

GROWATT



**WIT 4-15K-HU Hybrid Inverter
User Manual**

GROWATT



Hibridni inverter WIT 4-15K-HU Korisničko uputstvo

VAŽNA NAPOMENA O PREVODU!

Ovo je bilingvalna verzija korisničkog uputstva, izrađena radi lakšeg razumevanja sadržaja na srpskom jeziku.

Prevod je urađen uz nastojanje da se u potpunosti očuva značenje originalnog dokumenta, ali se ne može isključiti mogućnost grešaka ili nenamernih odstupanja.

Autor prevoda ne preuzima odgovornost za eventualne greške, propuste ili netačnosti nastale tokom prevođenja.

Za tehničke podatke, bezbednosne zahteve, podešavanja i druge informacije od značaja za pravilan rad uređaja, uvek treba konsultovati originalno uputstvo proizvođača.

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1 Notes on this manual

1.1 Introduction

This manual is intended to introduce the WIT 4-15K-HU Hybrid Inverters manufactured by Shenzhen Growatt New Energy Co., Ltd. (hereinafter referred to as Growatt) in terms of their installation, operation, commissioning, maintenance and troubleshooting. Please read this manual carefully before using the product and keep it in a convenient place for further reference. The content of this manual is continually reviewed and amended, where necessary. Growatt reserves the right to make changes to the material at any time and without notice.

Note:

“WIT” refers to the product name. “4-15K” refers to the power range.

1.2 Target Group

This document is intended for qualified technicians. Only qualified and well-trained technicians are allowed to install and operate the WIT inverter. Should any questions arise during installation, you can visit en.growatt.com to leave a message.

1.3 Product Range

WIT 4-15K-HU (AC 380V/400V) inverters offering seven power options: 4kW, 5kW, 6kW, 8kW, 10kW, 12kW, and 15kW. In total, there are 7 products available in this series. This manual is valid for the following models:

Table 1.1 WIT 4-15K-HU series model introduction

WIT 4K-HU	3-Phase Hybrid Inverter with UPS function
WIT 5K-HU	
WIT 6K-HU	
WIT 8K-HU	
WIT 10K-HU	
WIT 12K-HU	
WIT 15K-HU	

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1 BELEŠKE O OVOM UPUTSTVU

1.1 Uvod

Ovo uputstvo predstavlja hibridne invertere WIT 4-15K-HU proizvođača Shenzhen Growatt New Energy Co., Ltd. (u daljem tekstu: Growatt) u pogledu njihove instalacije, rada, puštanja u rad, održavanja i otklanjanja problema. Pažljivo pročitajte ovo uputstvo pre korišćenja proizvoda i čuvajte ga na dostupnom mestu za buduću upotrebu.

Sadržaj ovog uputstva se kontinuirano pregledava i po potrebi menja. Growatt zadržava pravo da u bilo kom trenutku, bez prethodnog obaveštenja, izvrši izmene sadržaja.

1.2 Ciljna grupa

Ovaj dokument namenjen je kvalifikovanim tehničarima. WIT inverter smeju da instaliraju i njime upravljaju samo kvalifikovani i obučeni tehničari. Ako se tokom instalacije pojave pitanja, možete posetiti en.growatt.com i ostaviti poruku.

1.3 Asortiman proizvoda

WIT 4-15K-HU (AC 380 V/400 V) invertori nude sedam varijanti snage: 4 kW, 5 kW, 6 kW, 8 kW, 10 kW, 12 kW i 15 kW. Ova serija ukupno obuhvata 7 proizvoda:

WIT 4K-HU – trofazni hibridni inverter sa UPS funkcijom

WIT 5K-HU

WIT 6K-HU

WIT 8K-HU

WIT 10K-HU

WIT 12K-HU

WIT 15K-HU

Tabela 1.1 – Pregled modela serije WIT 4-15K-HU

Napomena: „WIT” označava naziv proizvoda. „4-15K” označava opseg snage.

Safety Precautions 2

2.1 Safety Instructions

- 1) Please read this manual carefully before installation. Damages caused by failure to follow the instructions in the manual are beyond the warranty scope.
- 2) Only qualified and trained electrical technicians are allowed to perform operations on the WIT Inverter.
- 3) During installation, please do not touch other parts inside the equipment other than the wiring terminals.
- 4) Ensure that all electrical connections comply with local electrical standards.
- 5) Only designated personnel are permitted to perform maintenance on the inverter.
- 6) Before operating the WIT Inverter in on-grid mode, ensure that you have obtained any permission needed from the local grid operator.

Transportation:

 WARNING	• Risk of injury when lifting the WIT Inverter, or injury caused by a falling inverter as it is heavy. Please transport and lift the inverter carefully.
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Installation:

 NOTICE	• Please read this manual carefully before installation. Damages caused by failure to observe instructions specified in this manual are not covered under any warranty.
 DANGER	• Do not connect any cables before installation.
 WARNING	• Please observe the installation instructions specified in this manual, including the installation environment and clearance requirements. • Install the WIT Inverter in a dry and well-ventilated location; otherwise, performance de-rate may be initiated due to excessive temperature. • Please read the installation instructions and safety precautions carefully before installation.

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2 MERE BEZBEDNOSTI

2.1 Bezbednosna uputstva

Pre instalacije i tokom rada

1. Pažljivo pročitajte ovo uputstvo pre instalacije. Oštećenja nastala zbog nepridržavanja uputstava iz ovog dokumenta nisu obuhvaćena garancijom.
2. WIT inverterom smeju da rukuju samo kvalifikovani i obučeni elektrotehničari.
3. Tokom instalacije ne dodirujte druge delove unutar uređaja osim priključnih terminala za ožičavanje.
4. Uverite se da su svi električni priključci izvedeni u skladu sa lokalnim elektrotehničkim standardima.
5. Održavanje invertera smeju da obavljaju samo ovlašćena lica.
6. Pre rada WIT invertera u režimu priključenom na mrežu proverite da li ste pribavili sve potrebne dozvole lokalnog operatora mreže.

Transport

Postoji opasnost od povrede pri podizanju WIT invertera ili od pada invertera zbog njegove mase. Uređaj pažljivo transportujte i podižite.

Instalacija

Pažljivo pročitajte uputstva za instalaciju i mere bezbednosti. Ne priključujte kablove pre završetka instalacije.

Poštujte zahteve za mesto instalacije i potrebna rastojanja. WIT inverter instalirajte na suvom i dobro provetrenom mestu; u suprotnom može doći do smanjenja snage zbog previsoke temperature.

Electrical Connections:

 DANGER	• Before connecting cables, ensure that the DC switches of the WIT Inverter are OFF, and turn off the switch and breaker on the AC side and the battery side. Otherwise, high voltages may cause severe injuries. • It must be operated by qualified and trained electrical technicians. Technicians should observe instructions in this manual and local regulations. • High voltages may cause electric shocks and serious injury. Please do not touch the WIT Inverter in operation. • Do not install the inverter in potentially explosive and flammable atmospheres.
 WARNING	• Each WIT Inverter must be equipped with an AC circuit breaker. Multiple WIT Inverters cannot connect to the same AC circuit breaker. • Do not connect the load between the WIT Inverter and the circuit breaker. • If the cable is thick, do not shake the cable terminals after tightening them. Otherwise, the loose connection may cause overheating and device damage. Ensure that the terminals are properly connected before starting the WIT Inverter. • Ensure the correct polarity of the terminals before connecting the PV array to the WIT Inverter.

Maintenance and replacement:

 DANGER	• It must be operated by qualified and trained electrical technicians. Technicians should observe instructions in this manual and local regulations. • After turning off the DC switches and the AC breakers, wait for at least five minutes before performing any operations to avoid risks. • When the OLED screen indicates "PV Isolation low", do not touch the chassis as a ground fault may have been detected. • Beware of high voltages which may cause electric shocks.
 WARNING	• To ensure good dissipation, clean the fan regularly. • Do not use the air pump to clean the fan. Otherwise, the fan may be damaged.

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2.1 Bezbednosna uputstva – nastavak

OPASNOST

Visoki naponi mogu izazvati strujni udar i teške povrede. Ne dodirujte WIT inverter dok radi.

Uređajem smeju da rukuju samo kvalifikovani i obučeni elektrotehničari. Tehničari moraju poštovati ovo uputstvo i lokalne propise.

Ne instalirajte inverter u potencijalno eksplozivnom ili zapaljivom okruženju.

Pre povezivanja kablova proverite da su DC prekidači WIT invertera u položaju OFF i isključite prekidač i zaštitni prekidač na AC i baterijskoj strani. U suprotnom visoki naponi mogu izazvati teške povrede.

Ako je kabl debeo, nakon zatezanja ne pomerajte priključne terminale kabla. Labav spoj može izazvati pregrevanje i oštećenje uređaja. Pre pokretanja invertera proverite da su terminali pravilno povezani.

Ne povezujte potrošač između WIT invertera i zaštitnog prekidača.

Svaki WIT inverter mora imati zaseban AC zaštitni prekidač. Više WIT invertera ne sme se povezati na isti AC zaštitni prekidač.

Pre povezivanja PV polja sa WIT inverterom proverite pravilan polaritet terminala.

Električno povezivanje – OPASNOST

Nakon isključivanja DC prekidača i AC zaštitnih prekidača sačekajte najmanje pet minuta pre bilo kakvog rada, kako biste izbegli opasnost.

Kada OLED ekran prikazuje „PV Isolation low“, ne dodirujte kućište jer je moguće da je detektovana greška uzemljenja.

Obratite pažnju na visoke napone koji mogu izazvati strujni udar. Radove smeju da izvode samo kvalifikovani i obučeni elektrotehničari.

Others:

	• Upon receiving the product, check if the contents are intact and complete. If any damage is found or any component is missing, please contact your distributor.
 WARNING	• The maximum PV input voltage cannot exceed 1000V. The battery input voltage cannot exceed 60V. • For the WIT Inverter that will not be put into operation in the future, you should properly dispose of them by yourself.

2.2 Symbol Conventions

Symbol	Description
 DANGER	DANGER indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
 WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	CAUTION indicates a hazard with potential risk which, if not avoided, could result in minor or moderate injury.
 NOTICE	NOTICE indicates that under certain circumstances, improper operations could result in property damage.
	Remind operators to check the instructions before installing or operating the WIT Inverter.

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2.1 Bezbednosna uputstva – održavanje i ostalo

Održavanje i zamena

Da bi se obezbedilo dobro odvođenje toplote, redovno čistite ventilator. Ne koristite vazдушnu pumpu za čišćenje ventilatora, jer može doći do njegovog oštećenja.

Ostalo

Po prijemu proizvoda proverite da li je sadržaj neoštećen i kompletan. Ako primetite oštećenje ili nedostaje neka komponenta, obratite se distributeru.

WIT inverter koji se ubuduće neće koristiti potrebno je pravilno odložiti u skladu sa propisima.

OPASNOST: Maksimalni PV ulazni napon ne sme preći 1000 V. Ulazni napon baterije ne sme preći 60 V.

2.2 Konvencije za simbole

OPASNOST označava opasnost visokog nivoa rizika koja će, ako se ne izbegne, dovesti do smrti ili teške povrede.

UPOZORENJE označava potencijalno opasnu situaciju koja, ako se ne izbegne, može dovesti do smrti ili teške povrede.

OPREZ označava opasnost koja, ako se ne izbegne, može dovesti do lake ili umerene povrede.

NAPOMENA označava da u određenim okolnostima nepravilno rukovanje može dovesti do materijalne štete.

Simbol podseća rukovaoce da provere uputstvo pre instalacije ili rada WIT invertera.

2.3 Label Description

Symbol	Name	Meaning
	High voltage	High voltages exist after the WIT Inverter is powered on. Only qualified and trained electrical technicians are allowed to perform operations.
	Burn warning	Do not touch a running inverter because it generates high temperatures on the shell.
	Grounding	Indicates the position for connecting the PE cable.
	Delay discharge mark	Residual voltage exists after the WIT Inverter is powered off. It takes 5 minutes to discharge to the safe voltage.
	Refer to the manual	Remind operators to refer to the manual before installing and operating the WIT Inverter.
	DC	Direct Current.
	AC	Alternating Current.

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2.3 Opis oznaka

Visoki napon

Nakon uključivanja WIT invertera prisutni su visoki naponi. Radove smeju da izvode samo kvalifikovani i obučeni elektrotehničari.

Upozorenje na opekotine

Ne dodirujte inverter dok radi jer se kućište zagreva do visokih temperatura.

Uzemljenje

Označava mesto za povezivanje PE kabla.

Oznaka odloženog pražnjenja

Nakon isključivanja WIT invertera postoji zaostali napon. Potrebno je 5 minuta da se napon spusti na bezbednu vrednost.

Uputstvo

Pre instalacije i rada WIT invertera pogledajte korisničko uputstvo.

DC – jednosmerna struja.

AC – naizmenična struja.

Product Description 3



NOTICE

The following figure shows the appearance of the WIT 8-15K-HU. The WIT 4-6K-HU has only one MPPT tracker compared to the WIT8-15K-HU, so there is a slight difference in the PV port at the bottom.

3.1 Overview

Front view:

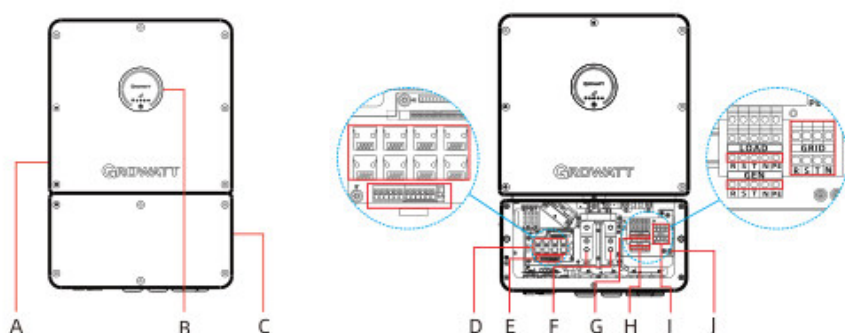


Fig 3.1 Front view

Bottom view:

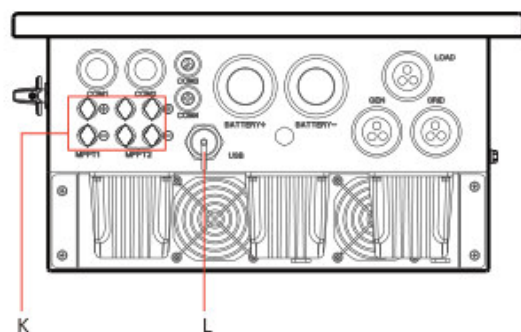


Fig 3.2 Bottom view

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3 OPIS PROIZVODA

3.1 Pregled

Prednja strana:

Slika 3.1 – Prednja strana

Donja strana:

Sledeća slika prikazuje izgled modela WIT 8-15K-HU. Modeli WIT 4-6K-HU imaju samo jedan MPPT traker, za razliku od WIT 8-15K-HU, zbog čega postoji mala razlika u PV priključcima na donjoj strani.

NAPOMENA: Oznake prikazane na slici odgovaraju priključcima i komponentama invertera. Za detaljan opis pogledajte Tabelu 3.1.

Left view:

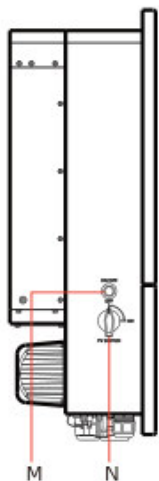


Fig 3.3 Left view

Right view:

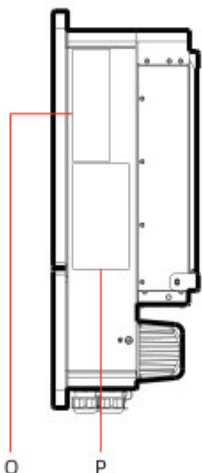


Fig 3.4 Right view

Table 3.1 Component description

No.	descriptions	No.	descriptions
A	Top cover plate	B	Display screen
C	Bottom cover plate	D	Network Port Terminal
E	Signal terminal	F	Battery Terminal Blocks
G	Load wiring terminal	H	Power grid connection terminal
I	Power grid connection terminal	J	PE wiring terminal
K	PV terminal	L	USB interface
M	Battery switch	N	PV Switch
O	Nameplate	P	Indicator description label

3.2 Battery Switch Status Description

When The WIT is connected to the energy storage battery, turn on the switch of the energy storage battery in advance, and press the battery button after 30 seconds, and the button is closed as shown in Fig 3.5 below. When the battery is disabled, close the battery button, as shown in Fig 3.6.

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3.1 Pregled – opis komponenti

Tabela 3.1 – Opis komponenti

- A – Gornja pokrovna ploča
- B – Displej
- C – Donja pokrovna ploča
- D – Terminal mrežnog porta
- E – Signalni terminal
- F – Baterijski priključni blokovi
- G – Terminal ožičavanja potrošača (LOAD)
- H – Terminal priključenja električne mreže
- I – Terminal priključenja električne mreže
- J – PE terminal za ožičavanje
- K – PV terminal
- L – USB interfejs
- M – Baterijski prekidač
- N – PV prekidač
- O – Natpisna pločica
- P – Nalepnica sa opisom indikatora

Leva strana / desna strana

Slika 3.3 – Leva strana

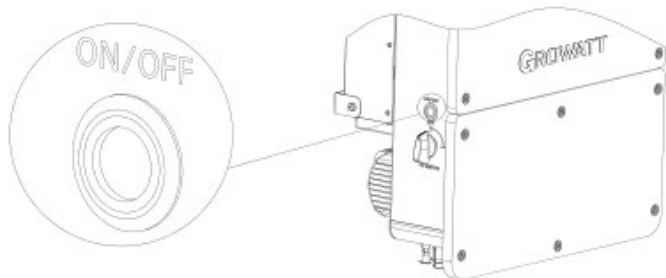
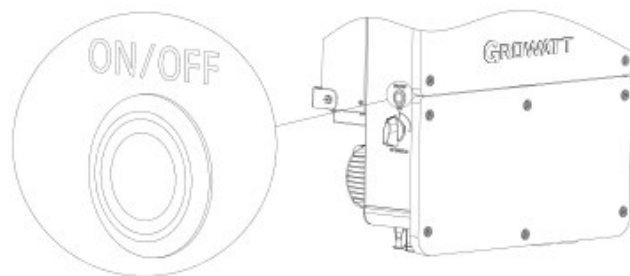
Slika 3.4 – Desna strana

3.2 Opis statusa baterijskog prekidača

Kada je WIT povezan sa baterijom sistema za skladištenje energije, prvo uključite prekidač baterije, a nakon 30 sekundi pritisnite dugme baterije; dugme treba da bude u zatvorenom položaju, kao na slici 3.5. Kada je baterija onemogućena, zatvorite dugme baterije, kao na slici 3.6.

NOTE:

1. Before using the battery to wake up The WIT, make sure the battery button is turned on.
2. Regardless of whether the battery is connected, the battery button should be turned on when The WIT is operating in any mode.

**Fig 3.5 Battery Switch-On****Fig 3.6 Battery Switch-Off****3.3 Basic Data****Table 3.2 Dimensions and weight**

	Model	Size (mm)			Weight (kg)
		Height	Width	Depth	
The WIT Inverter without package	WIT 4-15K-HU	698	475	240	43
The WIT Inverter with package	WIT 4-15K-HU	835	590	403	51

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WIT inverter bez ambalaže

Model: WIT 4-15K-HU

Visina: 698 mm

Širina: 475 mm

Dubina: 240 mm

Masa: 43 kg

WIT inverter sa ambalažom

Model: WIT 4-15K-HU

Visina: 835 mm

Širina: 590 mm

Dubina: 403 mm

Masa: 51 kg

Slika 3.5 – Uključivanje baterijskog prekidača

Slika 3.6 – Isključivanje baterijskog prekidača

NAPOMENA:

1. Pre nego što pomoću baterije probudite WIT inverter, proverite da je prekidač baterije uključen.
2. Bez obzira na to da li je baterija povezana, prekidač baterije mora biti uključen kada WIT radi u bilo kom režimu.

unit: mm

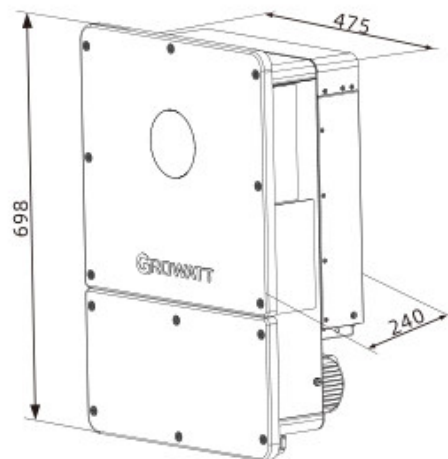


Fig 3.7 Inverter Dimensions

unit: mm

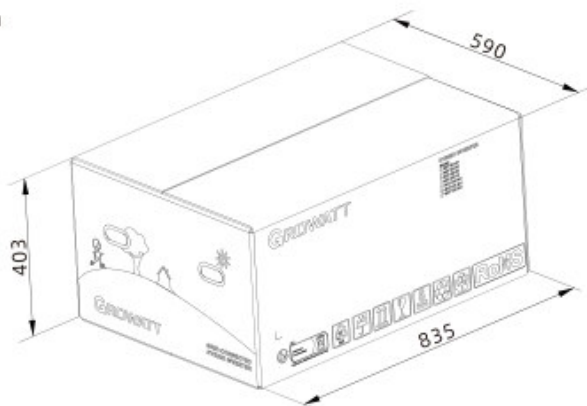


Fig 3.8 Package Dimensions

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3.3 Osnovni podaci - dimenzije

Sve dimenzije su u milimetrima.

Slika 3.7 - Dimenzije invertera

Visina: 698 mm

Širina: 475 mm

Dubina: 240 mm

Slika 3.8 - Dimenzije ambalaže

Visina: 835 mm

Širina: 590 mm

Dubina: 403 mm

3.4 Nameplate

The figure below shows the nameplate of WIT 15K-HU as an example. The nameplate figure is for reference only. The actual nameplate prevails. For the specifications, please refer to Section 10 Product Specifications.

GROWATT	
Hybrid Inverter WIT 15K-HU	
PV Data	
Max. PV voltage	1000d.c.V
PV voltage range	150-850d.c.V
PV Isc	25 d.c.A*3
Max. input current	20 d.c.A*3
Grid Data	
Nominal input/output power	30/15 kW
Max. input/output apparent power	33/16.5 kVA
Nominal voltage	3W/N/PE 380/400 a.c.V
Max. input/output current	50.1/25 a.c.A
Nominal frequency	50/60 Hz
Power factor range	1 leading~1 lagging
GEN Data	
Nominal output power	30 kW
Nominal voltage	3W/N/PE 380/400 a.c.V
Nominal frequency	50/60 Hz
Load Data	
Nominal AC output power	15 kW
Nominal AC output voltage	230/400 a.c.V
Nominal AC output frequency	50/60 Hz
Power factor range	1 leading~1 lagging
Battery Data	
Battery voltage range	40-60 d.c.V
Max. charging and discharging current	290 d.c.A
Type of battery	Lithium-ion/VRLA
General Data	
Safety level	Class I
Ingress protection	IP66
Operation ambient temperature	-30°C ~ +60°C
Integrated with AFCI	
	
	
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Fig 3.9 Nameplate

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3.4 NATPISNA PLOČICA

Slika 3.9 prikazuje natpisnu pločicu modela WIT 15K-HU kao primer. Prikazana pločica služi samo kao referenca; merodavna je stvarna natpisna pločica uređaja. Za specifikacije pogledajte odeljak 10 „Specifikacije proizvoda“.

WIT 15K-HU – podaci

Maksimalni DC ulazni napon: 1000 V

MPPT opseg: 150-850 V

Maksimalna ulazna struja po MPPT-u: 25 A

Broj MPPT tragera: 3

Broj PV ulaza po MPPT-u: 3

Podaci o mreži (Grid)

Nazivna ulazna/izlazna snaga: 30/15 kW

Maksimalna ulazna/izlazna prividna snaga: 33/16,5 kVA

Nazivni napon: 3W/N/PE, 380/400 V AC

Maksimalna ulazna/izlazna struja: 50,1/25 A AC

Nazivna frekvencija: 50/60 Hz

Opseg faktora snage: 1 vodeći do 1 zaostajući

Podaci o opterećenju (Load)

Nazivna AC izlazna snaga: 15 kW

Nazivni AC izlazni napon: 230/400 V AC

Nazivna AC izlazna frekvencija: 50/60 Hz

Podaci o bateriji

Opseg napona baterije: 40-60 V DC

Maksimalna struja punjenja/pražnjenja: 290 A DC

Tip baterije: litijum-jonska / VRLA

GEN podaci

Nazivna izlazna snaga: 30 kW

Nazivni napon: 3W/N/PE, 380/400 V AC

Nazivna frekvencija: 50/60 Hz

Opseg faktora snage: 1 vodeći do 1 zaostajući

Klasa bezbednosti: Class I

Stepen zaštite: IP66

Radna temperatura okoline: -30 °C do +60 °C

3.5 WIT 4-15K-HU Operating Principles

- 1) The hybrid inverter receives DC inputs from PV strings which go through the MPPT routes. The DC power is then converted into AC power through the inverter circuit to power the loads and feed power into the grid;
- 2) The PV strings can supply power to charge the battery through the MPPT routes;
- 3) Convert battery power to AC power supplies for the loads and feeding to the grid;
- 4) Charge the battery from the grid through a rectifier circuit;
- 5) Convert the DC power from PV strings and the battery power into AC power through the inverter circuit to power critical loads;
- 6) When the GEN port is connected to the generator and set to the GEN mode, the generator can supply power to the loads or charge the battery;
- 7) When the GEN port is connected to loads and set to "Smart Load" mode; during on-grid operation, it will supply grid power to the loads connected via the GEN port; during off-grid operation, the power supply to smart loads will be cut off when the battery SOC is below 50%.
- 8) When the GEN port is connected to the PV inverter and set to "AC Couple" mode, during on-grid operation, the PV inverter will be connected to the grid and output power; during off-grid operation, the PV inverter will remain connected and generating power together with the WIT inverter.

NOTE: WIT 4-15K-HU models have 2 MPPT routes.

