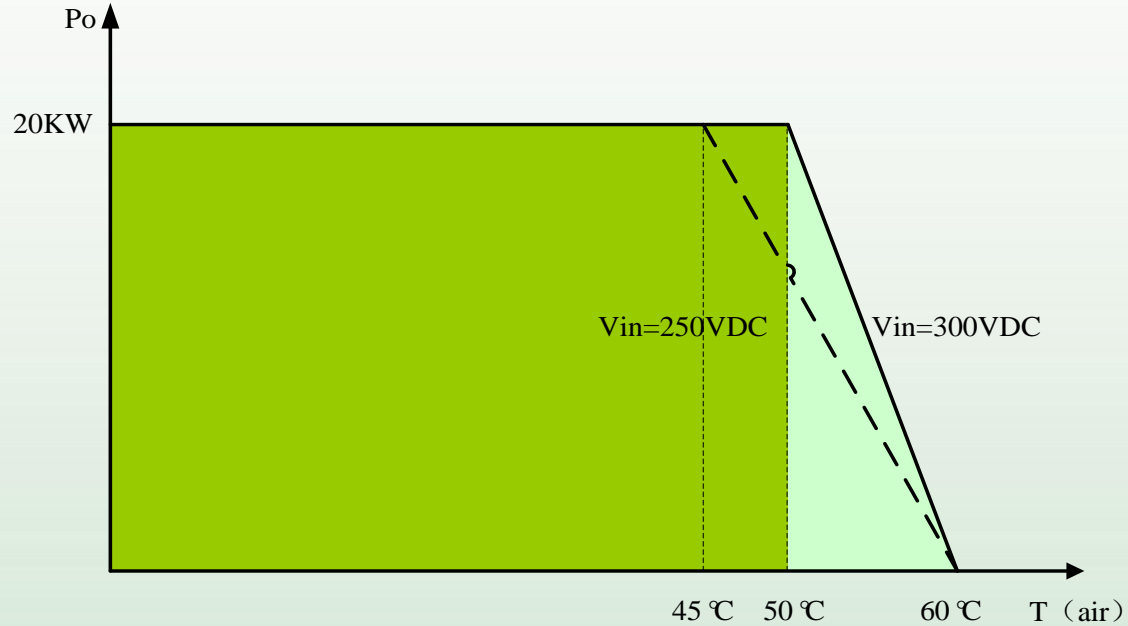
Introduction

- Wide input range



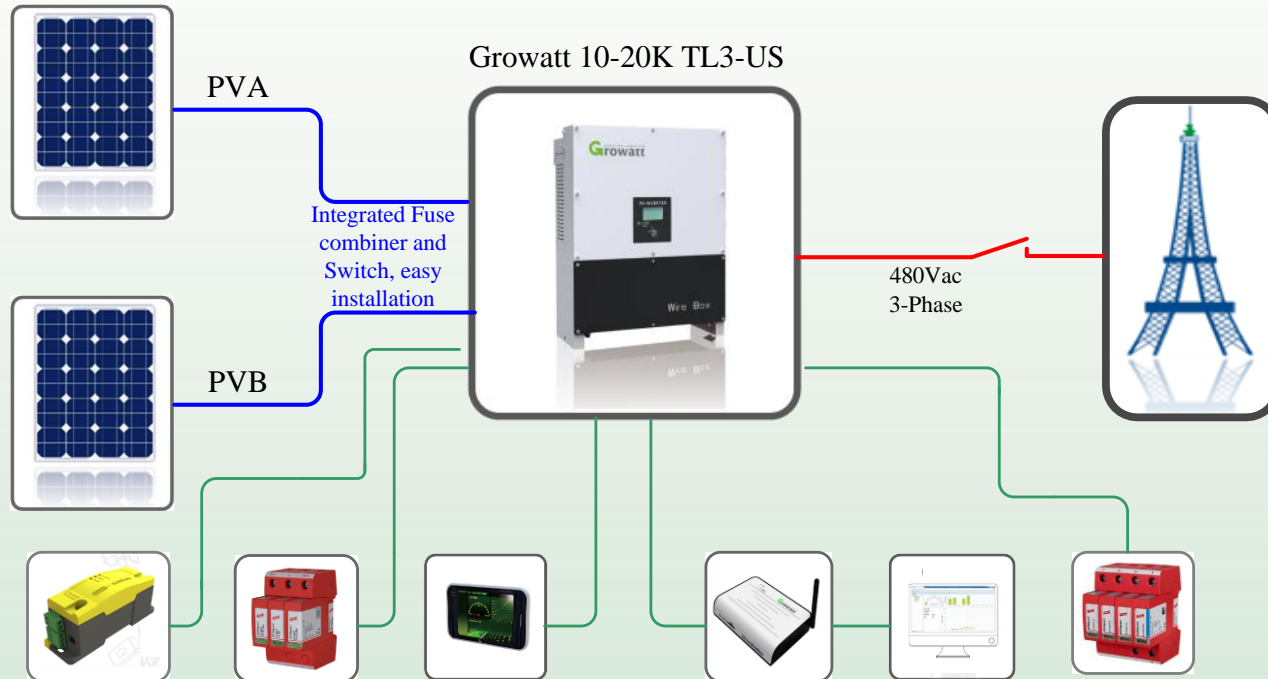
Introduction

- Wider output range of full loading



Introduction

- Highly integrated, One-stop service





Contents

01.Introduction

02.Application

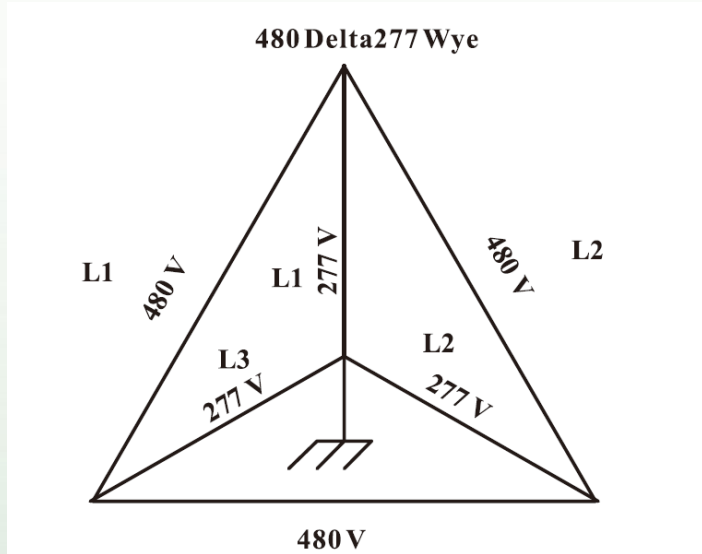
03.Specification

04.Protection

05.Modular function

Application

Compact commercial and industrial inverter



When using 480 delta, the Neutral of Growatt TL3-US must be connected to the Earth of the grid. The Growatt TL3-US could be only used in TN-C/TN-C-S/TT/TN-S grid types, not available for IT and split phase types.

Application

The transformerless operation of this compact outdoor commercial and industrial inverter provides an efficiency of 97.5%, which means its efficiency would be in top 5 in this field.

The high-speed maximum power point tracker(MPPT) produces real-time power tracking and improved energy harvesting.

The wide input voltage range makes this inverter suitable to low power installations with reduced string size. This rugged outdoor inverter has been designed as a completely sealed unit to stand withstand the harshest environmental condition.

Compatible with Modbus protocol for wireless communication with all kinds of monitoring platform.