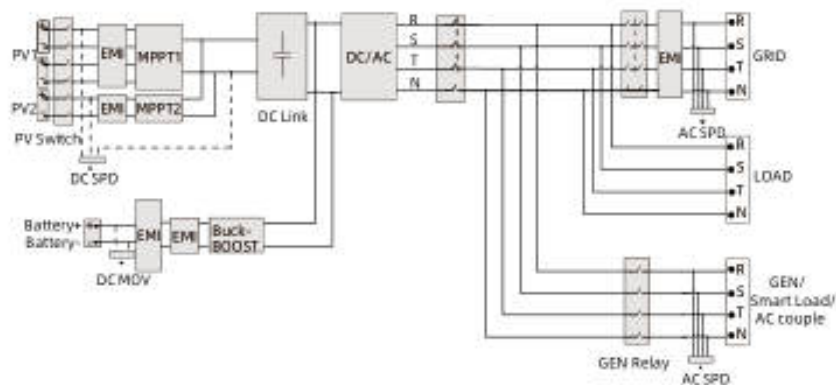


Fig 3.10 WIT 4-15K-HU Grid-connected conceptual diagram

1. Hibridni inverter prima DC energiju iz PV stringova kroz MPPT grane. DC energija se zatim pretvara u AC energiju kroz invertorsko kolo za napajanje potrošača i predaju energije u mrežu.
2. PV stringovi mogu preko MPPT grana da napajaju bateriju i pune je.
3. Energija iz baterije pretvara se u AC energiju za napajanje potrošača i predaju energije u mrežu.
4. Baterija se može puniti iz mreže preko ispravljačkog kola.
5. DC energija iz PV stringova i energija baterije mogu se preko invertorskog kola pretvoriti u AC energiju za napajanje kritičnih potrošača.
6. Kada je GEN port povezan sa generatorom i podešen na režim GEN, generator može napajati potrošače ili puniti bateriju.
7. Kada je GEN port povezan sa potrošačima i podešen na režim Smart Load, u on-grid režimu napajaće potrošače povezane preko GEN porta. U off-grid režimu napajanje Smart Load potrošača biće prekinuto kada SOC baterije padne ispod 50%.
8. Kada je GEN port povezan sa PV inverterom i podešen na režim AC Couple, u on-grid režimu PV inverter je povezan sa mrežom i predaje energiju; u off-grid režimu PV inverter ostaje povezan i proizvodi energiju zajedno sa WIT inverterom.

Napomena: Modeli WIT 4-15K-HU imaju 2 MPPT grane.

Slika 3.10 - konceptualna šema WIT 4-15K-HU sistema povezanog na mrežu.

3.6 Storing the WIT Inverter

- 1> Put the WIT Inverter in the original package and place it in a dry and well-ventilated place.
- 2> Keep the storage temperature from -40°C to +70°C and the humidity from 0%-95% RH.
- 3> A maximum of three WIT Inverters can be stacked. Do not stack the inverters without package.
- 4> If the WIT Inverter has been long-term stored, inspections and tests should be conducted by qualified personnel before installation.



Wrong time and date may occur if the WIT Inverter has been stored for over one month. Fix the time and date before connecting the inverter to the grid. For details, see Fig 7.1 Commissioning the WIT Inverter.

3.7 Supported Grid Types

Grid connection modes for WIT 4-15K-HU Hybrid Inverters are shown in Fig 3.11.

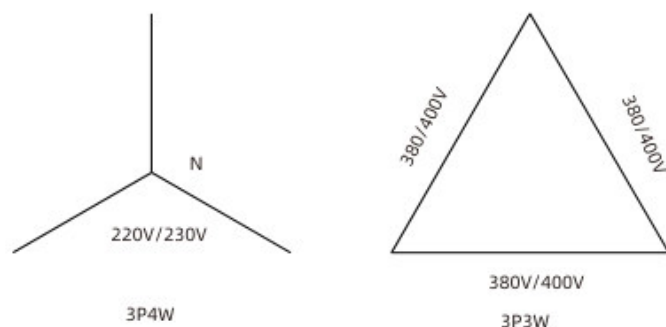


Fig 3.11 380V / 400V system (type Y/Δ)

3.8 AFCI Function

3.8.1 AFCI function Description

An AFCI, or Arc-Fault Circuit Interrupter, is a solution designed to detect and mitigate the risk of electrical arcing in a photovoltaic (PV) system, supported by intelligent arc detection algorithm. Arcing can occur when there is a high voltage breakdown in the electrical insulation or when conductive materials come into contact with each other. This can pose a fire hazard and damage the system components. The AFCI continuously monitors the system for potential arc faults and, if detected, interrupts the circuit to prevent a fire or other damage. AFCIs are required by the National Electrical Code (NEC) in certain parts of a PV system, such as the DC side of the inverter, to improve safety and reduce the risk of fires.

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3.6 SKLADIŠTENJE WIT INVERTERA

1. WIT inverter stavite u originalno pakovanje i čuvajte ga na suvom i dobro provetrenom mestu.
2. Temperatura skladištenja treba da bude od -40 °C do +70 °C, a relativna vlažnost od 0% do 95% RH.
3. Najviše tri WIT invertera mogu biti naslagana jedan na drugi. Ne slažite invertere bez ambalaže.
4. Ako je WIT inverter bio uskladišten duže vreme, kvalifikovano osoblje mora izvršiti pregled i ispitivanje pre instalacije.

Ako je WIT inverter bio uskladišten duže od jednog meseca, vreme i datum mogu biti pogrešno prikazani. Podesite vreme i datum pre povezivanja invertera na mrežu. Detalje pogledajte na slici 7.1 „Puštanje WIT invertera u rad“.

3.7 PODRŽANI TIPOVI MREŽE

Režimi priključenja na mrežu za WIT 4-15K-HU hibridne invertere prikazani su na slici 3.11.

Slika 3.11 – Sistem 380 V / 400 V (tip Y/Δ).

3.8 AFCI FUNKCIJA

AFCI, odnosno zaštitni prekidač od električnog luka, predstavlja funkciju namenjenu otkrivanju i smanjenju rizika od električnog luka u fotonaponskom (PV) sistemu, uz primenu inteligentnog algoritma za detekciju luka. Električni luk može nastati pri probodu električne izolacije pod visokim naponom ili kada provodni materijali dođu u međusobni kontakt. To može izazvati požar i oštetiti komponente sistema. AFCI neprekidno nadzire sistem i, ako detektuje mogući električni luk, prekida strujno kolo kako bi sprečio požar ili drugo oštećenje. AFCI zaštita je prema Nacionalnom elektrotehničkom kodeksu (NEC) obavezna u određenim delovima PV sistema, kao što je DC strana invertera, radi povećanja bezbednosti i smanjenja rizika od požara.

3.8.1 Opis AFCI funkcije

NOTE:

1. The AFCI Function of the WIT Inverter is disabled by default. If you want to enable the AFCI, please contact Growatt support.
2. Do not connect the Maximum Power Point Trackers (MPPTs) on the DC side in parallel as it might trigger the AFCI mistakenly.

3.8.2 Clearing the Alarm

In the event that the WIT Inverter reports "AFCI Fault" and the PV indicator turns red, an arc fault might have been detected. Please perform the following steps to clear the alarm.

Step 1: Disconnect the WIT inverter from all power sources. Turn off the battery switch and the AC output circuit breaker, then turn the DC switches to the OFF position. Wait until the error message disappears.



Fig 3.12

Step 2: Troubleshooting. Check if the open-circuit of all PV strings are within the permissible range.

Step 3: After the fault is cleared, restart the inverter. Turn on the battery switch and the AC breaker, and turn the DC switch to the ON position. Wait until the system is working properly.

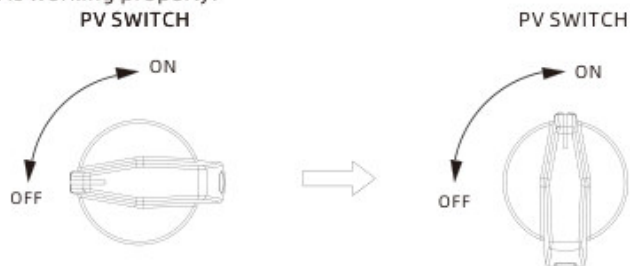


Fig 3.13

SRPSKI PREVOD**Originalna strana 17/143****3.8.1 OPIS AFCI FUNKCIJE – NASTAVAK****NAPOMENA:**

1. AFCI funkcija WIT invertera je podrazumevano isključena. Ako želite da je uključite, obratite se Growatt podršci.
2. Ne povezujte MPPT trakere paralelno na DC strani, jer to može izazvati pogrešno aktiviranje AFCI zaštite.

3.8.2 BRISANJE ALARMA

Ako WIT inverter prijavi „AFCI Fault“, a PV indikator postane crven, moguće je da je detektovan električni luk. Postupite na sledeći način da biste obrisali alarm.

Korak 1: Odvojite WIT inverter od svih izvora napajanja. Isključite prekidač baterije i AC izlazni zaštitni prekidač, a zatim postavite DC prekidače u položaj OFF. Sačekajte da poruka o grešci nestane.

Korak 2: Otklanjanje problema. Proverite da li su naponi praznog hoda svih PV stringova u dozvoljenom opsegu.

Korak 3: Ponovno pokretanje. Nakon otklanjanja kvara ponovo pokrenite inverter. Uključite prekidač baterije i AC zaštitni prekidač, a DC prekidač postavite u položaj ON. Sačekajte da sistem počne pravilno da radi.

Slike 3.12 i 3.13 prikazuju položaje PV prekidača tokom postupka.

If the WIT Inverter passes the AFCI self-test, it will work in the normal mode and the PV indicator will be green. If it fails, the inverter will report "Error 425". In this case, please reboot the system and perform Step 1 to Step 3. If it failed again, please disconnect all power sources and contact Growatt support.

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3.8.2 BRISANJE ALARMA - NASTAVAK

Ako WIT inverter uspešno prođe AFCI samotest, nastaviće da radi u normalnom režimu, a PV indikator će svetleti zeleno.

Ako samotest ne uspe, inverter će prijaviti „Error 425“. U tom slučaju ponovo pokrenite sistem i izvršite korake 1-3 iz prethodnog odeljka. Ako samotest ponovo ne uspe, odvojite sve izvore napajanja i obratite se Growatt podršci.

4 Inspection upon delivery

Unpacking and inspection

1> Before unpacking the WIT Inverter, check the shipping box for any externally visible damage. If any damage is found, contact the shipping company as soon as possible.

2> After unpacking the WIT Inverter, check if the scope of delivery is intact and complete. If any damage is found or any component is missing, contact your distributor.

Check the following items:

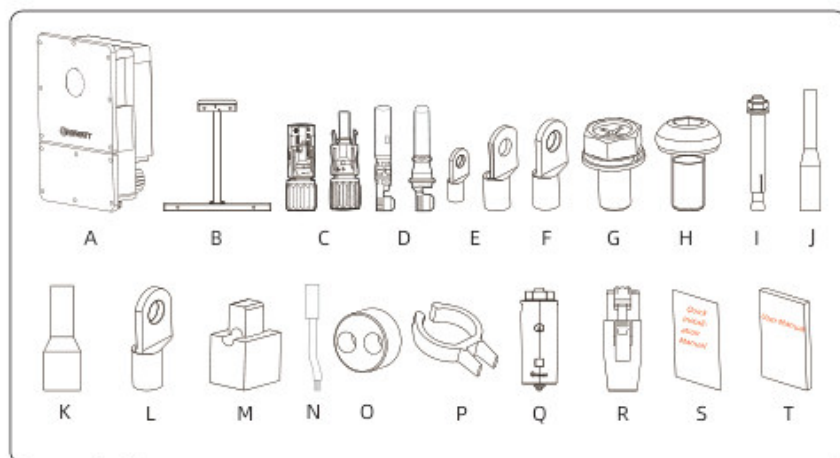


Fig 4 WIT 4-15K-HU Attachment

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4 PROVERA PRILIKOM ISPORUKE

Raspakivanje i provera

1. Pre raspakivanja WIT invertera proverite transportnu kutiju i potražite spolja vidljiva oštećenja. Ako pronađete oštećenje, što pre kontaktirajte transportnu kompaniju.

2. Nakon raspakivanja proverite da li je sadržaj isporuke neoštećen i kompletan. Ako postoji oštećenje ili nedostaje neka komponenta, obratite se distributeru.

Proverite sledeće stavke:

A - WIT inverter

B - komplet zidnog nosača

C - PV +/- konektor

D - metalni kontakt PV +/- konektora

E - baterijski terminal SC50-8/SC120-8

F - terminal SC4-6

G - zavrtanj M8×16

H - zavrtanj M6×16

I - zavrtanj M8×80

J - krimp terminal za komunikaciju

K - krimp terminali za AC stranu

L - terminal RNB8-4S

M - CT (100 A/40 mA)

N - eksterni NTC kabl za olovno-kiselinsku bateriju

O - čep / 2-Φ12

P - alat za odvajanje PV konektora

Q - ShineWiLan-X2

R - RJ45

S - korisničko uputstvo

T - brzi vodič.

Table 4.1 Packing list

No.	Description	Quantity	No.	Description	Quantity
A	The WIT Inverter	1	K	AC Side Rail Crimp Terminals	14
B	Wall mount kit	1	L	RNB8-4S Terminal	1
C	PV+(-) connector	3/3	M	CT (100A/40mA)	3
D	PV+(-) metal contact	3/3	N	External lead-acid battery NTC cable	1
E	Battery terminal SC50-8/SC120-8	4/2	O	Plug/2-Φ12	2
F	SC4-6 terminal	1	P	PV connector disconnect tool	1
G	M8*16 screw	4	Q	ShineWiLan-X2	1
H	M6*16 screw	2	R	Rj45	7
I	M8*80 screw	4	S	user manual	1
J	Communication Crimp Terminal	14	T	Quick Guide	1

NOTE:

1. Sturdy and durable though the packing carton is, please carry and handle it with caution.
2. When connecting 2-channel battery on the battery input side, use the attached rubber plug to ensure reliable sealing;
3. Normal use of the machine accessory CT for backflow prevention and other energy flow control, customers do not need to purchase a separate meter and CT, just connect the CT's secondary side wiring to the corresponding terminals of the WIT 4-15K-HU machine.

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TABELA 4.1 – SPISAK PAKOVANJA

A - WIT inverter — 1 kom.
 B - komplet zidnog nosača — 1 kom.
 C - PV +/- konektor — 3/3 kom.
 D - metalni kontakt PV +/- — 3/3 kom.
 E - baterijski terminal SC50-8/SC120-8 — 4/2 kom.
 F - terminal SC4-6 — 1 kom.
 G - zavrtnanj M8×16 — 4 kom.
 H - zavrtnanj M6×16 — 2 kom.
 I - zavrtnanj M8×80 — 4 kom.
 J - krimp terminal za komunikaciju — 14 kom.
 K - krimp terminal za AC stranu — 14 kom.
 L - terminal RNB8-4S — 1 kom.
 M - CT (100 A/40 mA) — 3 kom.
 N - eksterni NTC kabl za olovno-kiselinsku bateriju — 1 kom.
 O - čep / 2-Φ12 — 2 kom.
 P - alat za odvajanje PV konektora — 1 kom.
 Q - ShineWiLan-X2 — 1 kom.
 R - RJ45 — 7 kom.
 S - korisničko uputstvo — 1 kom.
 T - brzi vodič — 1 kom.

NAPOMENA:

1. Iako je ambalažna kutija čvrsta i izdržljiva, nosite i rukujte njome pažljivo.
2. Kada se na baterijskoj strani koriste dva baterijska kanala, koristite priloženi gumeni čep kako biste obezbedili pouzdano zaptivanje.
3. Priloženi CT se standardno koristi za sprečavanje povratnog toka i druge funkcije upravljanja tokom energije. Nije potrebno kupovati zasebno brojilo i CT; sekundarne provodnike CT-a povežite sa odgovarajućim terminalima WIT 4-15K-HU uređaja.

5 Installation

5.1 Basic Installation Requirements

- A. The installation location must be suitable for WIT's weight for a long period time. (Refer to Table 3.2 for the weight of the WIT Inverter).
- B. Ensure that the installation position is suitable for the dimensions of the WIT Inverter.
- C. Do not install the WIT Inverter in areas with flammable or non heat-resistant materials.
- D. The WIT Inverter is protected to IP66 and can be installed indoors or outdoors.
- E. Do not expose the WIT Inverter to direct sunlight. Otherwise, excessive temperature may lead to power reduction.
- F. Keep the humidity at 0% to 95% RH.
- G. Keep the ambient temperature at -30°C to 60°C.
- H. The WIT inverter can be installed vertically or backward tilted. Please refer to the figures below:

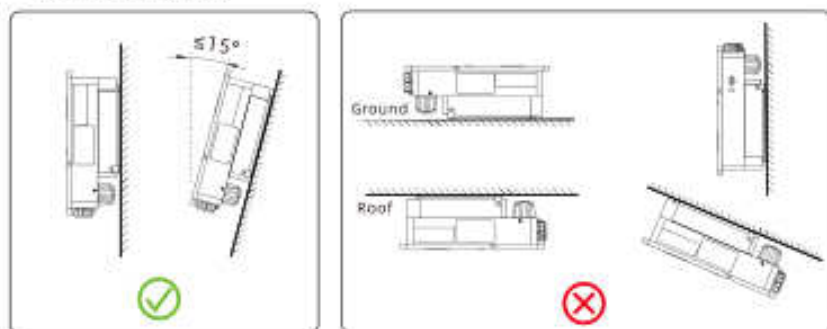


Fig 5.1

- I. Reserve enough clearance around the WIT Inverter to ensure sufficient space for heat dissipation and operation. Leave a clearance of 0.6 m on both sides, approximate 0.6 m above and below the WIT Inverter, and 1 m in front of the inverter.

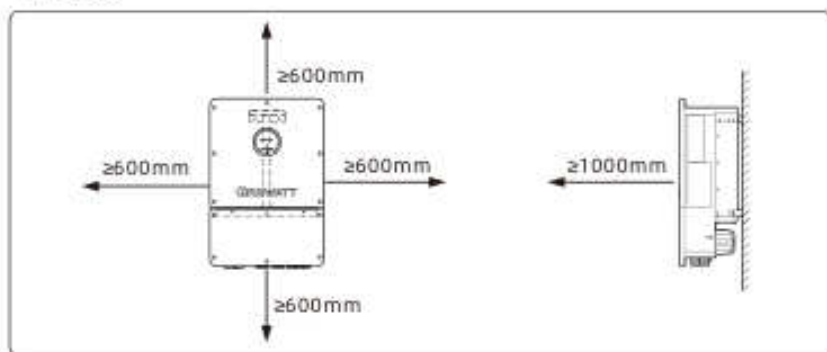


Fig 5.2

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5 INSTALACIJA

5.1 OSNOVNI ZAHTEVI ZA INSTALACIJU

- A. Mesto instalacije mora dugoročno biti pogodno za težinu WIT invertera. (Pogledajte Tabelu 3.2.)
- B. Proverite da položaj instalacije odgovara dimenzijama WIT invertera.
- C. Ne postavljajte WIT inverter u prostorima sa zapaljivim materijalima ili materijalima koji nisu otporni na toplotu.
- D. WIT inverter ima zaštitu IP66 i može se instalirati u zatvorenom ili na otvorenom.
- E. Ne izlažite WIT inverter direktnoj sunčevoj svetlosti. Prekomerna temperatura može dovesti do smanjenja izlazne snage.
- F. Relativna vlažnost treba da bude 0-95% RH.
- G. Temperatura okoline treba da bude -30 °C do +60 °C.
- H. WIT inverter može biti instaliran vertikalno ili sa nagibom unazad. Pogledajte prikazane slike.
- I. Ostavite dovoljno prostora oko WIT invertera radi odvođenja toplote i nesmetanog rada: najmanje 0,6 m sa obe strane, približno 0,6 m iznad i ispod invertera i 1 m ispred invertera.

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5.2 ZAHTEVI ZA OKRUŽENJE PRI INSTALACIJI

J. Držite WIT inverter dalje od izvora jakih elektromagnetnih smetnji.
K. Obezbedite da WIT inverter nije dostupan deci.

A. Iako WIT inverter ima zaštitu IP66, ne izlažite ga direktnoj sunčevoj svetlosti, kiši i snegu. Pogledajte sliku 5.3.
B. Radi smanjenja deratinga invertera i produženja njegovog radnog veka, preporučuje se postavljanje nadstrešnice. Rastojanja između nadstrešnice i invertera prikazana su na slici 5.4.
C. Kada se više WIT invertera instalira na istoj površini, postavite ih prema jednom od dva prikazana rasporeda.

J. Keep the WIT Inverter away from strong interference sources.
K. Ensure that the WIT Inverter is not accessible to children.

5.2 Installation Environment Requirements

A. Though the WIT Inverter is protected to IP66, do not expose it to direct sunlight, rain and snow. Please refer to the figures below:



Fig 5.3

B. To reduce the de-rate performance of the inverter and extend inverter's life span, we strongly recommend you install an awning. For the distance between an awning and inverter, please refer to following figure:

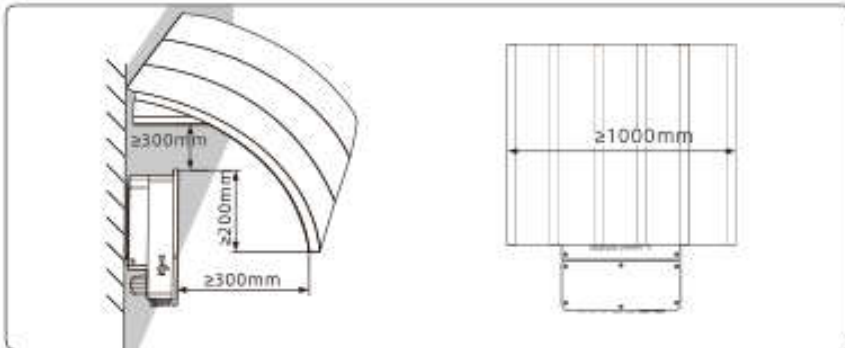
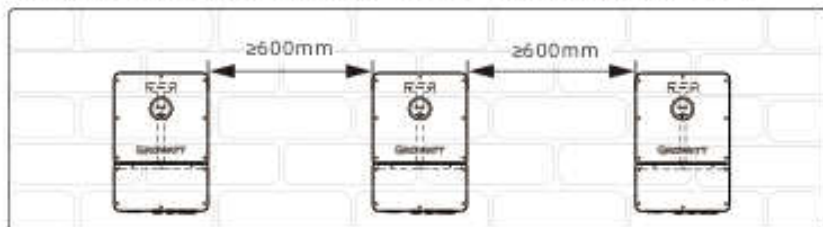


Fig 5.4

C. When you install multiple WIT inverters on one surface, inverters should be installed as following drawing. (Choose one of the two options below).



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5.3 PREMEŠTANJE WIT INVERTERA

⚠ OPREZ: Inverter je težak. Pažljivo ga pomerajte i održavajte ravnotežu da biste izbegli povrede.

Ne postavljajte inverter tako da njegovi priključci za ožičenje i signalni terminali dodiruju pod ili drugi predmet, jer terminali nisu predviđeni da nose težinu invertera.

5.2 ZAHTEVI ZA OKRUŽENJE PRI INSTALACIJI - nastavak

D. Ne postavljajte WIT inverter u zatvoren i uzak prostor tokom rada.

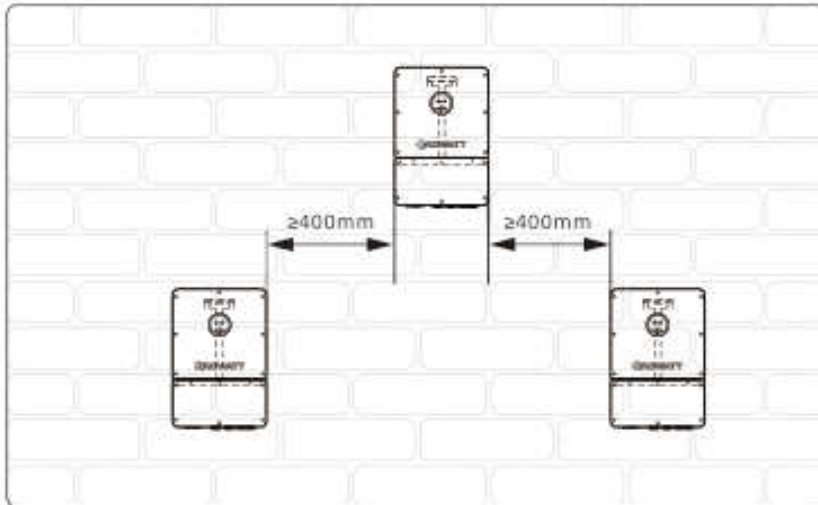


Fig 5.5

D. Do not place the WIT Inverter in an enclosed and narrow space for operation.



Fig 5.6

5.3 Moving the WIT Inverter



CAUTION

- The inverter is heavy, please move it with care and keep balance to avoid personnel injury.
- Do not place the inverter with its wiring and signal terminals at the bottom contacting with floor or any other object because the terminals are not designed to support the weight of inverter.

- 1>As shown in Fig 5.7, two persons are required to lift the inverter out of the package and transport it to the installation position.
- 2>When you are moving the inverter, please keep the balance.

Note: There will be front and bottom mark on the package.

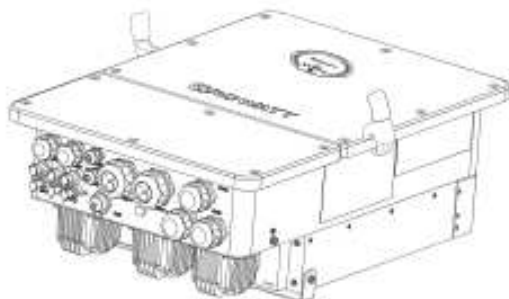


Fig 5.7

5.4 Wall Mount Bracket Installation

Before installing the inverter, you need install the wall mount bracket so that the inverter can be securely mounted on the wall.

Wall mount bracket (unit: mm):

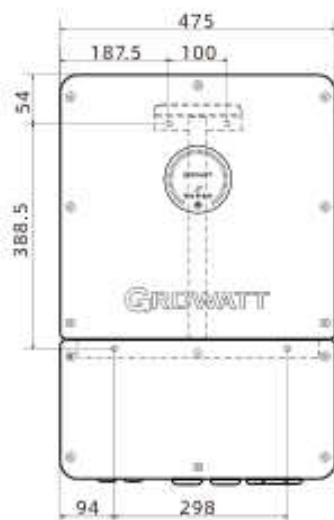


Fig 5.8

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PREMEŠTANJE WIT INVERTERA

1. Kao što je prikazano na slici 5.7, potrebne su dve osobe da izvade inverter iz ambalaže i prenesu ga na mesto instalacije.
2. Tokom pomeranja invertera održavajte njegovu ravnotežu.

Napomena: Na ambalaži postoje oznake za prednju i donju stranu.

5.4 MONTAŽA ZIDNOG NOSAČA

Pre instalacije invertera potrebno je montirati zidni nosač kako bi inverter mogao bezbedno da se pričvrsti na zid. Dimenzije zidnog nosača prikazane su na slici 5.8.

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5.4 MONTAŽA ZIDNOG NOSAČA – nastavak KORAK 1: Koristite zidnu montažnu ploču kao šablon, izbušite rupe u zidu i postavite ekspanzione ankere prema slici 5.9. KORAK 2: Zategnite vijke tako da zidni nosač bude čvrsto pričvršćen za zid. Napomena:

1. Zid u koji se ugrađuju ekspanzioni ankeri mora biti od čvrstog betona ili opeke, debljine najmanje 100 mm.
2. Pre postavljanja invertora proverite da je nosač čvrsto ugrađen. 5.5 MONTAŽA INVERTERA Nakon provere nosača, montirajte inverter na njega.