Contents

01.Introduction

02.Application

03.Specification

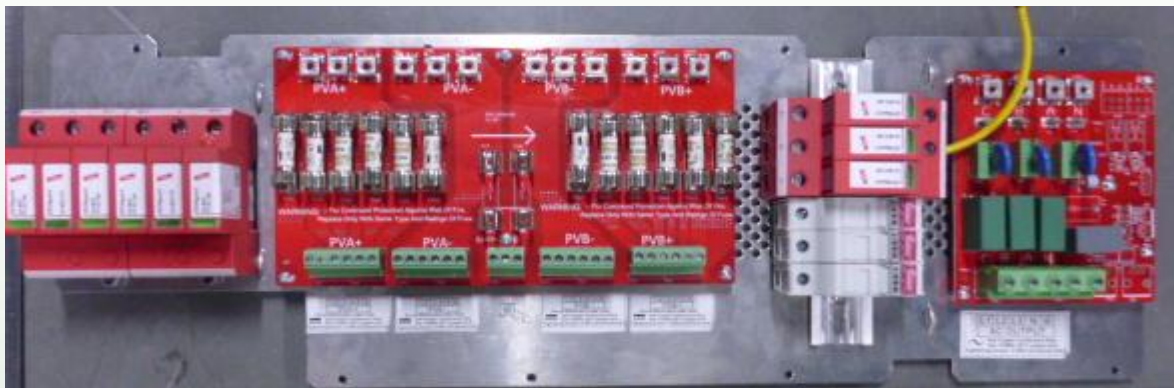
04.Protection

05.Modular function

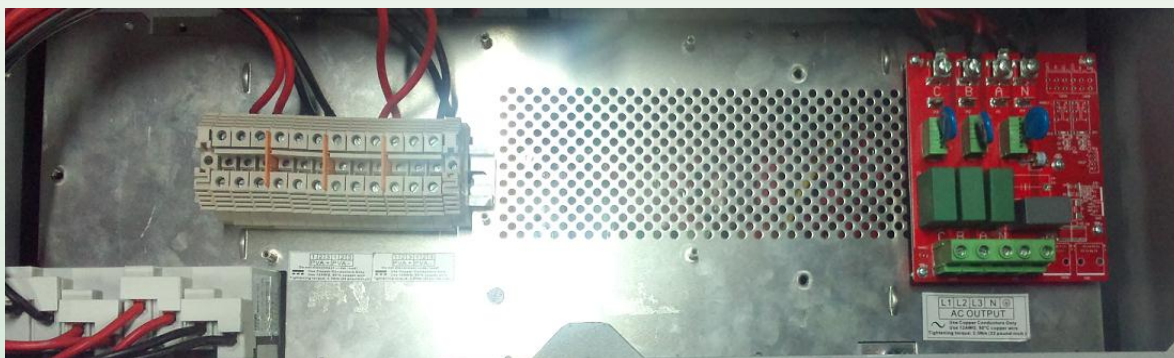
Wire box

Internal Wire box

□ Type I



□ Type II



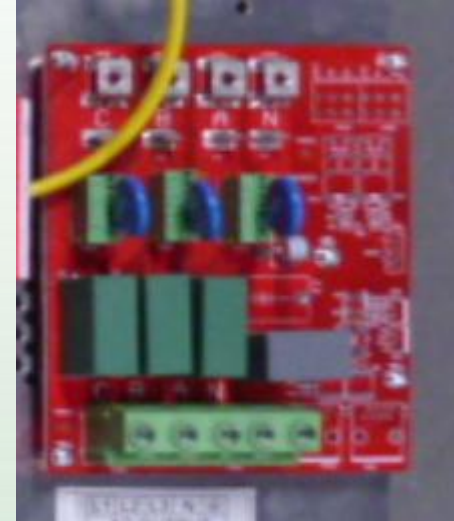
Wire box

Type I DC terminals and AC terminals

DC input connection terminal



AC output connection terminal





Wire box

Type I DC terminals

DC lightning proof point of connection

Fuse 10-20A,
Standard for 15A,
for $I_{sc} < 9.2A$

Ground Kit NC

PVA Input



15A*6 Strings

PVB Input

Wire box

Type I AC terminals



AC lightning proof connection

MOV + Fuse

Resistance for terminate the daisy chain

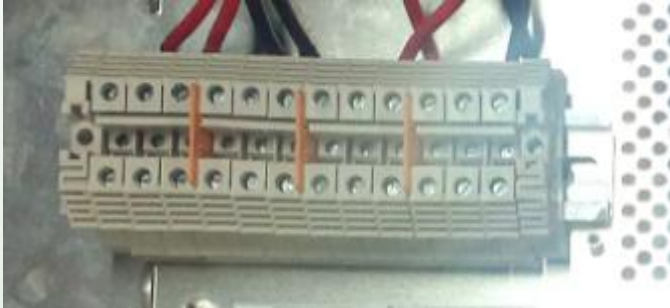
RS 485 interface and RJ 45 terminals

AC output terminals 3P5W

Wire box

Type II DC terminals and AC terminals

DC input connection terminal



AC output connection terminal



Specification

DC input specification:

Max. DC power	10500W	12500W	18750W	20850W
Max. DC voltage	600V	600V	600V	600V
Start voltage	120V	120V	120V	120V
DC nominal voltage	375V	375V	375V	375V
PV voltage range	80V-600V	80V-600V	80V-600V	80V-600V
MPP voltage range (full load)	250V-600V	250V-600V	250V-600V	250V-600V
Max. input current of the MPP tracker A/tracker B	21A/21A	25A/25A	38A/38A	42A/42A
Max. input short circuit current	32A/32A	32A/32A	50A/50A	50A/50A