1. Instalater sa obe ruke podiže uređaj.

2. Okačite inverter na zidni nosač i postavite vijke; pri pomeranju održavajte ravnotežu.

3. Proverite da je inverter pravilno postavljen i zategnite sve vijke. Moment zatezanja vijaka: 396 kgf-cm.

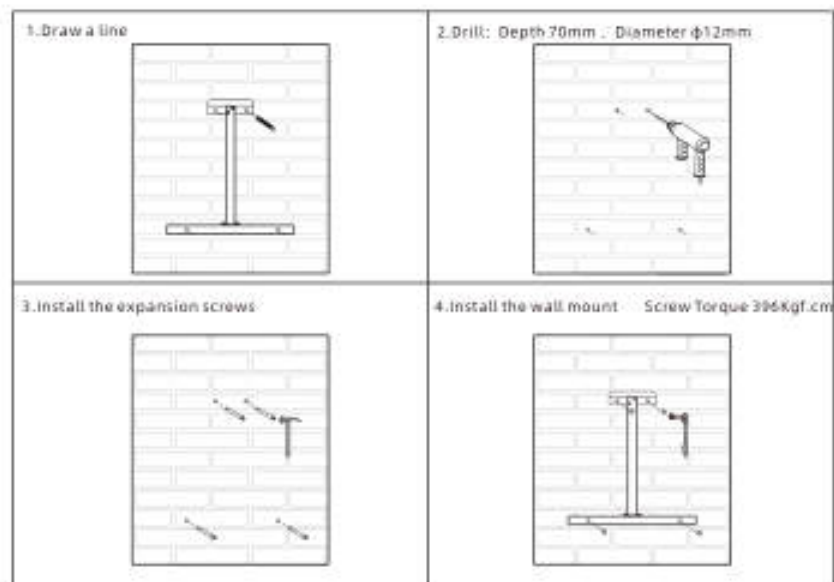


Fig 5.9

Note:

- 1> The wall where the expansion bolts are installed should be a solid concrete or brick wall with a thickness of at least 100 mm.
- 2> Ensure that the bracket has been firmly installed before mounting the inverter onto it.

5.5 Installing the Inverter

After verifying that the wall mount bracket has been firmly installed on the wall, mount the inverter onto the bracket.

- 1> The installer uses both hands to lift the machine as shown in Fig 5.10 below.
- 2> Hang the inverter onto the wall mount bracket and install the bolts. Please keep balance when moving the inverter.
- 3> Check if the inverter has been properly mounted and tighten all screws.

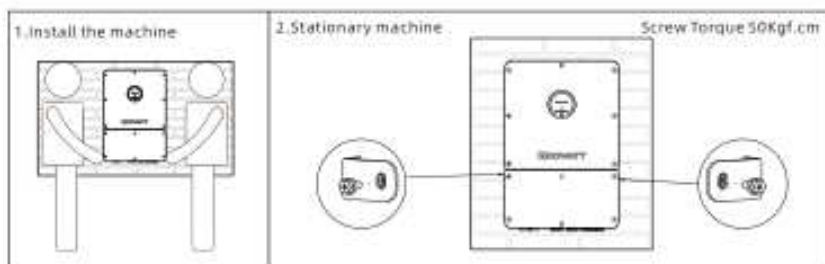


Fig 5.10 Wall-mounted installation

 NOTICE	Ensure that the wall meets the load-bearing requirements of the equipment. For details about the weight, see Table 3.2.
--	--

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5.5 MONTAŽA INVERTERA – nastavak

NAPOMENA: Proverite da zid ispunjava zahteve nosivosti uređaja. Za težinu pogledajte Tabelu 3.2.

1. Postavite uređaj na nosač.
2. Fiksirajte uređaj.

Moment zatezanja vijaka: 50 kgf·cm.

Slika 5.10 – Montaža invertera na zid.

6 Electrical Connection

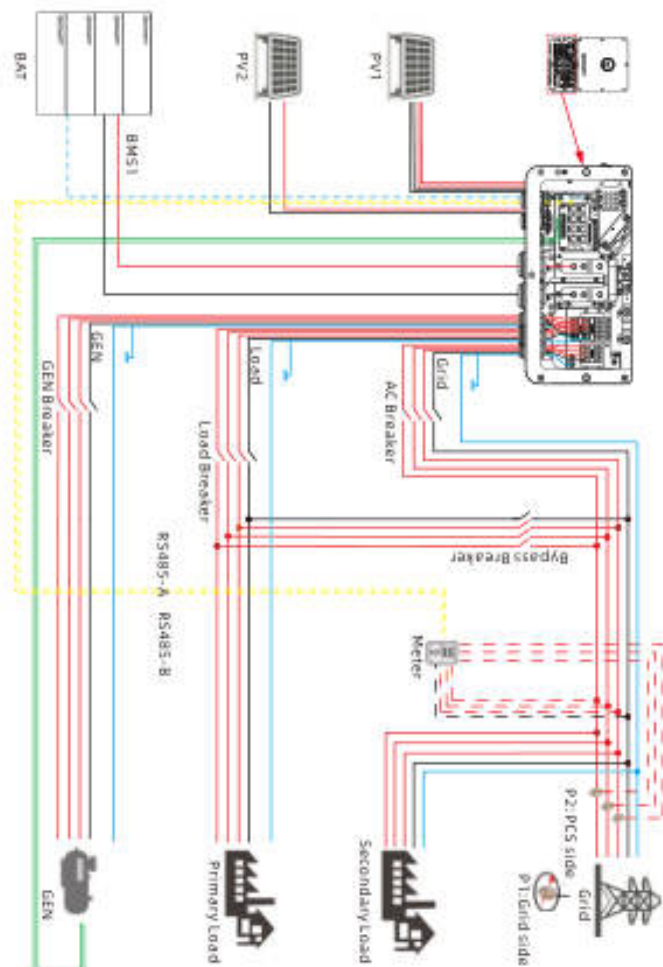


Fig 6.1 Wiring diagram of the system with a single WIT 15K-HU inverter (Gen mode)

NOTE:

1. Connect the signal wires of the generator and the meter to the relevant positions of the CN10 terminal according to Table 6.6.
2. Set the parameters on the client. Take ShinePhone as an example:
Tap Control > Off grid parameter settings > Related settings for grid connection and off grid > Grid connected/off grid setup > Generator; As shown in Fig 8.39;
(2) Tap Control > Advanced > Microgrid system > Types of Access for GEN Port Devices > Generator and > Generator Enable > Enable, And set other parameters as required.

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6 ELEKTRIČNO POVEZIVANJE

Slika 6.1 – šema ožičavanja sistema sa jednim WIT 15K-HU inverterom (GEN režim).

1. Povezivanje signalnih vodova

Povežite signalne vodove generatora i brojila na odgovarajuća mesta terminala CN10, prema tabeli 6.6.

2. Podešavanje parametara

Na klijentskoj aplikaciji podesite odgovarajuće parametre. Primer sa aplikacijom ShinePhone:

Control → Off grid parameter settings → Related settings for grid connection and off grid → Grid connected/off grid setup → Generator.

3. GEN port

U meniju podesite:

Control → Microgrid system → Types of Access for GEN Port Devices → Generator → Generator Enable → Enable.

Ostale parametre podesite prema potrebama sistema i lokalnim propisima.

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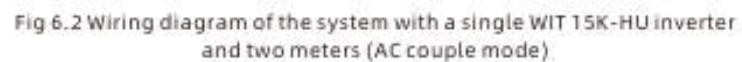
Slika 6.2 – šema ožičavanja sistema sa jednim WIT 15K-HU inverterom i dva brojila (AC Couple režim).

- Povežite signalne vodove brojila na odgovarajuća mesta terminala CN10, prema tabeli 6.6.

- Na klijentskoj aplikaciji podesite odgovarajuće parametre. Primer sa aplikacijom ShinePhone:

Control → Advanced → Microgrid system → Types of Access for GEN Port Devices → Inverter → AC Couple Enable → Enable.

Ostale parametre podesite prema potrebama sistema.



1. Connect the signal wires of the meter to the relevant positions of the CN10 terminal according to Table 6.6.

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6 ELEKTRIČNO POVEZIVANJE – Smart Load režim

Slika 6.3 – šema ožičavanja sistema sa jednim WIT 15K-HU inverterom u Smart Load režimu.

1. Povezivanje signalnih vodova brojila

Povežite signalne vodove brojila na odgovarajuća mesta terminala CN10, prema tabeli 6.6.

2. Podešavanje Smart Load režima

Na klijentskoj aplikaciji, u primeru ShinePhone, izaberite:

Control → Advanced → Microgrid system → Types of Access for GEN Port Devices → Smart Load.

Ostale parametre podesite prema potrebama sistema.

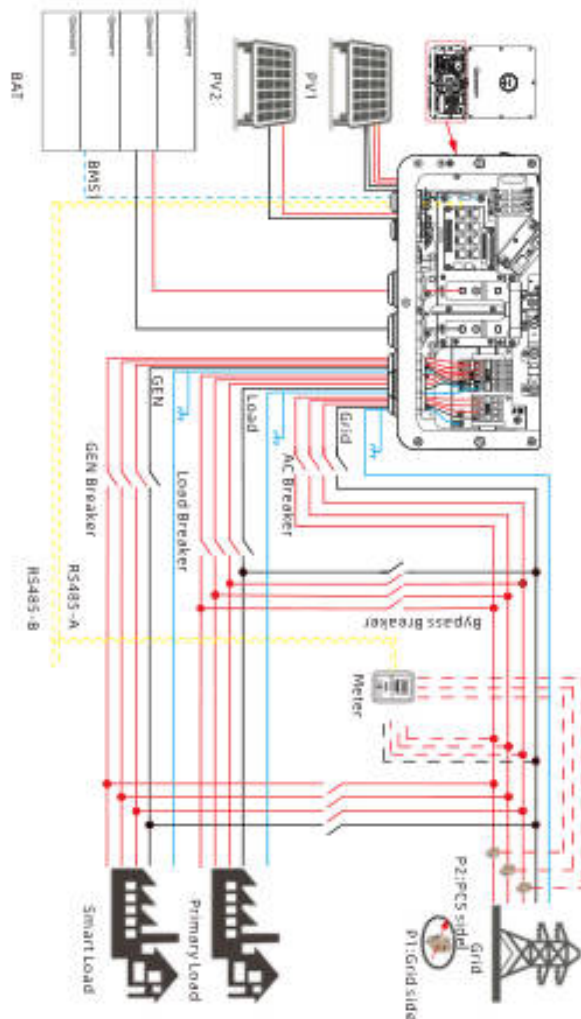


Fig 6.3 Wiring diagram of the system with single WIT 15K-HU inverters in smart load mode

NOTE:

1. Connect the signal wires of the meter to the relevant positions of the CN10 terminal according to Table 6.6.
2. Perform related Settings on the client. Take ShinePhone as an example: Tap Control > Advanced > Microgrid system > Types of Access for GEN Port Devices > Smart Load.

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6 ELEKTRIČNO POVEZIVANJE – paralelni rad

Slika 6.4 – šema ožičavanja sistema sa tri WIT 15K-HU invertera povezana paralelno.

1. Omogućavanje paralelnog rada

Na klijentskoj aplikaciji, u primeru ShinePhone, izaberite:

Control → Parallel parameter setting → Parallel enable → Enable.

2. Ožičavanje

Način ožičavanja za različite regione prikazan je na slici 6.5. Izaberite način ožičavanja u skladu sa lokalnim bezbednosnim propisima.

Napomena: Šema prikazuje veze PV1, PV2, BAT, BMS1, GRID, GEN, LOAD, RS485 i odgovarajuće prekidače za paralelni sistem.

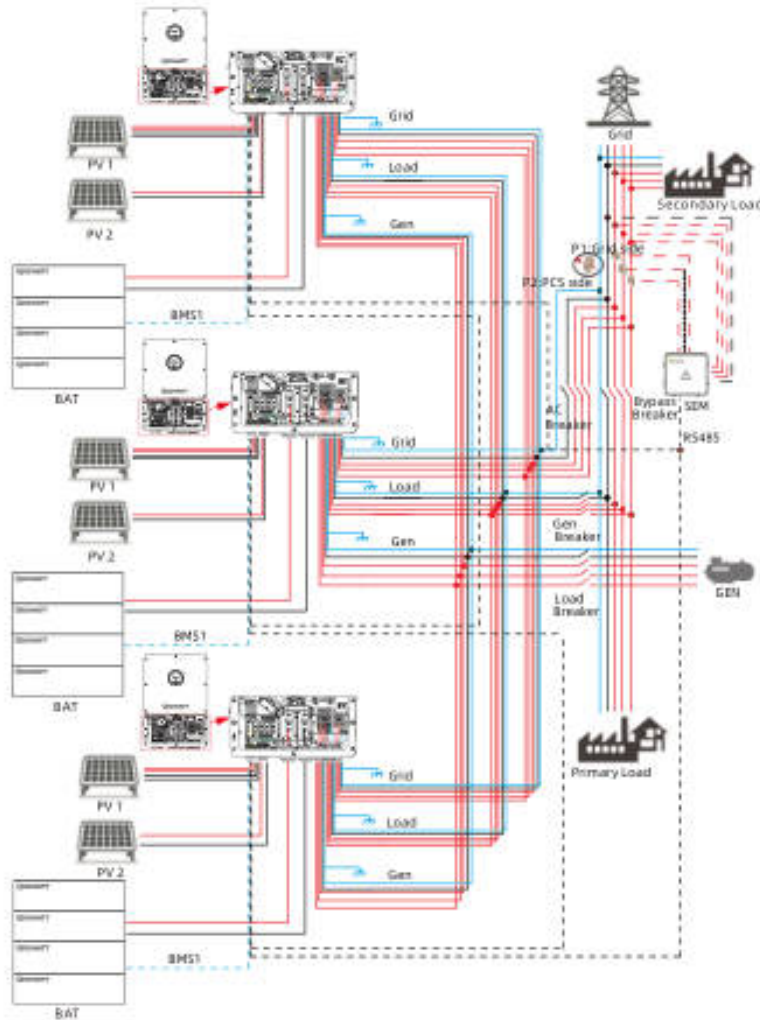


Fig 6.4 Wiring diagram of the system with three WIT 15K-HU inverters connected in parallel

NOTE:

1. Perform related Settings on the client. Take ShinePhone as an example: Tap Control > Parallel parameter setting > Parallel enable > Enable.
2. The wiring methods for different regions are shown in Fig 6.5 below, please select the wiring method according to the local safety regulations.

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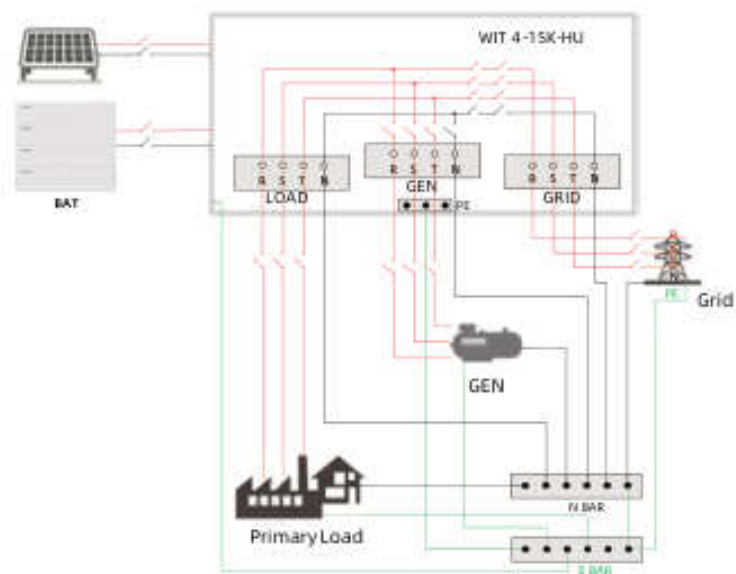
Slika 6.5 - N-PE ožičenje u različitim područjima

(a) Ožičenje za područje AU/NZ

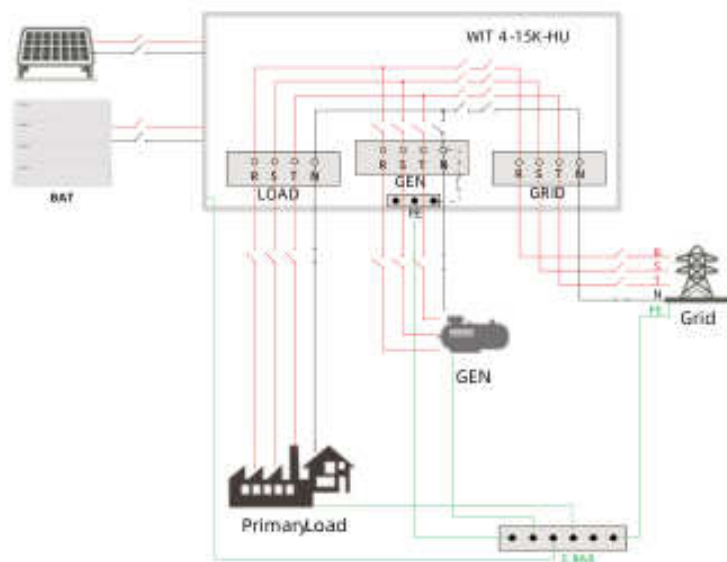
Prikazane su veze GRID, LOAD, GEN, BAT, PE, N BAR i E BAR za WIT 4-15K-HU.

(b) Ožičenje za ostala područja

Prikazane su veze GRID, LOAD, GEN, BAT, PE i E BAR prema prikazanoj šemi. Primarni potrošač je povezan na LOAD.



(a) AU/NZ area wiring



(b) Other area wiring

Fig 6.5 N-PE Wiring in Different Areas

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Slika 6.6 – Detaljne informacije o komunikacionim mrežnim priključcima

Baterija:

- P1 - BAT_RS485_B
- P2 - BAT_RS485_A
- P3 - BAT1_DI_1
- P4 - BAT1_CAN_H
- P5 - BAT1_CAN_L
- P6 - BAT1_DI_2
- P7/P8 - —

METER / Meter2 / ShineBus / ShineMaster:

- P1 - RS485_2B
- P2 - GND.S
- P5 - RS485_2A

Ostali priključci prema šemi.

DRMS / Meter2 / ShineBus / ShineMaster:

- P1 - DRM1/5
- P2 - DRM2/6
- P3 - DRM3/7
- P4 - DRM4/8
- P5 - REF
- P6 - COM

EMS/VPP:

- P1 - RS485_1B
- P2 - GND.S
- P4 - RS485_1B
- P5 - RS485_1A
- P7 - RS485_3B
- P8 - RS485_3A

PCS3 (CN7/PARA_IN):

- P2 - GND.S
- P3 - Sc_A/H
- P4 - PL_CANH
- P5 - PL_CANL
- P6 - Sc_B/L
- P7 - GND.S
- P8 - master_CAN

PCS1 (CN7/PARA_OUT):

- P2 - GND.S
- P3 - Sc_A/H
- P4 - PL_CANH
- P5 - PL_CANL
- P6 - Sc_B/L
- P7 - Slave_CAN
- P8 - GND.S

Oznake pinova i signala treba pratiti prema originalnoj šemi radi pravilnog povezivanja.

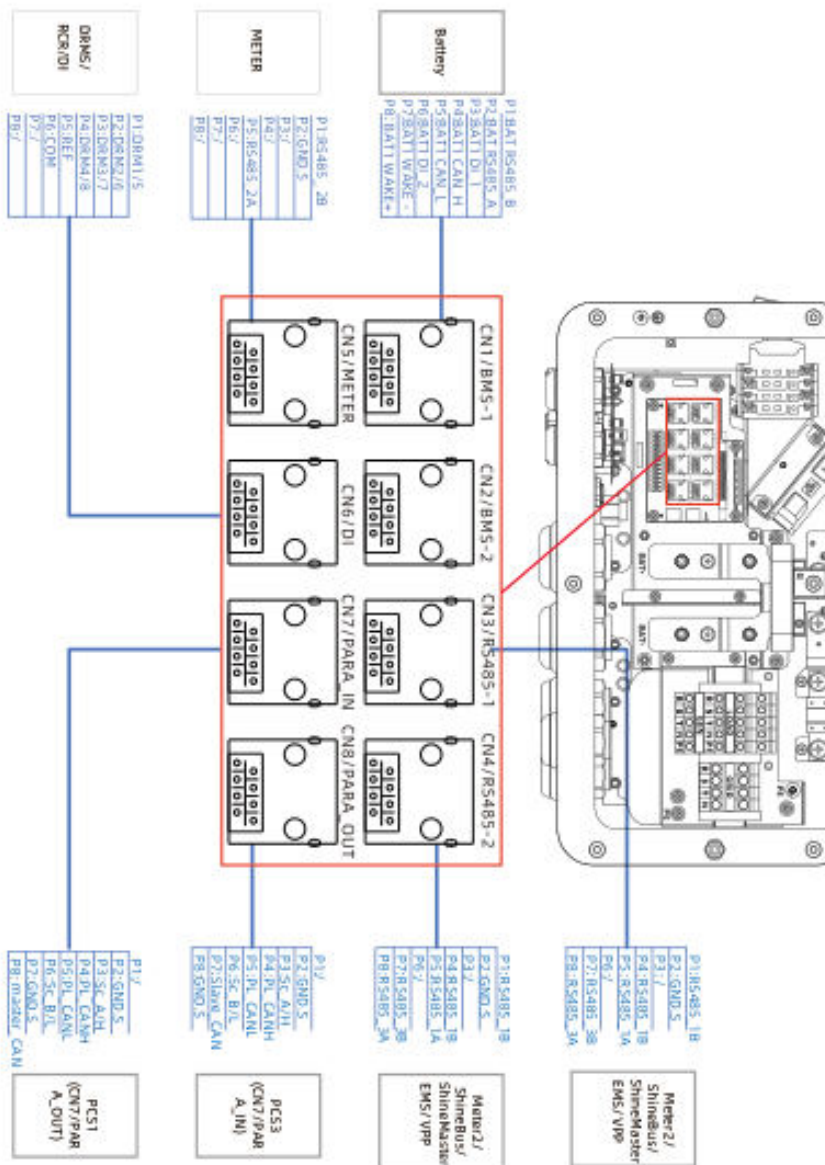


Fig 6.6 Communication network port Detailed information

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Slika 6.7 - Signalni terminal

Prikazani su signali: REPO.WIT, DG_START+, DG_START-, NTC.BAT1 OUT, CT_R- (crna), CT_R+ (bela), CT_S- (crna), CT_S+ (bela), CT_T- (crna) i CT_T+ (bela).

Ove oznake treba zadržati tačno prema originalnoj šemi jer predstavljaju fizičke terminale i signale uređaja.

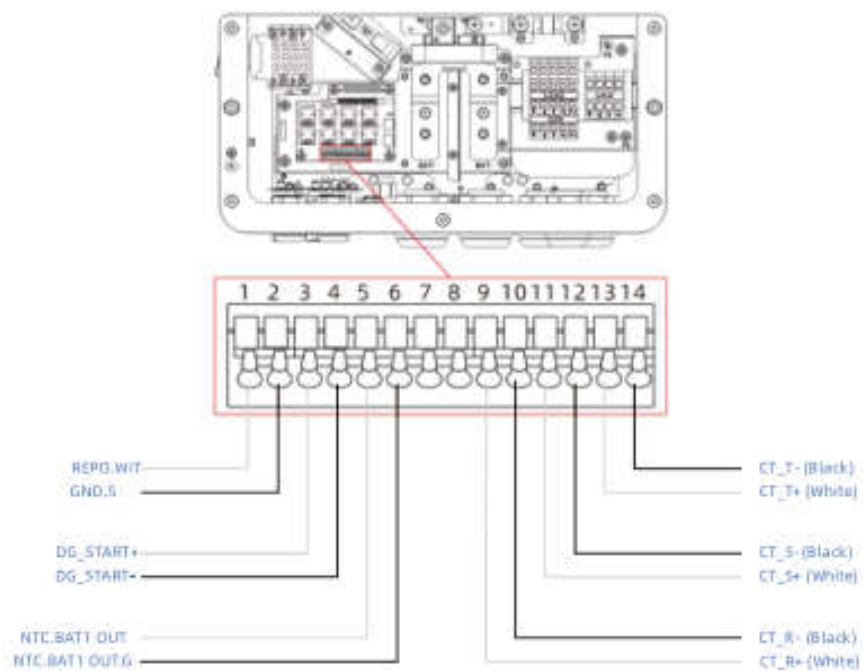


Fig 6.7 Signal terminal

6.1 Shell Connecting The Ground Cables

- 1) It is essential to connect the ground cable to the WIT inverter before connecting other cables to prevent personal injury or device damage.
- 2) All non-current-carrying metal parts and the enclosures of the devices of the energy storage system, including the rack and the enclosures of the combing box, the distribution panel, the inverter and the battery should be properly grounded.
- 3) For a single WIT inverter, connect a ground cable to the ground point on the chassis shell. For a system with multiple WIT Inverters connected in parallel ensure that the enclosures of the WIT Inverters, the metal racks of the modules and the batteries should be connected to the same area to achieve equipotential bonding.
- 4) The position of the ground points of the WIT 4-15K-HU Hybrid Inverter is shown in Fig 6.6.

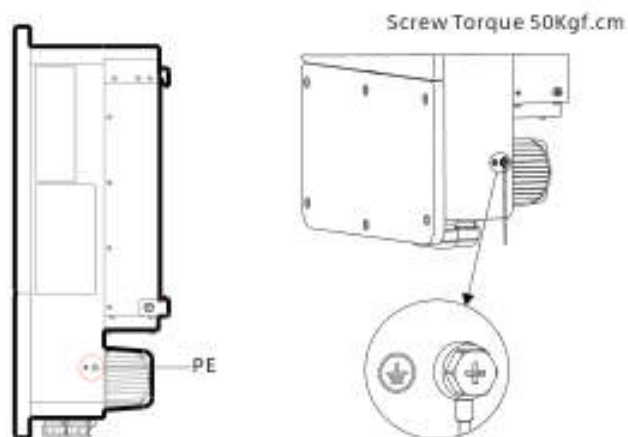


Fig 6.6 Protective earthing position

Attention:

1. Keep the lightning protection grounding at the greatest possible distance from the protective grounding.
2. Protect the terminals of the ground cables against rain and do not expose the them to open air.
3. Tighten the screws to a torque of 50 kgf·cm.

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6.1 POVEZIVANJE ZAŠTITNOG UZEMLJENJA KUĆIŠTA

1. Pre povezivanja ostalih kablova obavezno povežite zaštitni provodnik za uzemljenje na WIT inverter kako biste sprečili povrede ili oštećenje uređaja.
2. Svi metalni delovi sistema za skladištenje energije koji nisu pod naponom, kao i kućišta uređaja, uključujući nosač, kućište razvodne kutije, razvodni panel, inverter i bateriju, moraju biti pravilno uzemljeni.
3. Kod jednog WIT invertera povežite uzemljivački kabl na tačku uzemljenja kućišta. Kod više paralelno povezanih WIT invertera, kućišta invertera, metalni nosači modula i baterije moraju biti povezani na isti potencijal radi izjednačenja potencijala.
4. Položaj tačaka uzemljenja WIT 4-15K-HU hibridnog invertera prikazan je na slici 6.6. Pažnja:
 1. Zaštitno uzemljenje od munje držite što dalje od zaštitnog uzemljenja.
 2. Terminale uzemljivačkih kablova zaštitite od kiše i ne ostavljajte ih izložene.
 3. Zategnite vijke momentom 50 kgf·cm.