Number of independent MPP trackers/strings per MPP tracker	2/3	2/3	2/6	2/6

Specification

AC output specification:

Nominal output power	10000W	12000W	18000W	20000W
Nominal AC voltage	480V	480V	480V	480V
AC voltage range	422-528VAC	422-528VAC	422-528VAC	422-528VAC
Nominal AC grid frequency	60 Hz	60 Hz	60 Hz	60 Hz
AC grid frequency range	59.3-60.5 Hz	59.3-60.5 Hz	59.3-60.5 Hz	59.3-60.5 Hz
Max. output current ($\cos \varphi=1$)	12.0A	14.5A	21.5A	24A
Power factor ($\cos \varphi$)	>0.99 (0.9 Leading to 0.9 Lagging)	>0.99 (0.9 Leading to 0.9 Lagging)	>0.99 (0.9 Leading to 0.9 Lagging)	>0.99 (0.9 Leading to 0.9 Lagging)
Harmonics	<3%	<3%	<3%	<3%
Grid connection type	3/N/E	3/N/E	3/N/E	3/N/E

Efficiency and Protection Devices

Max efficiency	97%	97%	97.5%	97.5%
CEC-Weighted Efficiency	95.5%	95.5%	96%	96.5%
MPPT efficiency	99.5%	99.5%	99.5%	99.5%
DC reverse-polarity protection	yes	yes	yes	yes
Input over voltage protection-Varistor	yes	yes	yes	yes
DC switch for each MPP tracker	yes	yes	yes	yes
Input over voltage protection	Class II	Class II	Class II	Class II
DC insulation measure	yes	yes	yes	yes
AC short circuit protection	yes	yes	yes	yes
Output over voltage protection-Varistor	yes	yes	yes	yes
Output over voltage protection	Class II	Class II	Class II	Class II
String fuse type/size(Optional)	15A/600VDC 10*38mm	15A/600VDC 10*38mm	15A/600VDC 10*38mm	15A/600VDC 10*38mm

Specification

General Data

Diemensions(W*H*D)	530*705*247mm	530*705*247mm	650*740*247mm	650*740*247mm
Weight	46kg/101.5lb	46kg/101.5lb	63kg/138.9lb	63kg/138.9lb
Operation ambient temperature range	-25°C ... +60°C -13°F ... +140°F (Derating above 40°C/104°F)			
Noise emission	≤50dB(A)	≤50dB(A)	≤50dB(A)	≤50dB(A)
Relative Humidity	0~95%	0~95%	0~95%	0~95%
Altitude	≤2000m/6560ft	≤2000m/6560ft	≤2000m/6560ft	≤2000m/6560ft
Self Consumption night	< 3 W	< 3 W	< 3 W	< 3 W
Topology	Transformerless	Transformerless	Transformerless	Transformerless
Cooling concept	Fan Cool	Fan Cool	Fan Cool	Fan Cool
Electronics protection rating/connection area	NEMA 3R	NEMA 3R	NEMA 3R	NEMA 3R
Display	Graphic	Graphic	Graphic	Graphic
Interface: RS232/RS485/Bluetooth/R F/Zigbee/Wifi	yes/yes/opt/opt /opt/opt	yes/yes/opt/opt /opt/opt	yes/yes/opt/opt /opt/opt	yes/yes/opt/opt /opt/opt
Warranty:10years/ 15 years	yes/opt	yes/opt	yes/opt	yes/opt

Certification and Approval

1. UL1741, UL1998, IEEE1547, CSA C22.2 No.107.1

UL1741 is requirement for grid connection. It is much stricter than European standard and popular used in 60Hz countries.

UL1998 is single requirement for software design.

IEEE1547 is requirement for safety standards.

CSA C22.2 No.107.1 is additional explanation about difference between Canada and USA.



Certification and Approval

2.EMC

EMS (Electro-magnetic Susceptibility)

EMI (Electro-magnetic Interference)

In USA, FCC(Federal communications commission) should charge this standard. We should comply with FCC Part 15(VOC), for residential application, the product should reach Class B.

3.CEC list

CEC means California energy commission. All the inverter installed in USA should do the CEC efficiency testing and get listed on the CEC list. Or the installer or owner wouldn't pass the inspection and get the incentive from the government.

4. CEC efficiency

Table 2-5 Weighting factors for calculating Weighted Efficiency

Factor	Inverter Power Level	Weighting Factor	
		High-Insolation ^[1]	Low-Insolation ^[2]
F_1	5%	0.00	0.03
F_2	10%	0.04	0.06
F_3	20%	0.05	0.13
F_4	30%	0.12	0.10
F_5	50%	0.21	0.48
F_6	75%	0.53	0.00
F_7	100%	0.05	0.20

[1] – Based on irradiance and temperature data representative of Southwest US.

[2] – Also known as European Efficiency.



Contents

01.Introduction

02.Application

03.Specification

04.Protection

05.Modular function



Protection

DC reverse polarity protection

AC short-circuit protection

PV Ground fault protection

Grid monitoring

Integrated all-pole sensitive leakage current monitoring unit

Anti islanding protection



Contents

01.Introduction

02.Application

03.Specification

04.Protection

05.Modular function

Modular Function

1. Input EMI and output EMI

Input EMI would avoid electro-magnetic interference from other devices

Output would prevent electro-magnetic interference to other devices

2. Bus capacitor

filtering, energy storage, energy transferring

3. Invert Circuit

transfer the DC power to AC power

4. AFCI

According to NEC, AFCI should be included in the whole solar power system, we already add it in our optional function.

5. GFCI module

Monitoring the real-time all-pole sensitive leakage current, when the current reach a specific value, the inverter will stop outputting power.

6. Isolation detecting module

Detecting the impedance between the panel and ground when firstly started, when the impedance is lower than 5M, the LCD displays fault and inverter disconnected from the Grid.

7. Relay

As the isolation component between the inverter and grid.

Growatt TL3-US User Manual

Please find the document below :



**Growatt TL3-US
User Manual**

Thank You From Our Team
—WE RUN FOR YOU!





**THANKS FOR
YOUR TIME**