6.2 Internal Connecting The Ground Cables

 DANGER	• Before connecting cables, ensure that the DC switches on the WIT Inverter are OFF. Turn off the switches and breakers on the GRID side, GEN side and the battery side. Otherwise, the high voltages of the WIT Inverter may result in electric shocks. • Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. • High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. • Do not place inflammable and explosive materials around the WIT Inverter.
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The Internal Ground Cables connection steps:

1) Open the lower cover and the cover position is shown in Fig 6.9;



Fig 6.9 Right cover

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6.2 UNUTRAŠNJE POVEZIVANJE ZAŠTITNOG UZEMLJENJA

⚠ OPASNOST: Visoki naponi mogu izazvati strujni udar i teške povrede. Ne dodirujte inverter dok radi.

Pre povezivanja kablova proverite da su DC prekidači WIT invertera isključeni. Isključite prekidače i osigurače na GRID strani, GEN strani i strani baterije. U suprotnom visoki naponi mogu izazvati strujni udar.

Ne postavljajte zapaljive i eksplozivne materijale oko WIT invertera.

Rad smeju da obavljaju samo kvalifikovani i obučeni elektrotehničari, uz poštovanje ovog uputstva i lokalnih propisa.

Postupak povezivanja unutrašnjeg uzemljenja:

1. Otvorite donji poklopac; položaj poklopca prikazan je na slici 6.9.

2) Connect a ground cable to the copper grounding bar. Fig 6.10 shows the position of the grounding bar inside the right cover plate;

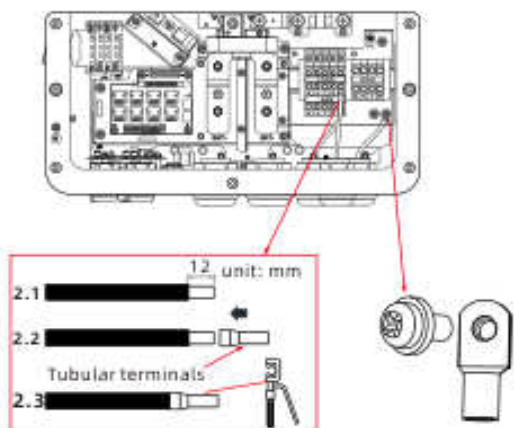


Fig 6.10 Grounding Schematic

6.3 Connection on the AC Side

 DANGER	• Before connecting cables, ensure that the DC switches on the WIT Inverter are OFF. Turn off the switches and breakers on the GRID side, GEN side and the battery side. Otherwise, the high voltages of the WIT Inverter may result in electric shocks. • Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. • High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. • Do not place inflammable and explosive materials around the WIT Inverter.
 WARNING	• Each WIT Inverter must be equipped with a separate AC circuit breaker. Multiple WIT Inverters cannot connect to the same AC circuit breaker (not applicable to off-grid mode). • Please do not connect loads between the WIT Inverter and the circuit breaker. • If the cable is thick, do not wiggle the cable after tightening the cable terminals. Otherwise, the loose connection may cause overheating that will damage the device. Ensure that the terminals are properly connected before starting the WIT Inverter. • Upon completion of the AC wiring, remember to seal the waterproof silicone mat with the fireproof mud in order to ensure good waterproof performance.

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6.2 UNUTRAŠNJE POVEZIVANJE ZAŠTITNOG UZEMLJENJA – nastavak

2. Povežite uzemljivački kabl na bakarnu uzemljivačku sabirnicu. Položaj sabirnice unutar desnog poklopca prikazan je na slici 6.10.

6.3 POVEZIVANJE NA AC STRANI

⚠ OPASNOST: Visoki naponi mogu izazvati strujni udar i teške povrede. Ne dodirujte inverter dok radi.

Pre povezivanja kablova DC prekidači WIT invertera moraju biti isključeni. Isključite prekidače i osigurače na GRID, GEN i baterijskoj strani.

Rad smeju obavljati samo kvalifikovani i obučeni elektrotehničari.

Ne postavljajte zapaljive i eksplozivne materijale oko WIT invertera.

Svaki WIT inverter mora imati zaseban AC prekidač. Više WIT invertera ne sme biti povezano na isti AC prekidač (ne odnosi se na režim rada van mreže).

Ne povezujte potrošače između WIT invertera i prekidača.

Ako je kabl deo, nakon zatezanja terminala ne pomerajte kabl. Labav spoj može izazvati pregrevanje i oštećenje uređaja.

Po završetku AC ožičenja zaptijte vodootpornu silikonsku podlogu protivpožarnim kitom radi dobre vodonepropusnosti.

Preparation:

- 1> Ensure the grid voltage and the grid frequency are within the acceptable range;
- 2> Disconnect the DC switches and the AC breakers on the grid side, generator side and the battery side.

The circuit breaker on the AC side:

AC circuit breaker needs to be installed on the grid side, ensuring a safe disconnection between the WIT Inverter and the upstream input when an exception occurs.

1. Recommended AC breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	32A
WIT 8/10/12/15K-HU	400V	63A

2. Recommended load breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	25A
WIT 8/10/12/15K-HU	400V	50A

3. Recommended bypass breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	25A
WIT 8/10/12/15K-HU	400V	50A

4. Recommended Gen breaker specifications for WIT 4-15K-HU models

Device type	Rated voltage of the circuit breaker	Rated current of the circuit breaker
WIT 4/5/6K-HU	400V	32A
WIT 8/10/12/15K-HU	400V	63A

NOTE:

For the PCS to operate in Smart Load mode, select the appropriate AC breaker based on the smart load power.

Recommended power cable specifications:

Recommended AC power cables for WIT 4-15K-HU models

Device type	GRID Recommended cable specification	LOAD Recommended cable specification	GEN Recommended cable specification
WIT 4-15K-HU	10mm ²	10mm ²	10mm ²

Note: The wire should be well tinned and free from splits and breaks.

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PREPORUČENE AC ZAŠTITE I KABLOVI

Priprema

1. Proverite da li su mrežni napon i frekvencija mreže u dozvoljenom opsegu.
2. Isključite DC prekidače i AC prekidače na strani mreže, generatora i baterije.

AC prekidač na strani mreže

AC prekidač mora biti ugrađen na strani mreže kako bi se omogućilo bezbedno odvajanje WIT invertera od uzvodnog napajanja u slučaju kvara.

1. Preporučene specifikacije AC prekidača

WIT 4/5/6K-HU — 400 V — 32 A

WIT 8/10/12/15K-HU — 400 V — 63 A

2. Preporučene specifikacije prekidača za LOAD

WIT 4/5/6K-HU — 400 V — 25 A

WIT 8/10/12/15K-HU — 400 V — 50 A

3. Preporučene specifikacije bypass prekidača

WIT 4/5/6K-HU — 400 V — 25 A

WIT 8/10/12/15K-HU — 400 V — 50 A

4. Preporučene specifikacije GEN prekidača

WIT 4/5/6K-HU — 400 V — 32 A

WIT 8/10/12/15K-HU — 400 V — 63 A

Preporučeni energetska kablovi

GRID: 10 mm² • LOAD: 10 mm² • GEN: 10 mm²

Napomena: Provodnik mora biti dobro kalajisan i bez pukotina i oštećenja.

Za Smart Load režim izaberite odgovarajući AC prekidač prema snazi Smart Load potrošača.

AC side connection method:

Connect the main power cables according to the label. Fig 6.11 shows the position of the label and the AC terminals.

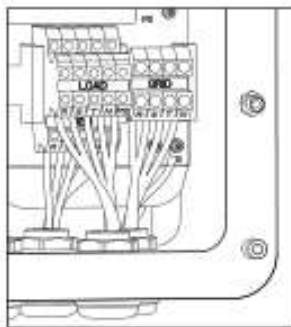
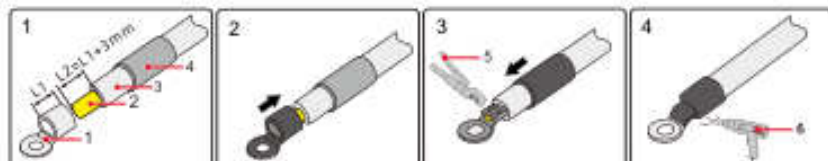


Fig 6.11 AC Terminal Wiring Locations and Schematics

Note:

1. Determine the stripped length based on the wiring terminal specifications (recommended length: 11-13 mm). Crimp the cable and terminal using a crimper as shown below. Loosen the PG type cable gland and route the cables through it. Then connect the cables to the corresponding terminals. Secure the cables by tightening the screws.



- | | | |
|------------------------|----------------------|--------------|
| (1) OT terminal | (2) Core wire | (3) Cable |
| (4) Heat shrink tubing | (5) Hydraulic pliers | (6) Heat gun |

Fig 6.12 Schematic diagram of cable crimp terminals

2. Cold-pressed terminals are delivered with the package. Select terminals based on the cable specifications;

 WARNING	Any device damage caused by failure to seal the output terminal gaps as instructed is beyond the scope of warranty and Growatt shall not be liable for the damage.
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NAČIN POVEZIVANJA NA AC STRANI

Povežite glavne energetske kablove prema oznakama. Slika 6.11 prikazuje položaj oznaka i AC terminala.

1. Odredite dužinu skidanja izolacije prema specifikaciji terminala; preporučena dužina je 11-13 mm. Krimpovati kabl i terminal odgovarajućim alatom. Odvrnite PG kablovsku uvodnicu i provucite kablove kroz nju, zatim povežite kablove na odgovarajuće terminale i pričvrstite ih zatezanjem vijaka.
2. Hladno presovani terminali isporučuju se uz uređaj. Izaberite terminale prema specifikaciji kabla.

⚠ UPOZORENJE: Oštećenje uređaja nastalo zato što otvori izlaznih terminala nisu zaptiveni prema uputstvu nije pokriveno garancijom i Growatt za takvu štetu ne odgovara.

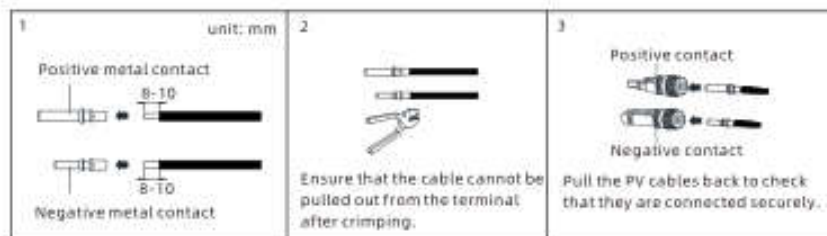
Slika 6.12 prikazuje šemu krimp terminala: OT terminal, provodna žila, kabl, termoskupljajuća cev, hidraulična klešta i pištolj za vruć vazduh.

6.4 Connection on the PV Side

 DANGER	• Before connecting cables, ensure that the DC switches of the WIT Inverter are OFF, and turn off the breakers on the AC side and the battery side. Otherwise, the high voltages of the WIT Inverter may cause electric shocks. • Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. • Check the positive and negative terminals before connecting the PV module to the WIT Inverter. • High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. • Please do not place inflammable and explosive materials around the WIT Inverter.
 WARNING	• The maximum open-circuit voltage of each string should not exceed 1000Vdc. • Ensure that the following conditions are met; Otherwise, fire hazard or inverter damage may occur. Growatt is not liable for the consequence and it is beyond the warranty scope.

NOTE:

1. When exposed to sunlight, PV modules will generate voltage. High voltages presented in the PV strings connected in series could be fatal. Therefore, shield the PV modules from sunlight before connecting the DO input power cable and ensure that the DC switches on the WIT Inverter are OFF.
2. The PV modules connected in series should be of the same model. The maximum short-circuit current of each PV string must be lower than or equal to 50A.
3. The total panel power should not exceed twice the WIT inverter input power. For optimal system configuration, it is recommended to connect two DC inputs with an equal number of PV modules.



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6.4 POVEZIVANJE NA PV STRANI

⚠ Pre povezivanja kablova DC prekidači WIT invertera moraju biti OFF, a prekidači na AC i baterijskoj strani isključeni. Visoki naponi mogu izazvati strujni udar.

Rad smeju obavljati samo kvalifikovani i obučeni elektrotehničari.

Proverite polaritet pre povezivanja PV modula. Ne postavljajte zapaljive i eksplozivne materijale oko invertera.

Uslovi: maksimalni napon otvorenog kola svakog stringa ne sme biti veći od 1000 V DC. PV moduli povezani u seriju moraju biti istog modela. Maksimalna struja kratkog spoja svakog PV stringa mora biti ≤ 50 A. Ukupna snaga panela ne sme biti veća od dvostruke ulazne snage WIT invertera. Za optimalnu konfiguraciju preporučuje se da dva DC ulaza imaju jednak broj PV modula.

Pri krimpovanju proverite pozitivan i negativan metalni kontakt. Nakon krimpovanja proverite povlačenjem kabla da se ne može izvući iz terminala.

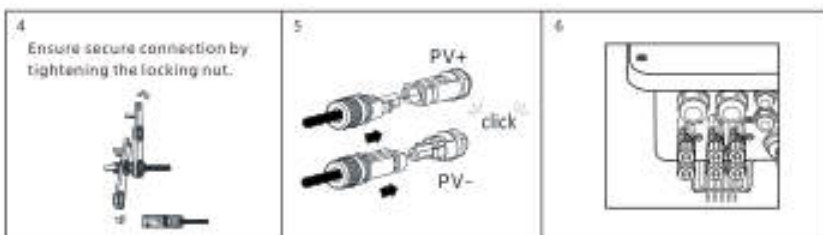


Fig 6.13 PV Terminal

Procedure for connecting cables on the PV side:

1. Strip 6-8 mm of the insulation layer of the PV cables;
2. Insert the exposed core wires into the crimping area of the wiring terminal and crimp them using a crimping plier;
3. Route the cable through the cable sealing sleeve and insert the insulation sleeve until it snaps. Slightly pull the cable back to ensure that it is securely connected. Then tighten the locking nut;
4. Insert the positive and negative connectors of the PV modules to the corresponding terminals on the inverter. For the maximum input current of different models, please see Table 6.1. For the cable specifications, please see Table 6.2.

Table 6.1 Maximum current of a single MPPT route

Device type	Max. current of a single MPPT route
WIT 4-15K-HU	40A

Table 6.2 Cable specifications on the PV side

Device type	Recommendation cable specifications
WIT 4-15K-HU	4-6mm ²

NOTE:

- 1) For a single WIT Inverter, connect the ground cable of the inverter. For a system with multiple WIT Inverters connected in parallel, connect the ground cables of all inverters and the metal racks of the PV modules to the same area to ensure equipotential bonding. Before connecting the PV cables, ensure that the ground cables on the PV side are properly connected.
- 2) Use male and female connectors in pair. Ensure the correct polarity before connecting the PV string to the inverter.
- 3) The total current of all strings cannot exceed the WIT Inverter's maximum input current;
- 4) Do not touch the solar panels in operation;
- 5) The wires should be tinned and are not frayed or cracked.

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6.4 POVEZIVANJE NA PV STRANI – nastavak Postupak:

1. Skinite 6-8 mm izolacije sa PV kabla.
2. Umetnite ogoljenu žilu u deo terminala predviđen za krmpovanje i krmpujte odgovarajućim kleštima.
3. Provucite kabl kroz zaptivnu čauru, umetnite izolacionu čauru dok ne nalegne i blago povucite kabl da proverite da je dobro povezan; zatim zategnite navrtku.
4. Povežite pozitivni i negativni PV konektor na odgovarajuće terminale invertera. Maksimalna struja jednog MPPT kanala: WIT 4-15K-HU: 40 A. Preporučeni PV kabl: 4-6 mm².
1. Kod jednog invertera povežite uzemljenje invertera. Kod više paralelnih invertera povežite uzemljenja svih invertera i metalne nosače PV modula na isti potencijal. Pre povezivanja PV kablova proverite da je PV uzemljenje pravilno povezano.
2. Koristite muški i ženski konektor u paru i proverite polaritet.
3. Ukupna struja svih stringova ne sme preći maksimalnu ulaznu struju invertera.
4. Ne dodirujte solarne panele tokom rada.
5. Provodnici moraju biti kalajisani i bez rascveta ili pukotina.

6.5 Connection on the Battery Side

 DANGER	- Before connecting cables, ensure that the DC switches of the WIT inverter are OFF, and turn off the breakers on the AC side and the battery side. Otherwise, the high voltages of the WIT Inverter may cause electric shocks. - Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and local regulations. - High voltages may cause electric shocks and serious injury. Please do not touch the inverter in operation. - Please do not place inflammable and explosive materials around the WIT inverter.
 WARNING	Ensure that all cables are securely connected before powering on the WIT inverter. Loose connection may cause overheating that will damage the device.

NOTE:

Recommended battery voltage 51.2V.

Table 6.3 Cable specifications on the Battery side

Device type	Recommended Cable Specifications
WIT 4K-HU	50mm ²
WIT 5K-HU	50mm ²
WIT 6K-HU	50mm ²
WIT 8K-HU	50mm ² / 120mm ²
WIT 10K-HU	50mm ² / 120mm ²
WIT 12K-HU	50mm ² / 120mm ²
WIT 15K-HU	50mm ² / 120mm ²

6.5.1 Connecting the Main Power Cable of the Battery

Preparation:

1. Turn off the DC switch, AC side switch and battery side switch of The WIT;
2. Find the battery OT terminal from the delivery accessories. See Accessories Diagram in Chapter 4 for the terminal picture.

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6.5 POVEZIVANJE NA STRANI BATERIJE ⚠ OPASNOST: Visoki naponi mogu izazvati strujni udar i teške povrede. Ne dodirujte inverter dok radi. Ne postavljajte zapaljive i eksplozivne materijale oko WIT invertera. Pre povezivanja kablova DC prekidači moraju biti OFF, a prekidači na AC i baterijskoj strani isključeni. Rad smeju obavljati samo kvalifikovani i obučeni elektrotehničari. Pre uključivanja proverite da su svi kablovi čvrsto povezani; labav spoj može izazvati pregrevanje i oštećenje uređaja. Napomena: Preporučeni napon baterije je 51,2 V. 6.5.1 Povezivanje glavnog energetskog kabla baterije Priprema:

1. Isključite DC prekidač, AC prekidač i baterijski prekidač WIT invertera.

2. Pronađite OT terminal baterije među isporučenim dodacima. Pogledajte prikaz dodatne opreme u Poglavlju

4. Preporučeni kablovi baterijske strane: WIT 4K-HU, 5K-HU i 6K-HU: 50 mm²; WIT 8K-HU, 10K-HU, 12K-HU i 15K-HU: 50 mm² / 120 mm², prema originalnoj tabeli.

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POSTUPAK POVEZIVANJA GLAVNOG BATERIJSKOG NAPAJANJA

1. Skinite izolaciju sa DC kablova; odgovarajuću dužinu skidanja izaberite prema OT terminalu.
2. Krimpujte baterijski kabl na baterijski terminal pomoću klešta za krimpovanje, a zatim postavite termoskupljajuću cev radi izolacione zaštite.
3. Krimpovani terminal baterijskog kabla povežite na ulazni terminal baterije i pričvrstite M8 vijcima prema slici 6.14.

Napomena:

1. Povežite uzemljivački kabl pre baterijskog kabla; tačka uzemljenja prikazana je na slici 6.10.
2. Preporučuje se da dužina baterijskog kabla ne bude veća od 10 m. Slika 6.14 prikazuje ožičenje baterijskog terminala za konfiguraciju sa jednim i dva baterijska klastera, uključujući jednorupe i dvorupe gumene čepove, termoskupljajuću cev i momente zatezanja. Oznake 2.1, 2.2 i 2.3 i dimenzije treba pratiti prema originalnom crtežu.

Procedure for connecting the main battery power:

1. Strip the insulation layer of the DC cable, Select an appropriate cable stripping length based on the OT terminal.
2. Use crimping pliers to crimp the battery cable on the battery terminal, and then cover the heat shrink tube for insulation protection;
3. Connect the crimping terminal of the battery cable to the battery input terminal and lock it using M8 screws, as shown in Fig 6.14.

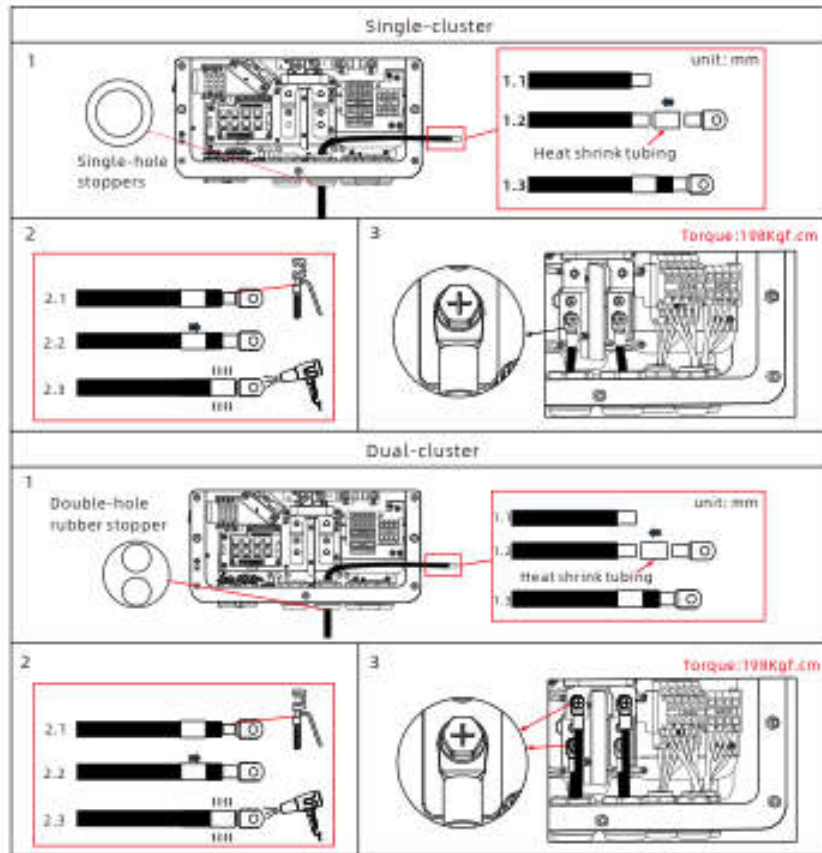


Fig 6.14 Step-by-step diagram of battery terminal wiring

NOTE:

- 1> Connect the ground cable before connecting the battery cable; the ground point is shown in Fig 6.10.
- 2> The length of the battery cable is recommended to be no more than 10m.

6.6 Connecting Communications Cables

6.6.1 COM1/COM2 Connection

WIT 4-15K-HU Inverter includes 8 RJ45 ports. It is used for parallel connection via PARA-IN and PARA-OUT communication terminals, battery communication via BMS1 terminals, and external equipment communication via RS485 and DRMS function. Connect the communication cables to the corresponding terminals as required. For details, see Table 6.5.

Procedure for connecting the terminal:

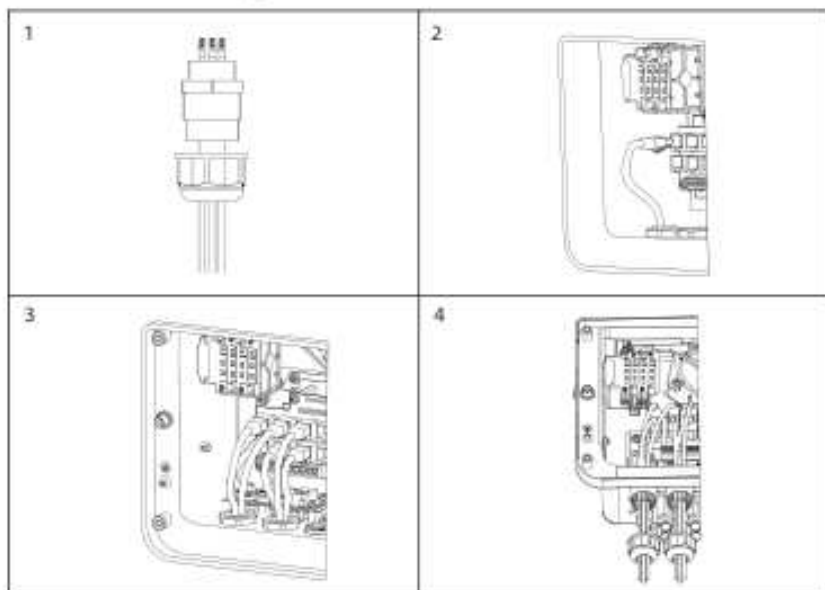


Fig 6.15

1> Unscrew the PG head to remove the rubber plugs according to the number of communication cables, keep the rubber plugs with unused holes, and then pass the communication cables through the PG head. The steps are shown in Step1-4;

2>Crimp the communication cables as shown below.

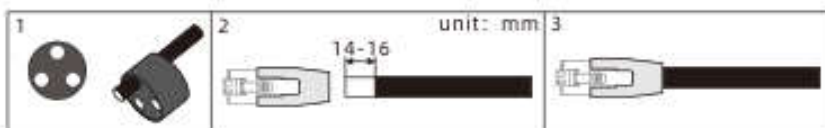


Fig 6.16

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6.6 POVEZIVANJE KOMUNIKACIONIH KABLOVA

6.6.1 COM1/COM2 POVEZIVANJE

WIT 4-15K-HU inverter ima 8 RJ45 portova. Koriste se za paralelno povezivanje preko PARA-IN i PARA-OUT terminala, komunikaciju sa baterijom preko BMS1 terminala i komunikaciju sa spoljnim uređajima preko RS485 i DRMS funkcije. Povežite komunikacione kablove na odgovarajuće terminale prema potrebi; detalje pogledajte u Tabeli 6.5.

Postupak povezivanja terminala:

1. Odvrnite PG glavu i uklonite gumene čepove prema broju komunikacionih kablova. Sačuvajte čepove za neiskorišćene otvore i provucite kablove kroz PG glavu.
2. Krimpujte komunikacione kablove prema prikazu na slici 6.16.

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6.6.1 COM1/COM2 POVEZIVANJE – nastavak

3. Povežite terminale komunikacionih kablova prema oznakama na štampanoj ploči, kao na slici 6.17.
4. Nakon povezivanja zategnite PG glavu.

Detaljne oznake COM1: CN1/BMS-1, CN2/BMS-2, CN3/RS485-1, CN4/RS485-2, CN5/METER, CN6/DI, CN7/PARA_IN, CN8/PARA_OUT.

Slika 6.17 – Komunikacioni mrežni port. Oznake priključaka i pinova treba zadržati prema originalnoj ploči radi pravilnog povezivanja.

- 3> Connect the communication cable terminals according to the single board silkscreen as shown in Fig 6.17.
- 4> Tighten the PG head after connecting.

Detailed information of COM1

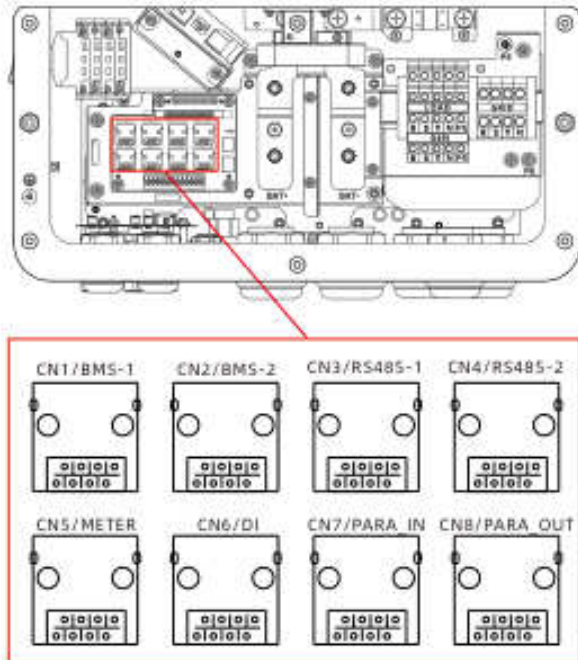


Fig 6.17 Communication network port

TABELA 6.5 – OPIS TERMINALA KOMUNIKACIONOG MREŽNOG PORTA
BMS1: Pin 1 BAT RS485_B, 2 BAT RS485_A, 3 BAT1 DI_1, 4 BAT1 CAN_H, 5 BAT1 CAN_L, 6 BAT1 DI_2, 7 BAT1 WAKE–, 8 BAT1 WAKE+; funkcija: komunikacija sa baterijom 1 (obavezno).
BMS2: svi pinovi onemogućeni.
RS485-1: 1 RS485_1B, 2 GND.S, 4 RS485_1B, 5 RS485_1A, 7 RS485_3B, 8 RS485_3A. RS485-1: CT/ShineBus/ShineMaster (1/4/5); RS485-3: EMS/VPP (7/8).

Oznake pinova su tehničke oznake terminala i moraju ostati identične originalu.

Table 6.5 Communication network port terminal description

Definition of battery communication terminal			
Silk screen	Pin	Definition of signal	Function and Note
BMS1	1	BAT RS485_B	Communication of battery1 (mandatory)
	2	BAT RS485_A	
	3	BAT1 DI_1	
	4	BAT1 CAN_H	
	5	BAT1 CAN_L	
	6	BAT1 DI_2	
	7	BAT1 WAKE-	
	8	BAT1 WAKE+	
BMS2	1	\	Disabled
	2	\	
	3	\	
	4	\	
	5	\	
	6	\	
	7	\	
	8	\	
RS485-1	1	RS485_1B	RS485-1: CT/ShineBus/ ShineMaster (1/4/5) RS485-3: EMS/VPP (7/8)
	2	GND.S	
	3	\	
	4	RS485_1B	
	5	RS485_1A	
	6	\	
	7	RS485_3B	
	8	RS485_3A	

Definition of battery communication terminal			
Silk screen	Pin	Definition of signal	Function and Note
RS485-2	1	RS485_1B	RS485-1: CT/ShineBus/ ShineMaster (1/4/5) RS485-3: EMS/VPP (7/8)
	2	GND.S	
	3	\	
	4	RS485_1B	
	5	RS485_1A	
	6	\	
	7	RS485_3B	
	8	RS485_3A	
METER	1	RS485_2B	RS485_2: METER1 output (export limitation meter wiring port for a single inverter)
	2	GND.S	
	3	\	
	4	\	
	5	RS485_2A	
	6	\	
	7	\	
	8	\	
DI	1	DRM1/5	DRMS/RCR/DI function
	2	DRM2/6	
	3	DRM3/7	
	4	DRM4/8	
	5	REF	
	6	COM	
	7	\	
	8	\	

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DEFINICIJA KOMUNIKACIONIH TERMINALA – nastavak

RS485-2: 1 RS485_1B, 2 GND.S, 4 RS485_1B, 5 RS485_1A, 7 RS485_3B, 8 RS485_3A. RS485-1 služi za CT/ShineBus/ShineMaster; RS485-3 za EMS/VPP.

METER: 1 RS485_2B, 2 GND.S, 5 RS485_2A. RS485-2 je METER1 izlaz, odnosno komunikacioni priključak brojila za ograničenje predaje kod jednog invertera.

DI: 1 DRM1/5, 2 DRM2/6, 3 DRM3/7, 4 DRM4/8, 5 REF, 6 COM. Funkcija: DRMS/RCR/DI.

Sve oznake pinova ostaju identične originalnoj dokumentaciji.

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DEFINICIJA KOMUNIKACIONIH TERMINALA – nastavak PARA-IN – paralelni ulaz: P2 GND.S, P3 Sc_A/H, P4 PL_CANH, P5 PL_CANL, P6 Sc_B/L, P7 GND.S, P8 Master_CAN. PARA-OUT – paralelni izlaz: P2 GND.S, P3 Sc_A/H, P4 PL_CANH, P5 PL_CANL, P6 Sc_B/L, P7 Slave_CAN, P8 GND.S. 6.6.2 COM3/COM4 POVEZIVANJE (SIGNALNI TERMINALI) Ovi terminali služe za signale pokretanja/zaustavljanja generatora, hitnog zaustavljanja uređaja, porasta temperature baterije i priključenje spoljnog CT-a.

- 1. Skinite spoljašnju izolaciju kabl 5–7 mm i pomoću klešta krimpujte provodnik i cevasti terminal.
- 2. Odvrnite odgovarajuću PG glavu i uklonite gumenu pregradu ispod odgovarajućeg otvora; čep sačuvajte za neiskorišćeni otvor.
- 3. Provucite kabl kroz PG glavu i umetnite ga u odgovarajuće terminalne otvore prema slici 6.18.

Definition of battery communication terminal			
Silk screen	Pin	Definition of signal	Function and Note
PARA-IN	1	\	Parallel input
	2	GND.S	
	3	Sc_A/H	
	4	PL_CANH	
	5	PL_CANL	
	6	Sc_B/L	
	7	GND.S	
	8	Master_CAN	
PARA-OUT	1	\	Parallel output
	2	GND.S	
	3	Sc_A/H	
	4	PL_CANH	
	5	PL_CANL	
	6	Sc_B/L	
	7	Slave_CAN	
	8	GND.S	

6.6.2 COM3/COM4 Connection (Connecting the signal terminals)

This terminals is used for oiler start/stop, machine emergency stop, battery temperature rise and external CT access signals.

Terminal Connection Procedure.

- 1) Strip the outer wire skin of the cable by 5–7mm, and then use crimping pliers to crimp the wire and tubular terminal;
- 2) Unscrew the corresponding PG head and remove the rubber bar under the corresponding hole, keep the rubber plug for the unused hole;
- 3) Pass the cable through the PG header and snap it into the corresponding terminal holes of the veneer as shown in Fig 6.1 B.

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6.6.2 COM3/COM4 POVEZIVANJE – nastavak

4. Nakon završetka svih navedenih postupaka postavite donji poklopac.
Moment zatezanja: 50 kgf·cm.

Slika 6.18 – Povezivanje signalnih terminala.

Slika 6.19 – Postavljanje donjeg poklopca.

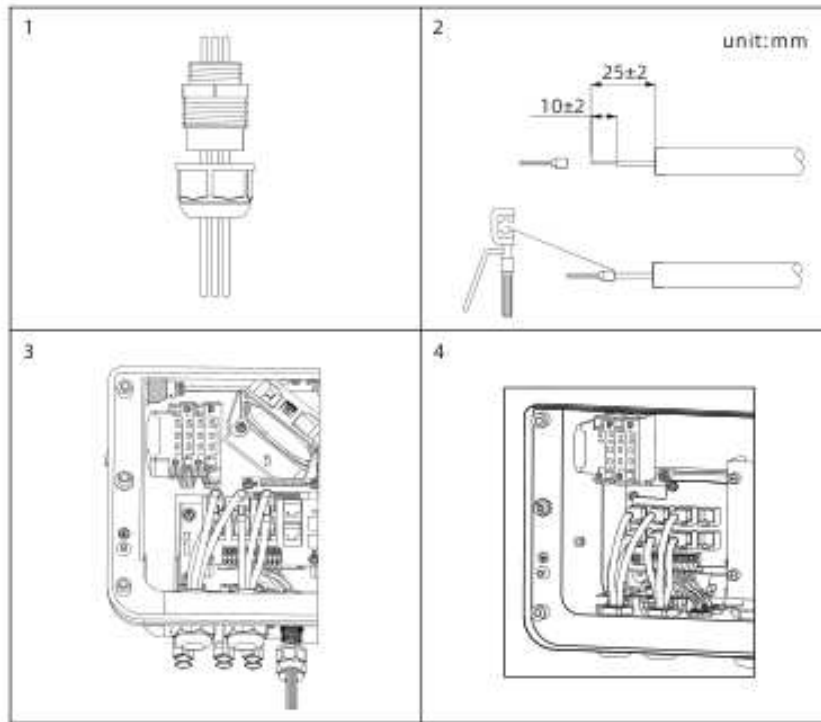


Fig 6.18 Signal terminal connections

4) Install the Bottom cover plate after completing all the above steps.

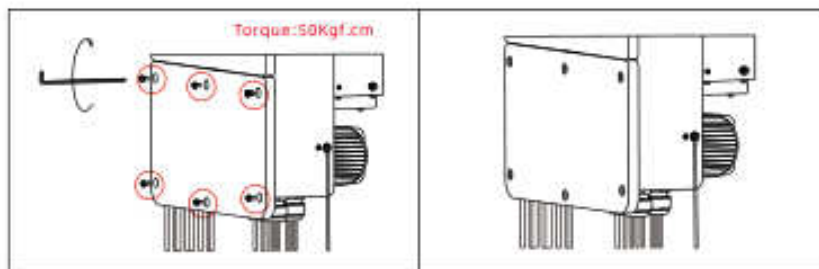


Fig 6.19 Install the Bottom cover plate

Detailed information:

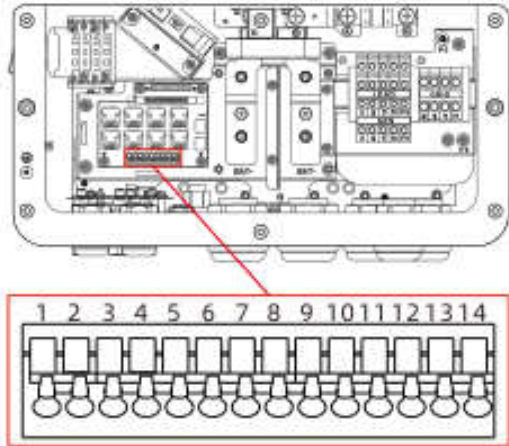


Fig 6.20 Signal Terminal

Signal Terminal Interface Definition Description			
silkscreen	Pin	Signal Definition	Features and Remarks
COM3(CN10)	1	REPO.WIT	Emergency shutdown input
	2	GND.S	
	3	DG_START+	Oiler start signal
	4	DG_START-	
	5	NTC.BAT1 OUT	Battery 1 temperature
	6	NTC.BAT1 OUT.G	
COM4(CN10)	7	\	\
	8	\	
	9	CT_R+ (White)	CT Phase A
	10	CT_R- (Black)	
	11	CT_S+ (White)	CT Phase B
	12	CT_S- (Black)	
	13	CT_T+ (White)	CT Phase C
	14	CT_T- (Black)	

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DETALJNE INFORMACIJE O SIGNALNIM TERMINALIMA
COM3 (CN10): 1 REPO.WIT - ulaz za hitno isključivanje; 2 GND.S; 3 DG_START+ - signal za pokretanje generatora; 4 DG_START-; 5 NTC.BAT1 OUT - temperatura baterije 1; 6 NTC.BAT1 OUT.G.
COM4 (CN10): 7 i 8 -; 9 CT_R+ (bela) - faza A CT; 10 CT_R- (crna); 11 CT_S+ (bela) - faza B CT; 12 CT_S- (crna); 13 CT_T+ (bela) - faza C CT; 14 CT_T- (crna).

Oznake signala i boje provodnika treba pratiti prema originalnoj šemi.

6.6.3 USB connection

The WIT-XHU series inverter is equipped with a USB interface as standard, which can be connected to a USB to WiLAN-X2 monitoring module for remote monitoring. In addition, you can also quickly upgrade the inverter software through the U disk. Steps to install the monitoring module:

- 1> Loosen the waterproof cover of the USB interface and remove it.
- 2> As shown in Fig 6.21, Insert the WiLAN-X2 module into the USB interface, and the LED indicator of the WiLAN-X2 module will be on.
- 3> As shown in Fig 6.21, make sure that the is facing frontwards as the inverter has been wall-mounted, insert the monitoring module into the USB interface, and tighten the lock.

Note:

1. If a USB to WiLAN-X2 module is installed, please take the module and the data cable away, and tighten the waterproof cover when the operator leaves to prevent water from entering the interface.
2. System upgrades will cause power outages on load ports of the WIT.

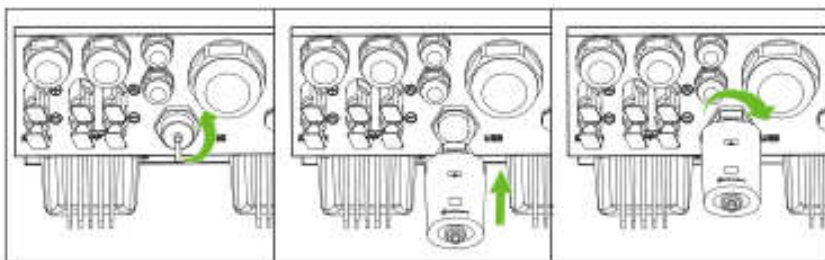


Fig.6.21 USB Connection

6.7 Post-installation Checks

The following table lists the post-installation items to be checked:

Position	Item	Check item
housings	Ground cable connected to the chassis	Check the cable specifications; ensure that the cable has been securely fastened
PV side	Ground cable on the PV side	Check the cable specifications; ensure that the cable has been securely fastened
	PV+, PV-	Check the cable specifications; ensure that the cable has been securely fastened; confirm that the number of PV modules matches the rated power

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6.6.3 USB POVEZIVANJE

WIT-XHU serija invertera standardno ima USB interfejs. Na njega se može povezati WiLAN-X2 modul za daljinski monitoring. Takođe se preko USB memorije može izvršiti brzo ažuriranje softvera invertera.

Postavljanje monitoring modula:

1. Otpustite vodootporni poklopac USB interfejsa i uklonite ga.
2. Umetnite WiLAN-X2 modul u USB interfejs; LED indikator modula će svetleti.
3. Kao na slici 6.21, sa prednjom stranom okrenutom ka napred nakon zidne montaže, umetnite modul u USB interfejs i zategnite blokadu.

Napomena: 1. Ako je USB-WiLAN-X2 modul instaliran, pri napuštanju uređaja uklonite modul i data kabl i zategnite vodootporni poklopac da voda ne bi ušla u interfejs. 2. Nadogradnja sistema izaziva prekid napajanja na LOAD portovima WIT invertera.

6.7 PROVERE NAKON INSTALACIJE

Proverite: kućište – uzemljivački kabl povezan i čvrsto pričvršćen; PV stranu – uzemljenje i PV+/PV–; baterijsku stranu – uzemljenje i BAT+/BAT–; AC stranu – uzemljenje; GRID, LOAD i GEN – kablovi pravilno i čvrsto pričvršćeni; desni poklopac – ponovo postavljen i pričvršćen; komunikacione terminale – pravilno povezane i zaključane; USB – pravilno umetnut bez zazora i sa zaptivenim prstenom.

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6.7 PROVERE NAKON INSTALACIJE – nastavak

Komunikacioni terminali: mrežni terminali i signalni terminali moraju biti pravilno povezani, bez labavljenja i zaključani. USB mora biti pravilno umetnut, bez labavosti i sa pravilno naležućim zaptivnim prstenom. Donji poklopac: nakon provere svih stavki ožičenja postavite donji poklopac i čvrsto ga zaključajte. Pre zatvaranja proverite da je ožičenje pravilno.

Napomena: Nakon završetka ožičenja obavezno proverite da je donji poklopac pouzdano postavljen kako se stepen zaštite uređaja ne bi smanjio zbog problema nastalih pri instalaciji.

Position	Item	Check item
Battery side	Ground cable on the battery side	Check the cable specifications; ensure that the cable has been securely fastened
	BAT+, BAT-	Check the cable specifications; ensure that the cable has been securely fastened
AC Side	Ground cable on the AC side	Check the cable specifications; ensure that the cable has been securely fastened
	Grid side	Check the cable specifications; ensure that the cable has been securely fastened
	Load side	Check the cable specifications; ensure that the cable has been securely fastened
	GEN side	Check the cable specifications; ensure that the cable has been securely fastened
	Right cover plate	Re-install the cover and secure it with screws after checking all items on the AC side
Communication terminals	Network Port Terminal	Connections are correctly made without loosening and are locked
	signal terminal	Connections are correctly made without loosening and are locked
	USB	No loosening of the correct insertion, no gaps in the sealing ring
bottom cover	bottom cover	Please make sure that the wiring is correct and then cover the lower cover of the machine and lock it tightly

Note:

After the wiring is completed, please make sure to check that the lower cover plate is installed reliably to ensure that the protection level of the machine is not affected by installation problems.

Commissioning 7

7.1 Commissioning the WIT Inverter

	• The WIT Inverter might show wrong time and date if it has been stored for over a month. You need to set the correct time and date before connecting the WIT Inverter to the grid.
 WARNING	• When The WIT is only connected to the battery, the battery switch must be pressed until the battery is fully awakened.

7.1.1 Set the Communication Address

After the WIT Inverter is powered on, you can set the communication address of the WIT Inverter via RS485 communication or the USB to WILAN-X2 module. When multiple inverters are connected in parallel with RS485 hand-in-hand communication, each inverter should be set to different communication addresses. For a single inverter, the default communication address is set to 1.

NOTE:

The communication address of the WIT Inverter ranges from 1 to 254.

By connecting the WIT Inverter to the host computer through RS485 communication, you can change its communication address via Shinebus. This operation should be performed by professional personnel.

7.1.2 Set the Time and Date

7.1.2.1 Set the time and date on the APP (Shinephone/Shinetools)

Follow the instructions in Section 6.5.3 to connect the datalogger. Take Shinephone APP as an example, When the inverter is powered in, you can set inverter time and date referring to Section 8.1.1. Tap Control > Set Inverter Time, then enter the password "growatt+date". For instance, if the date is Feb. 28, 2024, the password would be "growatt20240228". After that, tap "Yes".

1. Set the correct date, then tap "OK". Proceed to set the time, and tap "OK".

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7 PUŠTANJE U RAD

7.1 Puštanje WIT invertera u rad

7.1.1 Podešavanje komunikacione adrese

Komunikaciona adresa WIT invertera može biti od 1 do 254.

Nakon uključivanja invertera, komunikaciona adresa može se podesiti preko RS485 komunikacije ili modula USB-WILAN-X2. Ako je više invertera povezano paralelno RS485 komunikacijom, svaki inverter mora imati različitu komunikacionu adresu. Za jedan inverter podrazumevana adresa je 1.

Preko RS485 veze sa računarom domaćinom adresa se može promeniti putem Shinebus-a. Ovu radnju treba da obavlja stručno osoblje.

7.1.2 Podešavanje datuma i vremena

Vreme i datum mogu se podesiti preko aplikacije ShinePhone/ShineTools.

Primer: ako je datum 28. februar 2024, lozinka je growatt20240228. Nakon toga izaberite Yes.

Povežite datalogger prema postupku iz odeljka 6.5.3. U aplikaciji ShinePhone, kada je inverter uključen, izaberite:

Control → Set Inverter Time.

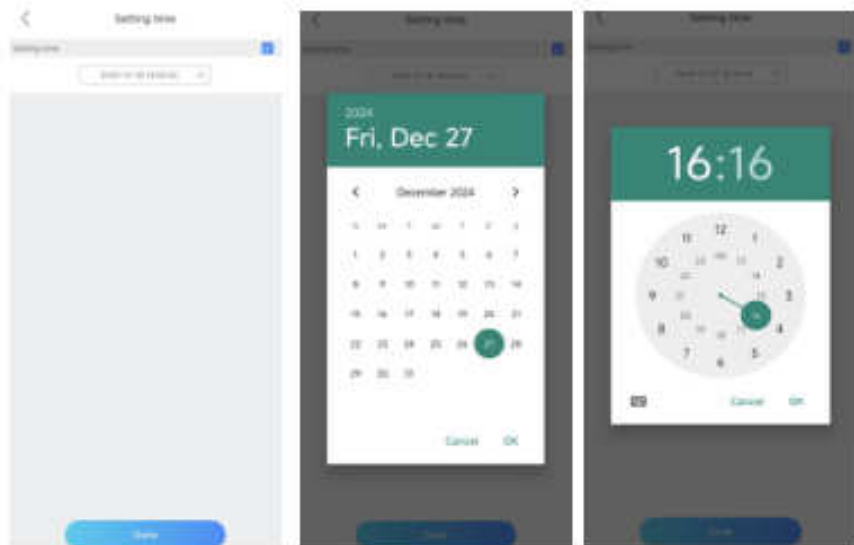
Unesite lozinku u formatu growatt + datum.

Zatim podesite datum i izaberite OK, a potom podesite vreme i ponovo izaberite OK.

UPOZORENJE

- WIT inverter može prikazivati pogrešno vreme i datum ako je bio uskladišten duže od mesec dana. Ispravno vreme i datum treba podesiti pre povezivanja invertera na mrežu.

- Kada je WIT povezan samo sa baterijom, prekidač baterije mora biti pritisnut dok se baterija potpuno ne probudi.



7.1.2.2 Set the Date & Time Automatically

Connect the WIT Inverter to the server following the procedure specified in Section 8.1.2 when the inverter is powered on, then the WIT Inverter will update its date and time automatically.

7.2 Mode of operation

7.2.1 Waiting Mode

When the PV voltage is greater than 150V, the WIT Inverter will be powered on and enters the waiting mode.

In waiting mode, the WIT Inverter performs self-check. If the system is normal and the voltage is greater than or equals to 165V, the WIT Inverter will be powered on.

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7.1.2.2 AUTOMATSKO PODEŠAVANJE DATUMA I VREMENA

Povežite WIT inverter sa serverom prema postupku iz odeljka 8.1.2 kada je inverter uključen. WIT će tada automatski ažurirati datum i vreme.

7.2 REŽIM RADA

7.2.1 REŽIM ČEKANJA

U režimu čekanja WIT inverter obavlja samoproveru. Kada je PV napon veći od 150 V, inverter se uključuje i prelazi u režim čekanja. Ako je sistem normalan i napon veći ili jednak 165 V, WIT inverter će se uključiti.

7.2.2 Operating Mode

7.2.2.1 Operating Mode of WIT 4-15K-HU

Load First:

In Load First mode, the WIT inverter prioritizes supplying the solar power and battery energy to the loads. If Export Limitation is disabled, the surplus solar power can be fed to the grid, but the battery energy will not be exported to the grid; if Export Limitation is enabled, neither solar power nor battery energy would be sent to the grid.

Priority of power supplied to the loads:

1. Solar panels;
2. Batteries;
3. Grid.

NOTE: In Load First mode, a meter is required.

Battery First:

In Battery First mode, the solar power is prioritized towards charging the battery until the battery SOC (state of charge) reaches the preset upper threshold. Then it will supply power to the loads. The further excess solar power, if any, can be fed to the grid (Export Limitation disabled). In case that the solar power is insufficient, the WIT inverter will draw power from the grid to charge the battery or supply the loads.

Priority of power directed to charge the battery:

1. Solar panels;
2. Grid.

Grid First:

In Grid First mode, the WIT inverter prioritizes supplying the solar power to the loads, exports the excess solar power to the grid, and sends the further surplus power to charge the power. If the solar power is insufficient to support the loads, the battery will discharge to supply power to the loads and the surplus battery power will be sent to the grid for revenue.

Priority of power supplied to the loads:

1. Solar panels;
2. Batteries;
3. Grid.

Zero export to meter:

With Export Limitation enabled, no solar power or battery energy will be fed to the grid in this mode. The inverter output is only supplied to the loads connected before the external meter connection point. A meter is required. For the meter wiring mode, please refer to Fig 6.6 in Chapter 6. The external meter will detect power flowing to the grid and regulate the generated power so that only so much energy is generated as is currently consumed by the primary loads, secondary loads and charging the battery.

NOTE: The arrow at the bottom of the CT should point to The WIT.

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7.2.2 RADNI REŽIM 7.2.2.1 RADNI REŽIM WIT 4-15K-HU Load First: prioritet je napajanje potrošača solarnom energijom i energijom baterije. Ako je Export Limitation isključen, višak solarne energije može se predavati u mrežu, ali energija baterije ne. Ako je Export Limitation uključen, ni solarna ni baterijska energija ne predaju se u mrežu. Prioritet napajanja:

1. solarni paneli,
2. baterije,

3. mreža. U ovom režimu potrebno je brojilo. Grid First: solarna energija prvo napaja potrošače, višak se predaje mreži, a dalji višak puni bateriju. Ako solarna energija nije dovoljna, baterija napaja potrošače, a višak baterijske energije može se predavati u mrežu. Battery First: solarna energija prvenstveno puni bateriju do podešenog gornjeg SOC praga, zatim napaja potrošače. Višak može biti predat mreži kada je Export Limitation isključen. Ako solarna energija nije dovoljna, WIT koristi mrežu za punjenje baterije ili napajanje potrošača. Zero export to meter: kada je Export Limitation uključen, solarna i baterijska energija se ne predaju u mrežu. Izlaz invertera napaja samo potrošače povezane pre spoljnog brojila. Potrebno je brojilo. Spoljno brojilo meri tok prema mreži i reguliše proizvodnju tako da odgovara trenutnoj potrošnji i punjenju baterije. Strelica na donjoj strani CT-a treba da bude usmerena ka WIT-u.

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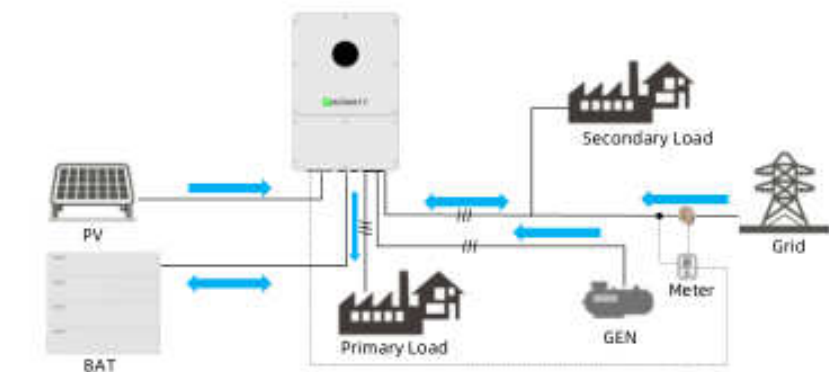
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7.2.2 RADNI REŽIM - nastavak

Zero export to GRID: na GRID priključku invertera nema izlaza. Solarna i baterijska energija mogu napajati samo primarne potrošače preko LOAD priključka. Brojilo nije potrebno.

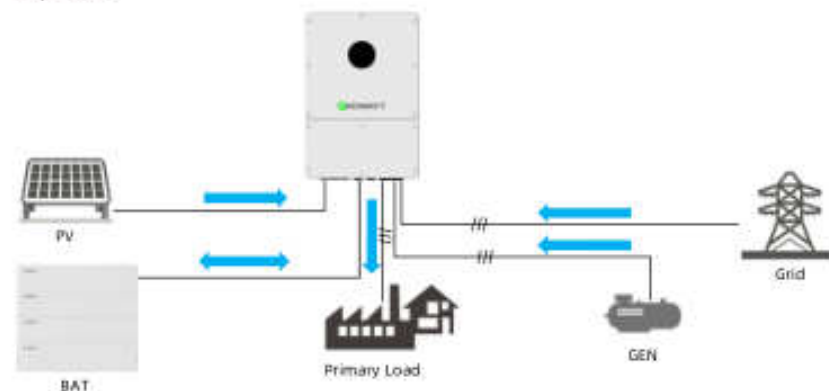
Smart Load: Smart Load potrošači su povezani na GEN port, a izabran je režim Smart Load. U radu priključenom na mrežu napajaju ih mrežna energija; u radu van mreže napajanje Smart Load potrošača prekida se kada SOC baterije padne ispod 50%. Ožičenje je prikazano u Poglavlju 6, slika 6.3.

AC Couple: mrežno povezani inverter priključen je na GEN port. U radu priključenom na mrežu on je povezan sa mrežom i proizvodi električnu energiju preko GEN porta; u radu van mreže ostaje povezan sa WIT inverterom i nastavlja da proizvodi energiju. Ožičenje je prikazano u Poglavlju 6, slika 6.2.



Zero export to GRID:

In this mode, there is no output at the inverter's GRID port. The solar and battery power can only be supplied to Primary Loads via the LOAD port. The meter is not required.



Smart Load:

Smart loads are connected to the GEN port and the Smart Load mode is set: during on-grid operation, it will supply grid power to smart loads; during off-grid operations, the power supply to smart loads is cut off when the battery SOC is below 50%. The wiring method is shown in Chapter 6 Fig 6.3.

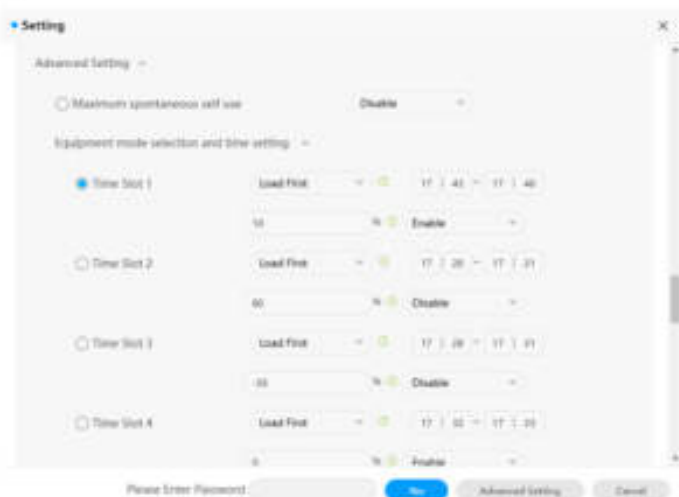
AC couple:

The grid-tied inverter is connected to the GEN port and the AC Couple mode is set: during on-grid operation, the grid-tied inverter will be connected to the grid and generate electricity via the GEN port; during off-grid operation, the grid-tied inverter remains connected to the WIT inverter and generating power. The wiring method is shown in Chapter 6 Fig 6.2.

7.2.2.2 System Operating Strategies of WIT 4-15K-HU

TOU (Time of use):

Configure the system to work in the preset mode during different time segments based on the peak-valley periods and electricity price. Setting items include: the operating mode, enable/disable AC Charging function (charge from grid). During the time not specifically configured, it will operate according to the system settings.



Self-consumption:

The WIT inverter prioritizes supplying the solar power and battery energy to the loads. If Export Limitation is disabled, the surplus solar power can be fed to the grid, but the battery energy will not be exported to the grid; if Export Limitation is enabled, neither solar power nor battery energy would be sent to the grid. In case that the solar power is insufficient, the battery will discharge to power the loads. Priority of power supplied to the loads:

1. Solar panels;
2. Batteries;
3. Grids.

NOTE: In Load First mode, a meter is required.

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7.2.2.2 STRATEGIJE RADA SISTEMA WIT 4-15K-HU

TOU (Time of Use – vreme korišćenja)

Sistem se podešava da radi u unapred izabranom režimu tokom različitih vremenskih intervala, na osnovu perioda više i niže tarife i cene električne energije.

Podešavaju se:

- režim rada;
- uključivanje/isključivanje funkcije AC Charging (punjenje iz mreže).

Tokom perioda koji nije posebno konfigurisan, sistem radi prema opštim podešavanjima sistema.

Self-consumption (sopstvena potrošnja)

WIT inverter daje prioritet napajanju potrošača solarnom energijom i energijom baterije.

Ako je Export Limitation onemogućen, višak solarne energije može biti predat mreži, ali energija iz baterije neće biti predavana mreži.

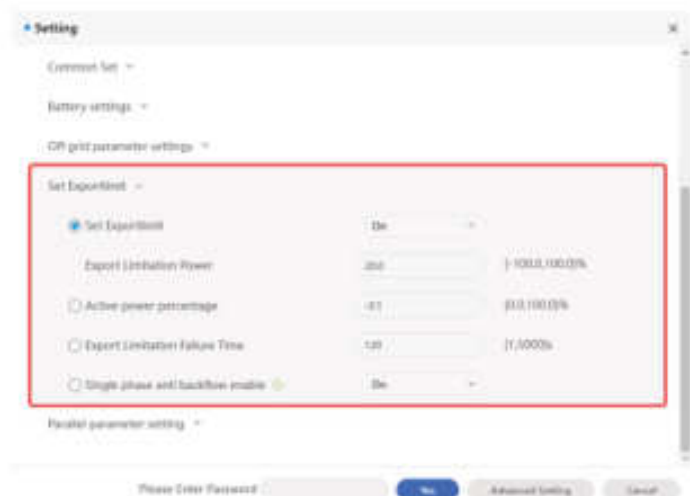
Ako je Export Limitation omogućen, ni solarna energija ni energija baterije neće biti predavane mreži.

Ako solarna energija nije dovoljna, baterija će se prazniti kako bi napajala potrošače.

Prioritet izvora energije za napajanje potrošača:

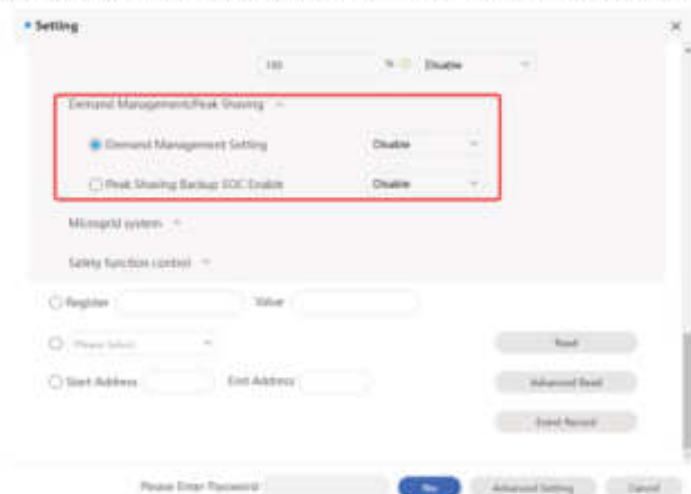
1. Solarni paneli
2. Baterije
3. Mreža

Napomena: U režimu Load First potrebno je brojilo.



Grid Peak Shaving:

Set the forward power flow threshold A: once the load power on the external meter is greater than this value, the inverter will reduce charging power and boost power out until it reaches the maximum operating power of the WIT inverter. Set the reverse power flow threshold B: once the grid feed-in power on the external meter is greater than this value, the inverter will reduce output power and boost charging power until it reaches the maximum operating power of the WIT inverter.



Note: The priority of system operation modes should be: Demand management > TOU (Time of use) > Parameter settings.

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SMANJENJE VRŠNE POTROŠNJE MREŽE

Podesite prag protoka energije ka potrošačima A: kada je snaga potrošača na spoljnom brojilu veća od ove vrednosti, inverter će smanjiti snagu punjenja i povećati izlaznu snagu sve dok ne dostigne maksimalnu radnu snagu WIT invertera.

Podesite prag povratnog toka energije B: kada je snaga predaje u mrežu na spoljnom brojilu veća od ove vrednosti, inverter će smanjiti izlaznu snagu i povećati snagu punjenja sve dok ne dostigne maksimalnu radnu snagu WIT invertera.

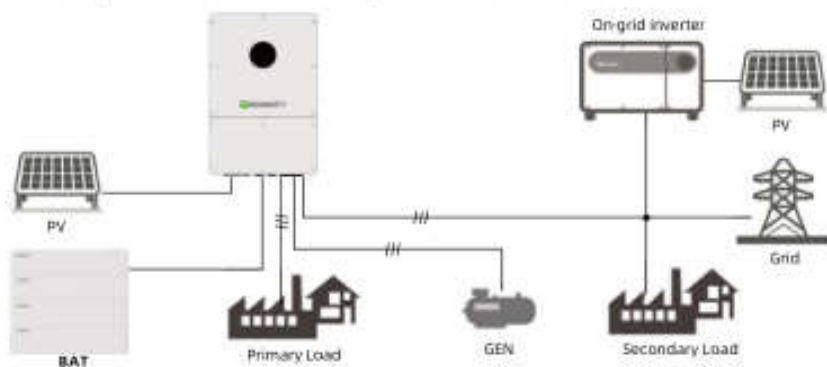
Napomena: Prioritet strategija rada sistema treba da bude: Upravljanje potražnjom → TOU (vreme korišćenja) → Podešavanja parametara.

Micro-grid (PV-ESS-DG Power System):

A generator is connected to the GEN port:

If the grid power is normal, the WIT inverter will work in the grid-tied mode:

1. If the power generated by the grid-tied inverter is sufficient to support the loads, the surplus power will be used to charge the battery;
 2. If the power generated by the grid-tied inverter is sufficient, the WIT inverter will supply the solar power to the loads, and direct the surplus power to charge the battery;
 3. If the solar power of the WIT inverter is in sufficient, the battery will discharge to power the loads;
 4. The battery will stop discharging when the SOC is lower than the cutoff threshold and it will draw the grid power to support the loads;
- If the grid power is abnormal, the WIT inverter will work in the off-grid mode:
1. The solar power of the WIT inverter is supplied to the loads first, and the surplus power is sent to charge the battery.
 2. If the solar power of the WIT inverter is insufficient, the battery will discharge to power the loads.
 3. When the battery SOC is lower than the preset diesel generator startup threshold, the GEN will start automatically to generate power
 4. If charging from the GEN is enabled, the GEN will charge the battery.
 5. When the battery SOC is higher than the preset diesel generator shutdown threshold, it will disconnect the GEN, and shut down the GEN



User-defined dry contact:

After enabling the user-defined DI port and inputting the DI signal, it will carry out the AC active power and power factor according to the corresponding DI instructions.

Note:

1. The User-defined dry contact and DRMS share the same port.
2. Only one DI signal can be input at the same time.

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MIKROMREŽA (PV-ESS-DG SISTEM NAPAJANJA)

Generator je povezan na GEN port.

Ako je mrežno napajanje normalno, WIT radi u režimu priključenom na mrežu:

1. Ako snaga mrežno povezanog invertera dovoljna za potrošače, višak se koristi za punjenje baterije.
2. Ako je solarna snaga dovoljna, WIT napaja potrošače solarnom energijom, a višak usmerava na punjenje baterije.
3. Ako solarna energija nije dovoljna, baterija se prazni radi napajanja potrošača.
4. Ako je omogućeno punjenje iz GEN priključka, generator puni bateriju.

Ako je mrežno napajanje neispravno, WIT radi van mreže:

1. Solarna energija prvo napaja potrošače, višak puni bateriju.
2. Ako solarna energija nije dovoljna, baterija napaja potrošače.
3. Kada SOC baterije padne ispod podešenog praga za pokretanje dizel-generatora, GEN se automatski pokreće.
4. Baterija prestaje da se prazni kada SOC padne ispod praga isključenja, a mreža se koristi za napajanje potrošača kada je dostupna.
5. Kada SOC poraste iznad podešenog praga za zaustavljanje generatora, GEN se odvaja i generator se zaustavlja.

Korisnički definisan bežnaponski kontakt: nakon omogućavanja korisničkog DI porta i prijema DI signala izvršava se AC aktivna snaga i faktor snage prema odgovarajućem DI nalogu. Korisnički DI i DRMS dele isti port; istovremeno može biti unet samo jedan DI signal.

7.2.3 Fault Mode

The intelligent control system of the WIT Inverter monitors and adjusts the system status in real time. When the WIT Inverter detects an alarm, the corresponding status light will turn red and the OLED will display the alarm. When the WIT Inverter detects a fault, the system status indicator and the corresponding status light will turn red and the OLED will display the fault. After the fault or alarm is cleared, the system recovers and all status indicators will be steady green.

NOTE: For details about faults and alarms, please see 9.2 Troubleshooting.

7.2.4 Shutdown Mode

When the battery SOC is lower than the discharge cutoff SOC and the PV string output power does not meet the requirements for grid-tied power generation, the WIT Inverter will automatically shut down. In shutdown mode, the inverter still consumes a bit energy (PV>Grid>Battery) to wait to start up again when the operating requirements are met.

NOTE:

When the PV input voltage is less than 150V or the battery input voltage is less than 40V, the WIT inverter will automatically shut down.

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7.2.3 REŽIM KVARA

Inteligentni upravljački sistem WIT invertera u realnom vremenu prati i podešava stanje sistema. Kada WIT detektuje upozorenje, odgovarajuća statusna lampica postaje crvena, a OLED prikazuje upozorenje. Kada detektuje kvar, indikator statusa sistema i odgovarajuća lampica postaju crveni, a OLED prikazuje kvar. Nakon otklanjanja kvara ili upozorenja sistem se oporavlja i svi indikatori statusa svetle zeleno.

Napomena: Za detalje o kvarovima i upozorenjima pogledajte 9.2 Otklanjanje problema.

7.2.4 REŽIM ISKLJUČIVANJA

Kada je SOC baterije niži od SOC praga za prekid pražnjenja, a izlazna snaga PV stringova nije dovoljna za proizvodnju u režimu priključenom na mrežu, WIT se automatski isključuje. U ovom režimu inverter i dalje troši malu količinu energije prema prioritetu PV → mreža → baterija kako bi čekao ponovno pokretanje kada se ispune uslovi rada.

Napomena: Kada je PV ulazni napon manji od 150 V ili napon baterije manji od 40 V, WIT se automatski isključuje.

7.3 LED I OLED DISPLEJ

LED i OLED displej prikazuju stanje rada WIT invertera. Simboli su objašnjeni u Tabeli 7.1, korisnički interfejs na slici 7.7, a LED indikatori u Tabeli 7.2.

Tabela 7.1 – Opis simbola

- A – OLED ekran: prikazuje osnovne informacije o sistemu.
- B – indikator sistema: prikazuje stanje sistema.
- C – PV indikator: prikazuje stanje rada PV strane.
- D – GRID/GEN indikator: prikazuje stanje rada mrežne strane i stanje GEN porta.
- E – indikator rada van mreže: pokazuje da li je režim rada van mreže omogućen.
- F – indikator baterije: prikazuje stanje baterije.
- G – komunikacija: prikazuje stanje komunikacije i druge kvarove sistema.
- H – indikator statusa baterije: prikazuje režim punjenja i pražnjenja baterije.
- I – dugme: pritiskom se menjaju informacije prikazane na OLED ekranu.

7.3 LED and OLED Displays Panel

The LED and OLED display panel demonstrating the running status of the WIT Inverter is shown in the Fig 7.6. The symbol description is shown in Table 7.1; The user interfaces are shown in Fig 7.7, and the LED indicator description is shown in Table 7.2.



Fig 7.1 Display panel

Table 7.1 Symbol Description

Position	Description	Note
A	OLED screen	Displays the main system information
B	System indicator	Displays the system status
C	PV indicator	Indicates the operation status on the PV side
D	Grid/GEN indicator	Indicates the operation status on the grid side and the GEN port status
E	Off-grid indicator	Indicates whether the off-grid mode is enabled
F	Battery indicator	Indicates the status of the battery
G	Communication	Indicates the communication status and other system faults
H	Battery status indicator	Indicates the charging and discharging mode of the battery
I	Button	You can switch the information displayed on the OLED by pressing the button

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7.3 LED I OLED DISPLEJ

LED i OLED displej prikazuju stanje rada WIT invertera. Simboli i indikatori prikazani su u nastavku.

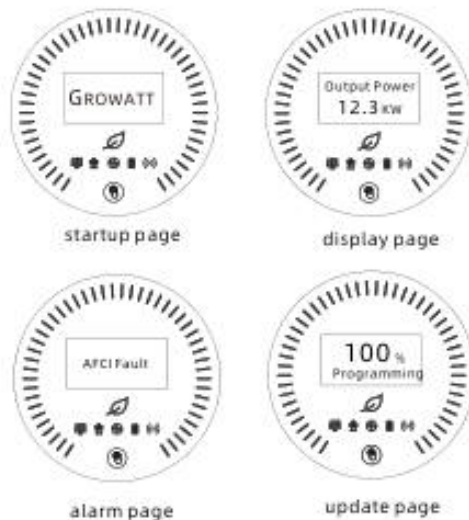


Fig 7.2 User interfaces

Table 7.2 Indicator description

	Status	Meaning
	Off	The system is not operating
	Steady green	The system is operating properly
	Blinking green at long intervals	The system is in standby mode or performing an upgrade
	Steady red	System failure
	Off	The PV voltage does not reach the operating voltage
	Steady green	The PV voltage reaches the operating voltage
	Steady red	A fault or alarm is reported on the PV side
	Off	The grid voltage does not reach the operating voltage or the GEN is normal
	Steady green	Successfully connected to the grid
	Blinking red at long intervals	A fault or alarm is reported on the GEN side
	Steady red	A fault or alarm is reported on the grid side

A - OLED ekran: prikazuje osnovne informacije o sistemu.

B - Indikator sistema: prikazuje trenutno stanje sistema.

C - PV indikator: prikazuje stanje rada PV strane.

D - GRID/GEN indikator: prikazuje stanje mrežne strane i stanje GEN priključka.

E - Indikator rada van mreže: pokazuje da li je režim rada van mreže omogućen.

F - Indikator baterije: prikazuje stanje baterije.

G - Indikator komunikacije: prikazuje stanje komunikacije i druge sistemske kvarove.

H - Indikator statusa baterije: prikazuje režim punjenja i pražnjenja baterije.

I - Dugme: pritiskom na dugme menjaju se informacije prikazane na OLED ekranu.

Napomena: Nazivi i oznake A-I odgovaraju oznakama na originalnoj slici i zadržani su radi lakšeg poređenja sa originalnim uputstvom.

	Status	Meaning
	Off	Off-grid mode is disabled
	Steady green	Off-grid mode is enabled and has no faults or alarms
	Steady red	Off-grid mode is enabled and a fault or alarm is reported on the AC side
	Off	Battery voltage is below the operating voltage
	Steady green	The SOC's connected to the battery are all sufficient and there are no faults or alarms
	Blinking green at long intervals	Low battery SOC
	Steady red	A fault or alarm is reported on the battery side
	Steady green	External communication is normal, such as RS485, WiLAN, etc.
	Blinking green at long intervals	The WIT Inverter is upgrading or the USB interface is reading and writing data
	Steady red	External communication fails, or a system fault occurs, or the GEN port fails
	Steady white	Battery is in standby mode
	Rotates clockwise	Charging mode
	Rotates anticlockwise	Discharging mode
	Displays critical system information. Users can call up and switch the interface by tapping the button. When a fault or alarm occurs in the system, the fault or alarm will be displayed.	
	The OLED will be activated when the button is pressed. The OLED will turn off if there is no operation for 5 minutes.	

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7.3 LED I OLED DISPLEJ – OPIS INDIKATORA

OFF-GRID indikator

- Isključeno: off-grid režim je onemogućen.
- Stalno zeleno: off-grid režim je omogućen i nema kvarova ili alarma.
- Stalno crveno: off-grid režim je omogućen, ali je prijavljen kvar ili alarm na AC strani.

Indikator baterije

- Isključeno: napon baterije je ispod radnog napona.
- Stalno zeleno: SOC svih povezanih baterija je dovoljan i nema kvarova ili alarma.
- Zeleno, dugo treperenje: nizak SOC baterije.
- Stalno crveno: prijavljen je kvar ili alarm na baterijskoj strani.

Komunikacioni indikator

- Stalno zeleno: spoljna komunikacija je normalna, npr. RS485, WiLAN itd.
- Zeleno, dugo treperenje: WIT inverter se nadograđuje ili USB interfejs čita/piše podatke.
- Stalno crveno: spoljna komunikacija ne radi, postoji sistemski kvar ili kvar GEN porta.

Indikator statusa baterije

- Stalno belo: baterija je u stanju čekanja.
- Rotacija u smeru kazaljke: režim punjenja.
- Rotacija suprotno od kazaljke: režim pražnjenja.

OLED displej

Prikazuje ključne informacije sistema. Pritiskom na dugme korisnik poziva i menja interfejse. Kada se pojavi kvar ili alarm, on se prikazuje na OLED displeju. OLED se isključuje ako nema aktivnosti 5 minuta, a aktivira se kada se pritisne dugme.

8 Monitoring

8.1 Remote Monitoring

Growatt WIT 4-15K-HU Hybrid inverters support Bluetooth/remote monitoring, which can be enabled by installing a datalogger. For more information on operation and configuration methods, see the following link.

Compatible Datalogger	Installation & Operation Guide Linkage
ShineWiLAN-X2	https://oss-eu.growatt.com/common/knowledgeShareH5No?lang=en&type=159

Scan the following QR code or search for "ShinePhone" and "Shinetools" in Google/Apple Store to download and install the mobile APP.



NOTE:

- (1) Download and install the latest version of ShinePhone.
- (2) See <https://server-us.growatt.com/?lang=en> for details.
- (3) Shinephone and Server accounts are universal.

8.1.1 Bluetooth Monitoring on the APP (Shinetools)

1. Open the ShineTools APP. On the login screen, tap "End User" and enter the password, which is in the format of "oss + the current date". E.g. oss20241225. Then tap "Sign in".

You can tap "Automatic log-in" to select whether to Log in automatically, as the figure shows.

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8 MONITORING 8.1 DALJINSKI MONITORING Growatt WIT 4-15K-HU hibridni inverteri podržavaju Bluetooth i daljinski monitoring preko dataloggera. Za više informacija o radu i konfiguraciji pogledajte odgovarajuće uputstvo za datalogger. Kompatibilni datalogger: ShineWiLAN-X2. 8.1.1 BLUETOOTH MONITORING U APLIKACIJI SHINETOOLS

NAPOMENA:

1. Preuzmite i instalirajte najnoviju verziju aplikacije ShinePhone.
2. Za detalje pogledajte Growatt server.
3. ShinePhone i Server koriste univerzalne naloge.
1. Otvorite aplikaciju ShineTools. Na ekranu za prijavu izaberite „End User“ i unesite lozinku u formatu „oss + trenutni datum“, npr. oss20241225. Zatim izaberite „Sign in“. Možete uključiti „Automatic log-in“ za automatsku prijavu.
2. Izaberite „ShineWiLan-X2“ i otvorite vodič za povezivanje.
3. Nakon što proverite da je Bluetooth dataloggera uključen, skenirajte QR kod dataloggera radi povezivanja.
4. Kada se prikaže ciljani Bluetooth uređaj, izaberite „Connect“.
5. Nakon uspešnog povezivanja izaberite uređaj u „Device List“ da biste videli stanje i podešavali parametre. Time se uspostavlja Bluetooth komunikacija između WIT invertera i mobilnog telefona.

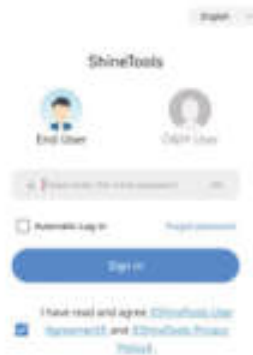
SRPSKI PREVOD

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8 MONITORING 8.1 DALJINSKI MONITORING Growatt WIT 4-15K-HU hibridni inverteri podržavaju Bluetooth i daljinski monitoring preko dataloggera. Za više informacija o radu i konfiguraciji pogledajte odgovarajuće uputstvo za datalogger. Kompatibilni datalogger: ShineWiLAN-X2. 8.1.1 BLUETOOTH MONITORING U APLIKACIJI SHINETOOLS

NAPOMENA:

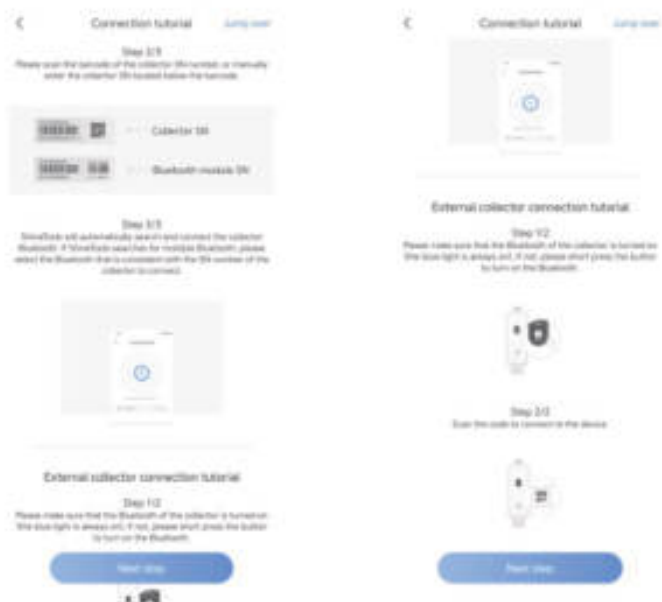
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2. Za detalje pogledajte Growatt server.
3. ShinePhone i Server koriste univerzalne naloge.
 1. Otvorite aplikaciju ShineTools. Na ekranu za prijavu izaberite „End User“ i unesite lozinku u formatu „oss + trenutni datum“, npr. oss20241225. Zatim izaberite „Sign in“. Možete uključiti „Automatic log-in“ za automatsku prijavu.
 2. Izaberite „ShineWiLan-X2“ i otvorite vodič za povezivanje.
 3. Nakon što proverite da je Bluetooth dataloggera uključen, skenirajte QR kod dataloggera radi povezivanja.
 4. Kada se prikaže ciljani Bluetooth uređaj, izaberite „Connect“.
 5. Nakon uspešnog povezivanja izaberite uređaj u „Device List“ da biste videli stanje i podešavali parametre. Time se uspostavlja Bluetooth komunikacija između WIT invertera i mobilnog telefona.



2.2.3.8.8

2. Tap "ShineWiLan-X2", View connection guide, as the fig shows.





3. After confirming that the Bluetooth of the Datalogger is enabled, scan the two-dimensional code of the Datalogger for connection, as the figure shows.



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8.1.1 BLUETOOTH MONITORING U APLIKACIJI SHINETOOLS – NASTAVAK

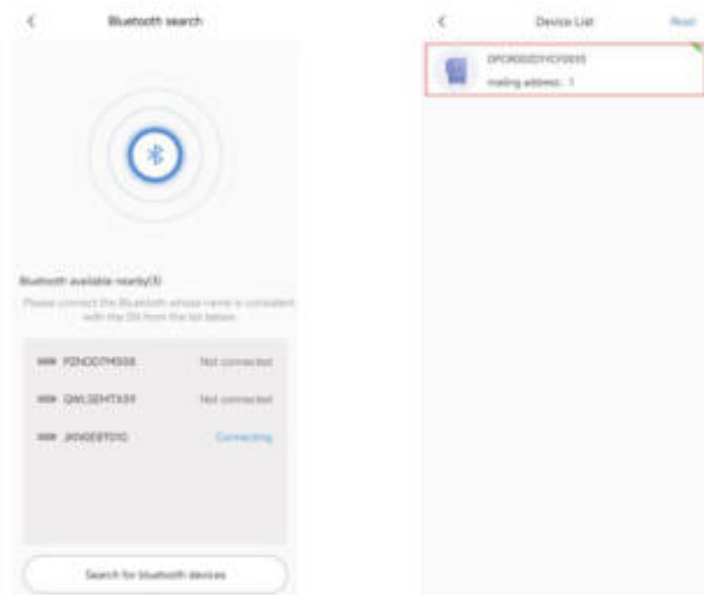
3. Nakon potvrde da je Bluetooth dataloggera omogućen, skenirajte QR kod dataloggera radi povezivanja, kao što je prikazano na slici.

4. Kada se prikaže ciljani Bluetooth uređaj, izaberite Connect. Nakon uspešnog povezivanja prikazaće se odgovarajući ekran.

5. U odeljku Device List izaberite uređaj koji želite da proverite. Prikazuju se relevantne informacije o statusu i omogućeno je podešavanje parametara.

Na ovaj način je potvrđena Bluetooth komunikacija između WIT invertera i telefona.

4. tap "Connect" after the target Bluetooth device is displayed. After successful connection, the screen is shown in the figure.



5. When the device is successfully connected, tap the Device you want to check in the Device List to view the relevant status information and set relevant parameters as required. the screen as demonstrated below will appear, ensuring that the communication between the WIT inverter and the mobile phone has been established via Bluetooth.

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8.1.1 BLUETOOTH MONITORING U APLIKACIJI SHINETOOLS – NASTAVAK

4. Povezivanje sa Bluetooth uređajem

Kada se prikaže ciljni Bluetooth uređaj, dodirnite „Connect“.
Nakon uspešnog povezivanja prikazaće se ekran kao na slici.

5. Provera uređaja

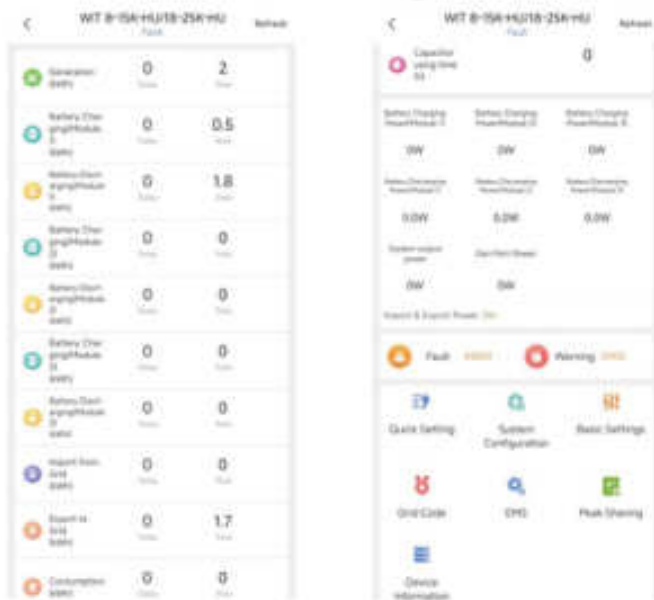
Kada je uređaj uspešno povezan, u meniju Device List dodirnite uređaj koji želite da proverite.
Prikazaće se odgovarajuće informacije o statusu uređaja i biće omogućeno podešavanje relevantnih parametara prema potrebi.

Zaključak: komunikacija između WIT invertera i mobilnog telefona je uspostavljena putem Bluetooth veze.

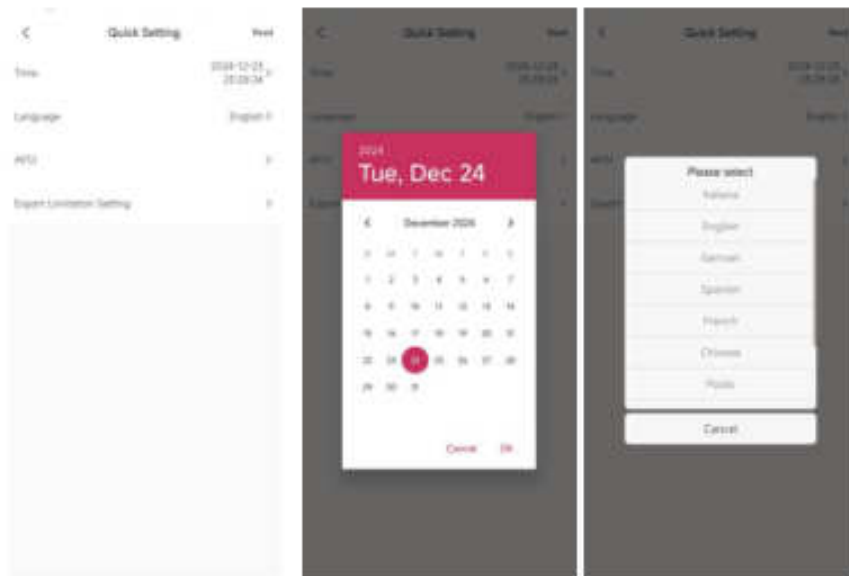
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SHINETOOLS – PODEŠAVANJA Izaberite „Quick Setting“ za podešavanje vremena, jezika i drugih osnovnih parametara. Izaberite „System Configuration“ za uključivanje/isključivanje invertora i podešavanje procenta aktivne snage. Izaberite „Basic Settings“ za podešavanje brzine prenosa podataka (baud rate) i pregled verzije mrežnog komunikacionog protokola.



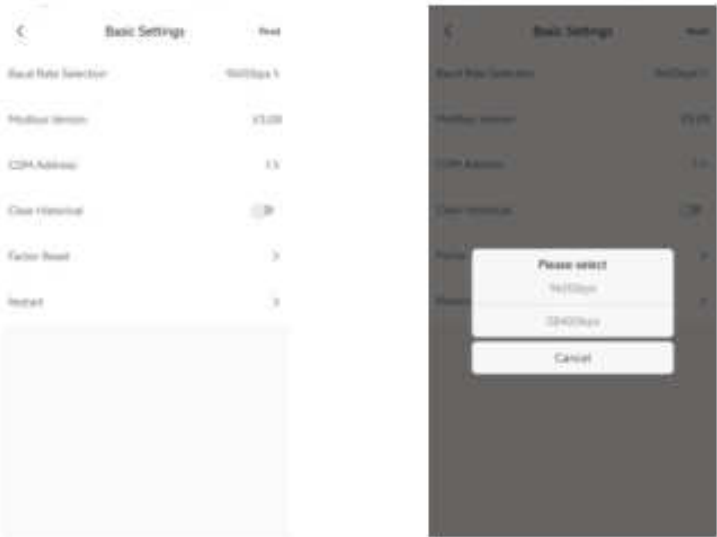
Tap Quick Setting, set time, language, etc., as the figure shows.



Tap System Configuration, you can turn on/off the inverter, set the percentage of active power, etc., as the figure shows.



Tap on the Basic Settings, you can set the baud rate, view the network communication protocol version, as the figure shows.



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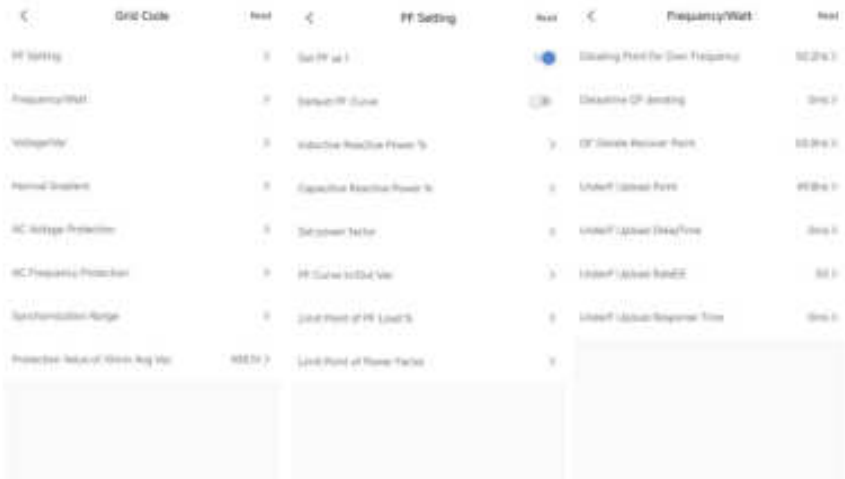
SHINETOOLS – PODEŠAVANJA Izaberite „Quick Setting“ za podešavanje vremena, jezika i drugih osnovnih parametara. Izaberite „System Configuration“ za uključivanje/isključivanje invertora i podešavanje procenta aktivne snage. Izaberite „Basic Settings“ za podešavanje brzine prenosa podataka (baud rate) i pregled verzije mrežnog komunikacionog protokola.

SRPSKI PREVOD

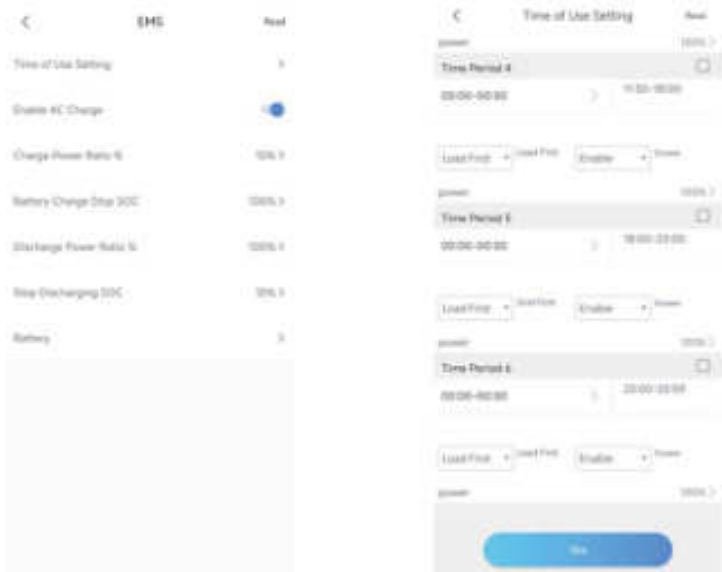
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SHINETOOLS – NAPREDNA PODEŠAVANJA Izaberite „Grid Code“ za podešavanje parametara faktora snage, Frequency/Watt i drugih parametara mrežnog koda. Izaberite „Peak Shaving“ da biste uključili/isključili Demand Management i podesili „Demand Mange Charge Power Limit“. Izaberite „EMS“ za podešavanje vremena korišćenja, AC Charging Enable i drugih EMS parametara. Izaberite „Device Information“, a zatim željeni odeljak, da biste pregledali odgovarajuće informacije na ekranu.

Tap Grid Code, you can set power factor related parameters, Frequency/Watt, etc., as the figure shows.



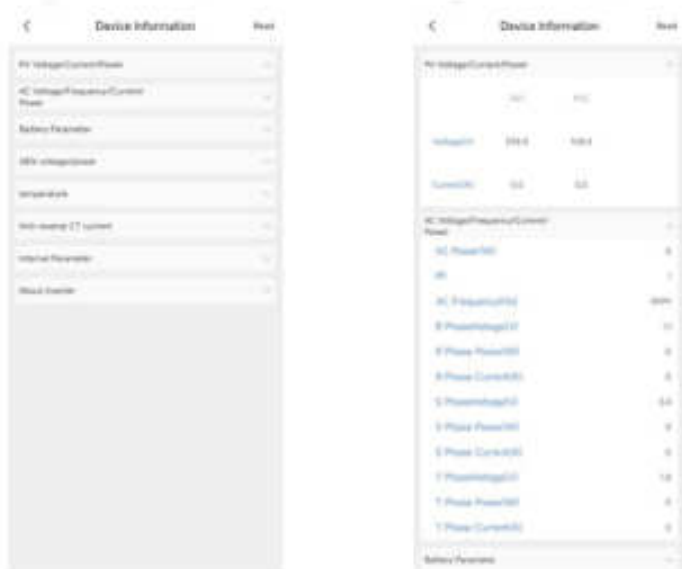
Tap EMS, you can set the use time, AC charging enable and other related information as the figure shows.



Tap Peak Shaving to Enable/disable Demand management Enable and set Demand Mange Charge Power Limit as the figure shows.



Tap Device Information, and then select the section you want to know, you can view the relevant content on the screen, as the figure shows.

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SHINETOOLS – NAPREDNA PODEŠAVANJA Izaberite „Grid Code“ za podešavanje parametara faktora snage, Frequency/Watt i drugih parametara mrežnog koda. Izaberite „Peak Shaving“ da biste uključili/isključili Demand Management i podesili „Demand Mange Charge Power Limit“. Izaberite „EMS“ za podešavanje vremena korišćenja, AC Charging Enable i drugih EMS parametara. Izaberite „Device Information“, a zatim željeni odeljak, da biste pregledali odgovarajuće informacije na ekranu.

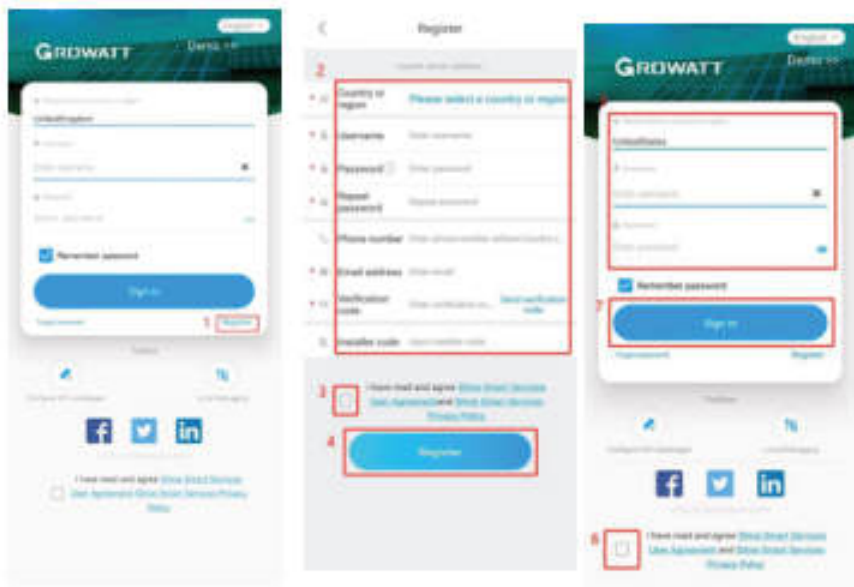
8.1.2 Remote Monitoring on the APP (ShinePhone)

NOTE:

- (1) Download and install the latest version of ShinePhone.
- (2) See <https://server.growatt.com/?lang=en> for details.
- (3) Shinephone and Server accounts are universal.

Account Registration on ShinePhone

Run the APP and tap "Register" on the login page. Fill in the information as required. Fields marked with * are mandatory. Tick the checkbox to agree to the Privacy Policy. Once the account is successfully registered, you can log in to the home screen. The registration page is shown below:



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8.1.2 DALJINSKI MONITORING U APLIKACIJI SHINEPHONE

1. Preuzmite i instalirajte najnoviju verziju ShinePhone.
2. Za detalje pogledajte Growatt server.
3. ShinePhone i Server nalozi su univerzalni.

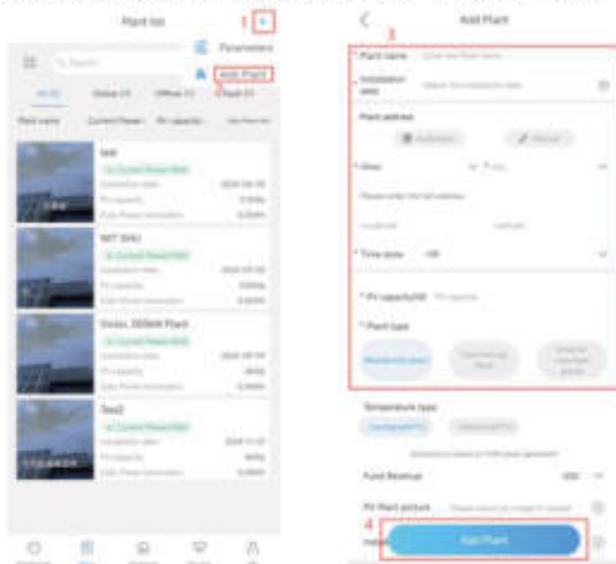
REGISTRACIJA NALOGA Pokrenite aplikaciju i na stranici za prijavu izaberite „Register“. Unesite tražene podatke. Polja označena zvezdicom (*) su obavezna. Označite saglasnost sa Privacy Policy. Nakon uspešne registracije možete se prijaviti.

ADD PLANT Nakon prijave izaberite „Plant“ i pratite prikazane korake. Unesite potrebne podatke; polja sa * su obavezna.

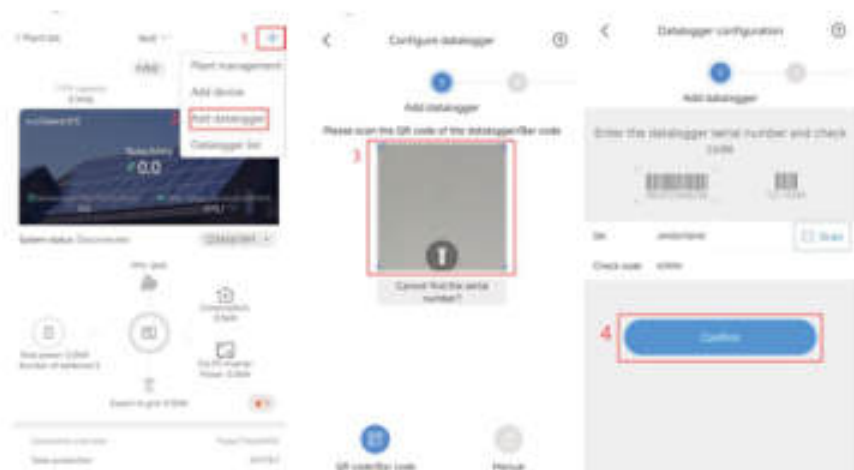
POVEZIVANJE DATALOGGERA NA MREŽU Pratite korake prikazane na slici. Bluetooth dataloggera mora biti uključen, odnosno plava lampica dataloggera mora svetleti.

Add Plant

After logging in to ShinePhone, tap on "Plant" and follow the steps shown. Fill in the information as required. Fields marked with * are mandatory.



Connect the Datalogger to the network on shinephone
Perform operations according to the steps shown in the figure. Note that the Bluetooth of the Datalogger must be enabled, that is, the blue light of the Datalogger is on.

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8.1.2 DALJINSKI MONITORING U APLIKACIJI SHINEPHONE

1. Preuzmite i instalirajte najnoviju verziju ShinePhone.
2. Za detalje pogledajte Growatt server.
3. ShinePhone i Server nalozi su univerzalni.

REGISTRACIJA NALOGA Pokrenite aplikaciju i na stranici za prijavu izaberite „Register“. Unesite tražene podatke. Polja označena zvezdicom (*) su obavezna. Označite saglasnost sa Privacy Policy. Nakon uspešne registracije možete se prijaviti.

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POVEZIVANJE DATALOGGERA NA MREŽU Pratite korake prikazane na slici. Bluetooth dataloggera mora biti uključen, odnosno plava lampica dataloggera mora svetleti.

SRPSKI PREVOD

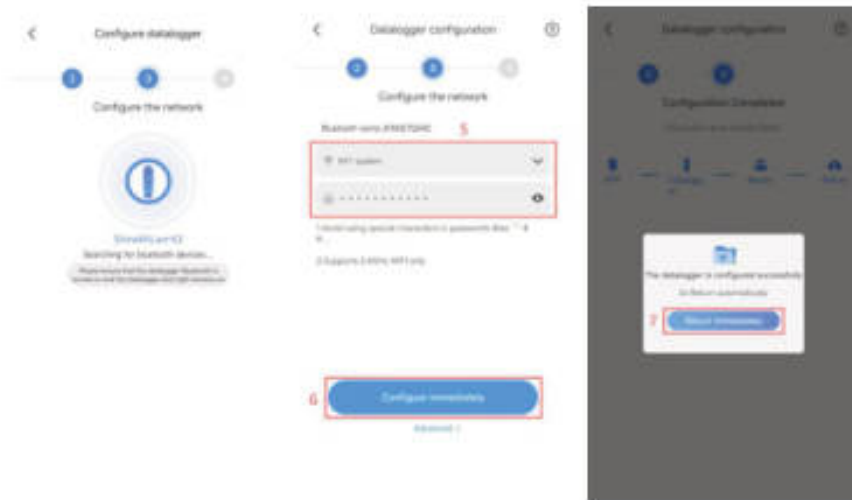
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SHINEPHONE – POČETNI EKRAN

1. Dashboard

Prikazuje ključne informacije svih elektrana povezanih sa nalogom, kao što su ukupna proizvodnja, ukupni prihod i status uređaja.

Pogledajte prikazane slike u originalnom uputstvu.



Home Screen of ShinePhone

1. Dashboard: displays the critical information of all power plants under the account, such as the total yield, the total revenue and the status of the device. Please refer to the figures below:



2. Plant: displays the plant list and the basic information about each PV plant, as shown in the figure below. You can select your target plant to view detailed information.



Detail Page of the WIT Inverter:

To access details about the WIT Inverter or related devices:

- (1) Tap "Plant" and the "Plant List" will be displayed. Select your target plant, then you can access the real-time data and history record of the power plant;
- (2) Select the WIT Inverter marked with its SN from "My device list". The figures below show QWL0DC300B as an example;
- (3) On the Detail Page, you can view information about the inverter and related devices. Three sections - "Events", "Control" and "Edit", are available at the bottom.

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SHINEPHONE - PLANT I DETAIL PAGE

2. Plant

Prikazuje listu elektrana i osnovne informacije o svakoj PV elektrani. Izaberite željenu elektranu da biste videli detaljne informacije.

Pristup detaljima WIT invertera:

1. Izaberite Plant; prikazaće se Plant List. Izaberite željenu elektranu da biste pristupili podacima u realnom vremenu i istoriji elektrane.
2. U odeljku My device list izaberite WIT inverter označen njegovim SN brojem.
3. Na stranici Detail možete pregledati informacije o inverteru i povezanim uređajima. Na dnu se nalaze tri odeljka: Events, Control i Edit.

Na slici je kao primer prikazan uređaj QWL0DC300B.

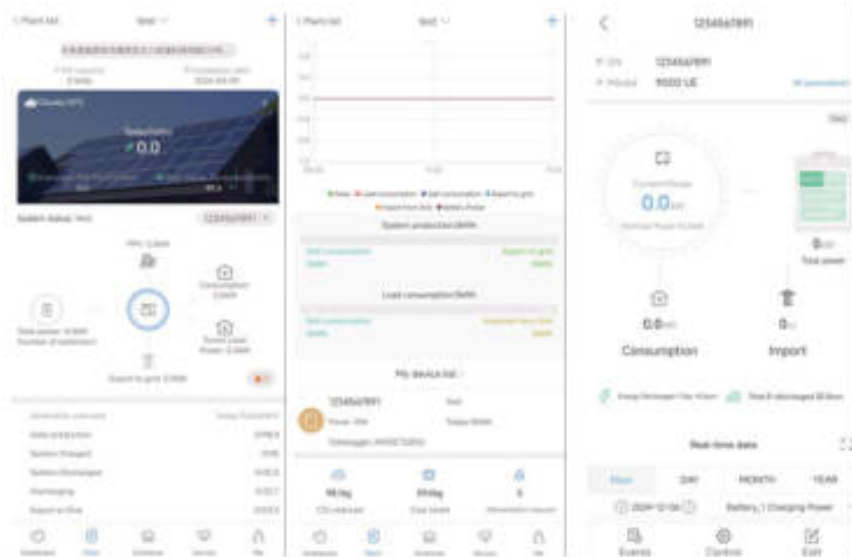
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SHINEPHONE - EVENTS

4. Events

Na ekranu Events možete videti poruke o kvarovima i upozorenjima, kao i preporučene mere za otklanjanje problema.



{4} On the "Events" screen, you can view the fault/warning message and suggested trouble-shooting measures.



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SHINEPHONE - CONTROL

5. Control

Na ekranu Control možete konfigurisati WIT inverter.

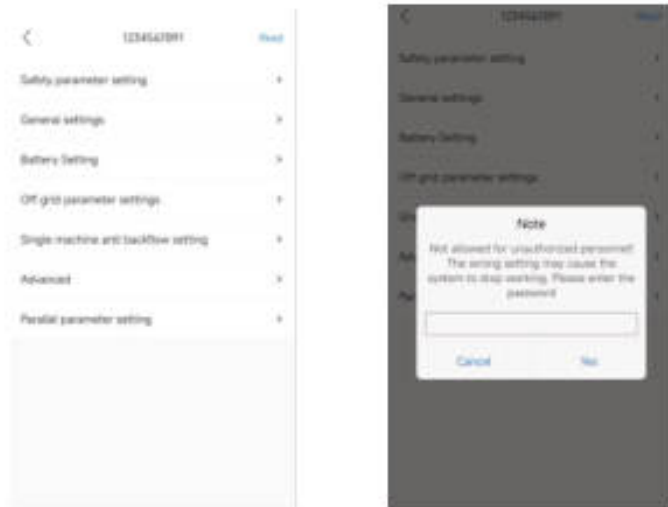
Lozinka je u formatu growatt + trenutni datum, na primer: growatt20240228.

PODEŠAVANJE DONJE GRANICE FREKVENCIJE

Putanja: Control > Safety parameter setting > UV1/UV2/UV3 Frequency.

Ovde možete podesiti donju granicu frekvencije WIT invertera.

(5) On the "Control" screen, you can configure the WIT Inverter. The password is in the format of "growatt + the current date", e.g. growatt20240228.



➤ Set lower frequency limit

Tap Control>Safety parameter setting>UV1/UV2/UV3 Frequency; You can set the lower frequency limit of The WIT.



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SHINEPHONE - PODEŠAVANJE GORNJE GRANICE FREKVENCije

Putanja: Control → Safety parameter setting → OV1/OV2/OV3 Frequency.
Ovde možete podesiti gornju granicu frekvencije WIT invertera.

➤ Set frequency Upper limits

Tap Control > Safety parameter setting > OV1 / OV2 / OV3 Frequency; You can set the upper frequency limit of The WIT.



➤ Set lower voltage limit

Tap Control > Safety parameter setting > UV1 / UV2 / UV3 Voltage; You can set the lower voltage limit of The WIT.



➤ Set upper voltage limit

Tap control > Safety parameter setting > OV1/OV2/OV3 Voltage; You can set the upper voltage limit of The WIT.



➤ Grid related settings

Tap Control > Safety parameter setting > Grid related settings, you can set the voltage Over/lower threshold of grid connection and the frequency Over/lower threshold of grid connection, as the figure shows.



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SHINEPHONE - PODEŠAVANJE DONJE GRANICE NAPONA

Putanja: Control → Safety parameter setting → UV1/UV2/UV3 Voltage.
Ovde možete podesiti donju granicu napona WIT invertera.

PODEŠAVANJE GORNJE GRANICE NAPONA

Putanja: Control → Safety parameter setting → OV1/OV2/OV3 Voltage.
Ovde možete podesiti gornju granicu napona WIT invertera.

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SHINEPHONE – MREŽNI PARAMETRI

1. Podešavanje gornje/donje granice napona i frekvencije mreže
Putanja: Control → Safety parameter setting → Grid related settings.
Ovde možete podesiti:

- gornji prag napona za priključenje na mrežu;
- donji prag napona za priključenje na mrežu;
- gornji prag frekvencije za priključenje na mrežu;
- donji prag frekvencije za priključenje na mrežu.

➤ Loading, restarting, and unloading rates

Tap Control > Safety parameter setting > Loading, restarting, and unloading rates; you can set Loading, restarting, and unloading rates.



➤ Settings related to OF derating

Tap Control > Safety parameter setting > Loading, restarting, and unloading rates; You can set OF derating.



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SHINEPHONE – BRZINE PROMENE SNAGE

1. Loading, restarting and unloading rates

Putanja: Control → Safety parameter setting → Loading, restarting, and unloading rates.

Ovde možete podesiti:

- brzinu povećanja snage (Loading rate);
- brzinu ponovnog povećanja snage (Restarting rate);
- brzinu smanjenja snage (Unloading rate).

2. OF derating

U istom odeljku podešavaju se parametri OF derating, odnosno smanjenja snage pri nadfrekvenciji.

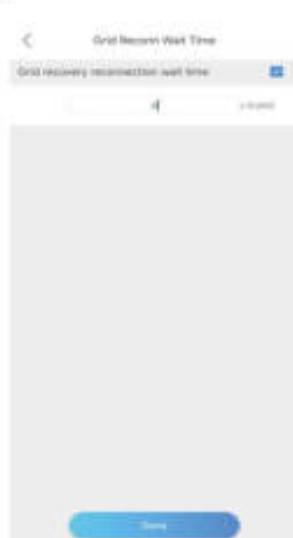
➤ Settings related to UF increasing

Tap Control > Safety parameter setting > Loading, restarting, and unloading rates; You can set UF derating.



➤ Grid Reconn Wait Time

Tap Control > Safety parameter setting > Grid Reconn Wait Time; You can set Grid Reconn Wait Time.



➤ **Frequency change rate enable**

Tap Control > Safety parameter setting > Frequency change rate enable; You can set Frequency change rate enable.



➤ **Set Inverter On/Off**

Tap Control > General settings > Set Inverter On/Off; you can power on/off the inverter, as the figure shows.



SRPSKI PREVOD

Originalna strana 81/143

SHINEPHONE - PODEŠAVANJE FREKVENCIJE I UKLJUČIVANJA INVERTERA

1. Uključivanje funkcije promene frekvencije

Putanja: Control → Safety parameter setting → Frequency change rate enable.
Ovde možete podesiti funkciju Frequency change rate enable.

2. Uključivanje/isključivanje invertera

Putanja: Control → General settings → Set Inverter On/Off.
Ovde možete uključiti ili isključiti inverter.

SRPSKI PREVOD

Originalna strana 82/143

SHINEPHONE – VREME I REŽIM RADA SISTEMA

1. Podešavanje vremena invertera

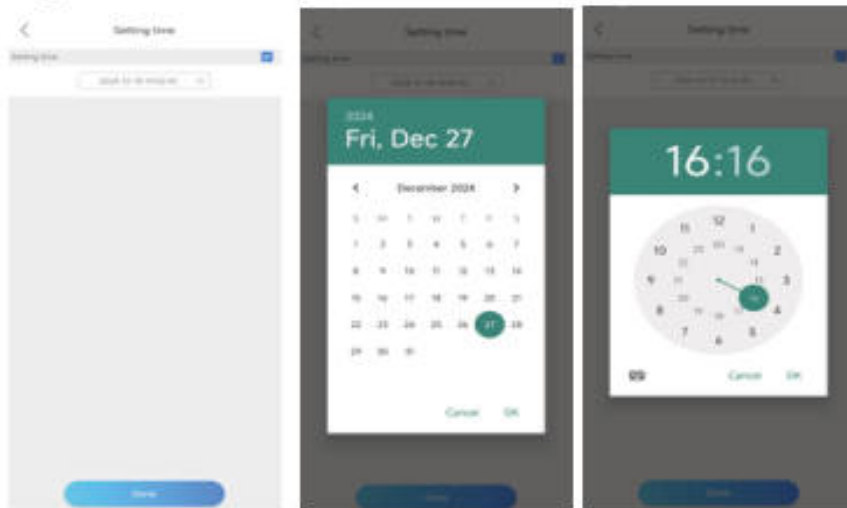
Putanja: Control → General settings → Setting Time.
Ovde možete podesiti lokalno vreme invertera.

2. System Mode

Putanja: Control → General settings → System Mode.
Ovde možete podesiti System Mode.

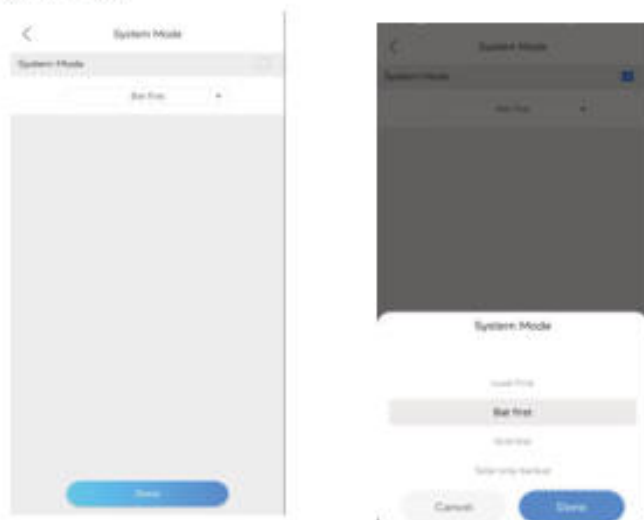
➤ Set the Time of the Inverter

Tap Control > General settings > Setting Time; you can set the local time, as the figure shows.



➤ System Mode

Tap Control > General settings > System Mode; you can set the System Mode, as the figure shows.



SRPSKI PREVOD

Originalna strana 83/143

SHINEPHONE – REAKTIVNA SNAGA I BROJILO NA STRANI MREŽE

1. Podešavanje reaktivne snage

Putanja: Control → General settings → Set reactive power.

Ovde možete podesiti različite režime reaktivne snage.

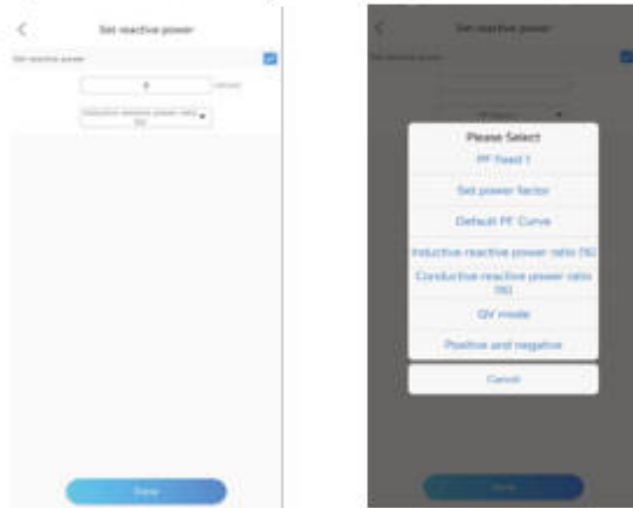
2. Brojilo električne energije na strani mreže

Putanja: Control → General settings → Enable the grid side electricity meter.

Ovde možete uključiti ili isključiti brojilo električne energije na strani mreže.

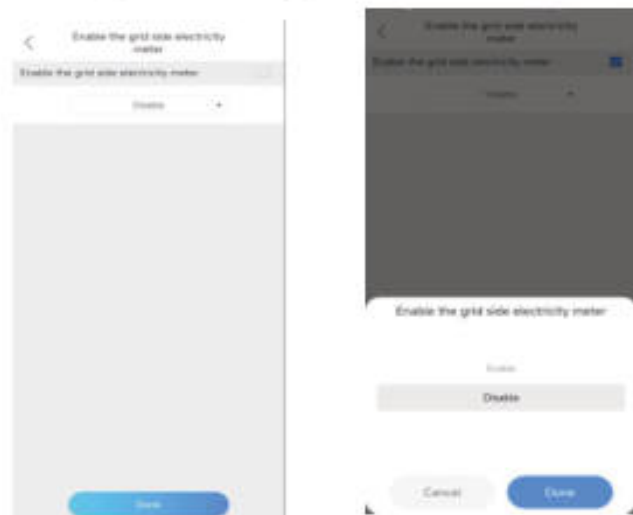
➤ Set Reactive Power

Tap Control>General settings> Set reactive power. You can set different reactive power modes; as the figure shows.



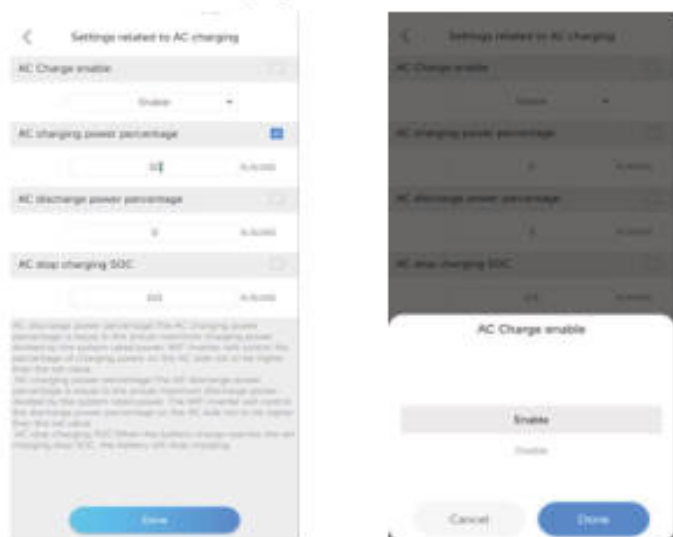
➤ Enable the grid side electricity meter

Tap Control > General settings > Enable the grid side electricity meter, you can Enable/Disable grid side electricity meter.



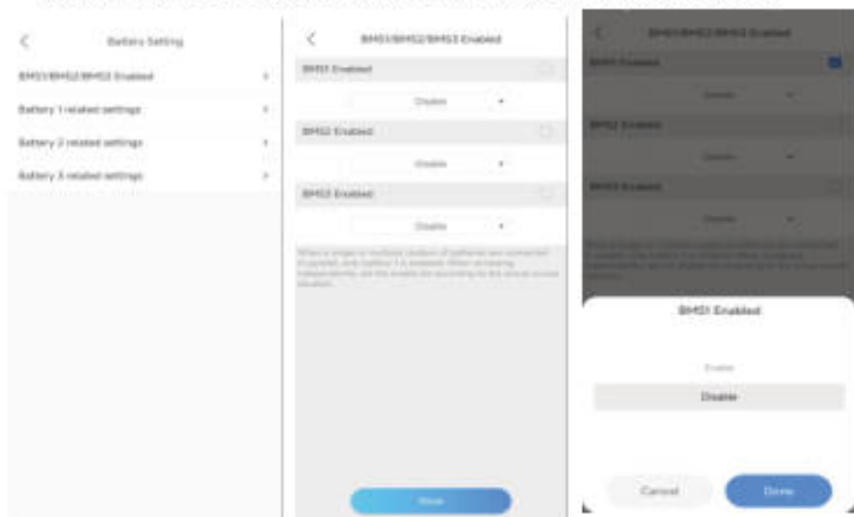
➤ Settings related to AC charging

Tap Control > General settings > Settings related to AC charging, You can set the parameters related to AC charging.



➤ Set the Battery Enable

Tap Control > Battery Setting > BMS1/BMS2/BMS3 Enabled, you can enable/disable Battery_1, Battery_2 and Battery_3, as the figure shows.



SRPSKI PREVOD

Originalna strana 84/143

SHINEPHONE – AC PUNJENJE I AKTIVIRANJE BATERIJE

1. Podešavanja vezana za AC punjenje

Putanja: Control → General settings → Settings related to AC charging.
Ovde možete podesiti parametre povezane sa AC punjenjem.

2. Aktiviranje baterije

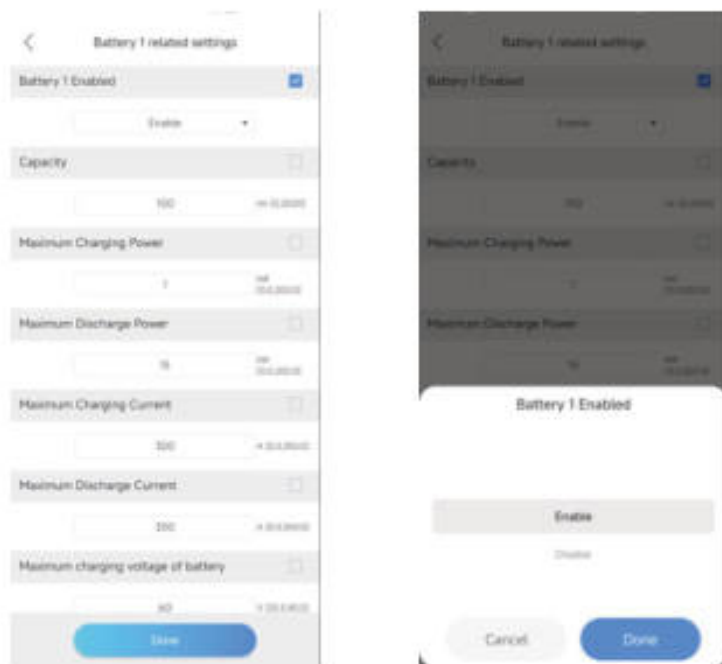
Putanja: Control → Battery Setting → BMS1/BMS2/BMS3 Enabled.
Ovde možete uključiti ili isključiti Battery_1, Battery_2 i Battery_3.

Note:

BMS is unnecessary for lead-acid batteries but mandatory for lithium batteries.

➤ Set the Battery

Tap Control > Battery Setting > Battery 1 related settings, you can set the Battery related parameters (the battery capacity, ranging from 0 to 290Ah; the maximum charging/discharging power, ranging from 0 to 15kw; the maximum charging/discharging current, ranging from 0 to 200A; the battery maximum charging voltage, ranging from 40 V to 60V; the battery discharge cutoff voltage, ranging from 0 V to 40V), as the figure shows.

**➤ Set the Off grid parameter settings**

Tap Control > Off grid parameter settings > Related settings for grid connection and off grid. Two options are available: Automatic mode and Manual mode. If the Manual mode is selected, you can set the inverter to work in the on- /off-grid, or generator mode, as the figure shows. The Automatic Mode is recommended as the figure shows.

SRPSKI PREVOD**Originalna strana 85/143**

SHINEPHONE – PODEŠAVANJE BATERIJE I OFF-GRID REŽIMA

1. Podešavanje baterije

Putanja: Control → Battery Setting → Battery 1 related settings.

Podešavaju se:

- kapacitet baterije: 0–290 Ah;
- maksimalna snaga punjenja/pražnjenja: 0–15 kW;
- maksimalna struja punjenja/pražnjenja: 0–200 A;
- maksimalni napon punjenja baterije: 40–60 V;
- napon prekida pražnjenja baterije: 0–40 V.

2. Podešavanje off-grid parametara

Putanja: Control → Off grid parameter settings → Related settings for grid connection and off grid.

Dostupna su dva režima: Automatic mode i Manual mode.

Ako je izabran Manual mode, inverter se može podesiti za rad u on-grid, off-grid ili generator režimu.

Preporuka: Automatic mode.

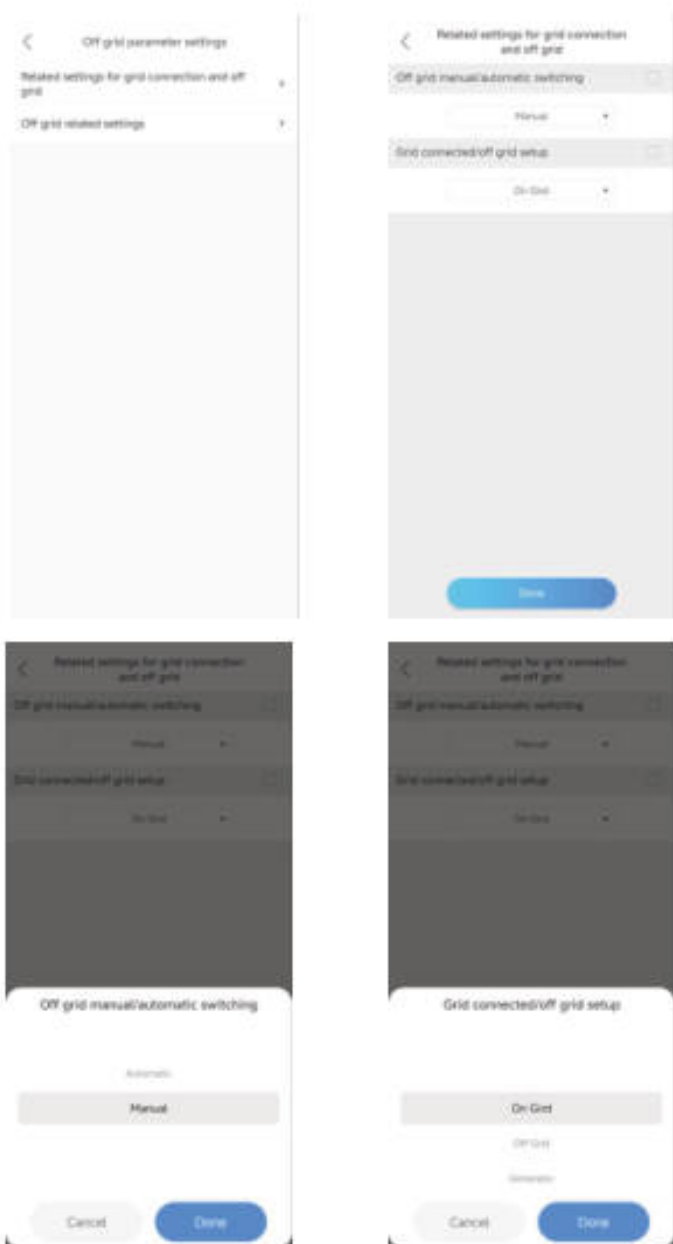
Napomena: BMS nije potreban za olovno-kiselinske baterije, ali je obavezan za litijumske baterije.

SRPSKI PREVOD

Originalna strana 86/143

ORIGINALNA STRANA 86/143

Ova strana originalnog uputstva sadrži grafičke prikaze/ekrane aplikacije bez dodatnog tekstualnog sadržaja koji treba prevoditi.



SRPSKI PREVOD

Originalna strana 87/143

SHINEPHONE – OFF-GRID PODEŠAVANJA

Podešavanje off-grid parametara

Putanja: Control → Off grid parameter settings → Off grid Related Setting.

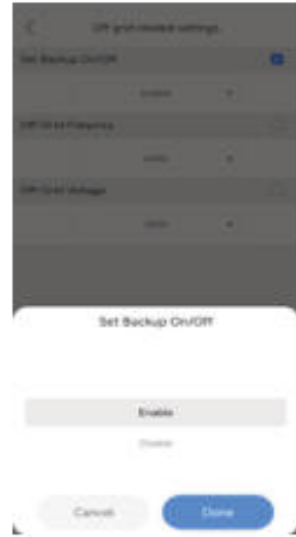
Ovde možete:

- uključiti ili isključiti off-grid režim;
- podesiti off-grid frekvenciju: 50 Hz / 60 Hz;
- podesiti off-grid napon: 220 V / 230 V / 240 V / 277 V / 127 V.

Podešavanja treba izvršiti u skladu sa bezbednosnim propisima.

➤ Set the Off grid related settings

Tap Control > Off grid parameter settings > Off grid Related Setting, you can enable/disable the off-grid mode, set the off-grid frequency (50Hz/60Hz) and the off-grid voltage (220V/230V/ 240V/277V/127V), complying with the safety regulations, as the figure shows.



SRPSKI PREVOD

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SHINEPHONE - ANTI-BACKFLOW I EXPORT LIMITATION

1. Podešavanje anti-backflow funkcije jednog uređaja

Putanja: Control → Single machine anti backflow setting → Single machine anti backflow related settings.
Ovde možete uključiti ili isključiti funkciju sprečavanja povratnog toka jednog uređaja.

2. Podešavanje jednofazne anti-backflow funkcije

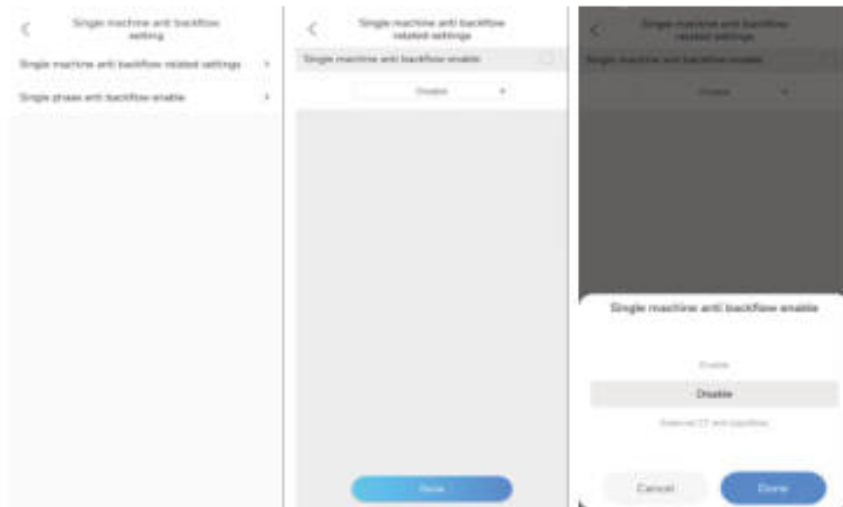
Putanja: Control → Single machine anti backflow setting → Single phase anti backflow enable.
Ovde možete uključiti ili isključiti funkciju sprečavanja povratnog toka po fazi.

3. Single phase Export Limitation

Podešavanje ograničenja predaje energije u mrežu za jednofazni sistem.

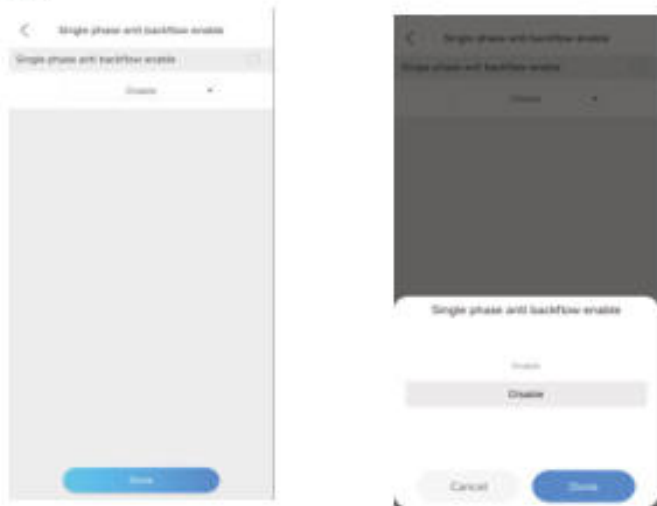
> Single machine anti backflow setting

Tap Control > Single machine anti backflow setting > Single machine anti backflow related settings, You can Enable/Disable the Single machine anti backflow function.



> Set the Single phase Export Limitation

Tap Control > Single machine anti backflow setting > Single phase anti backflow enable, you can enable/disable the Single phase anti backflow function, as the figure shows.



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SHINEPHONE – SOPSTVENA POTROŠNJA I VREMENSKI PERIODI

1. Maximum spontaneous self use

Putanja: Control → Advanced → Maximum spontaneous self use.

Ovde možete uključiti ili isključiti funkciju maksimalne sopstvene potrošnje.

2. Izbor režima rada i podešavanje vremenskih perioda

Putanja: Control → Advanced → Equipment mode selection and time setting.

Moguće je podesiti 6 vremenskih perioda.

Za svaki period mogu se podesiti:

- početno vreme;
- krajnje vreme;
- odgovarajući režim rada;
- da li je izabran režim omogućen.

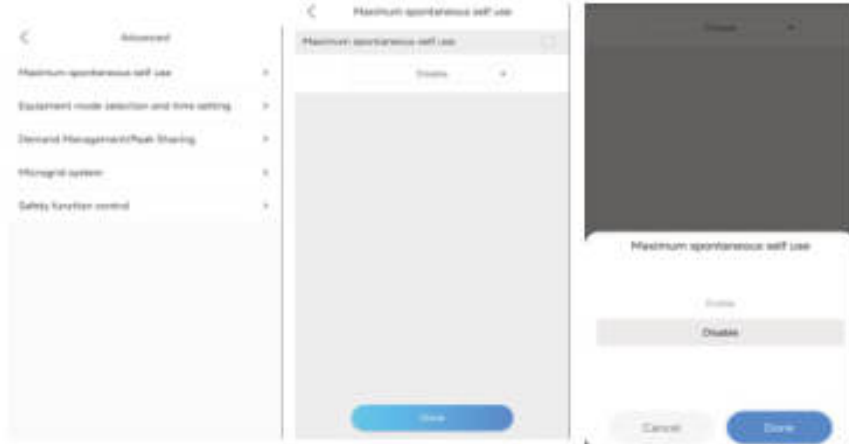
Dostupni režimi uključuju:

- Load First;
- Battery First;
- Grid First;
- Solar Only Backup;
- IDLE / Charge From Clipped Solar;
- PTO;
- ECO.

Izaberite odgovarajući režim uzimajući u obzir cenu električne energije i potrošnju tokom konkretnog vremenskog perioda.

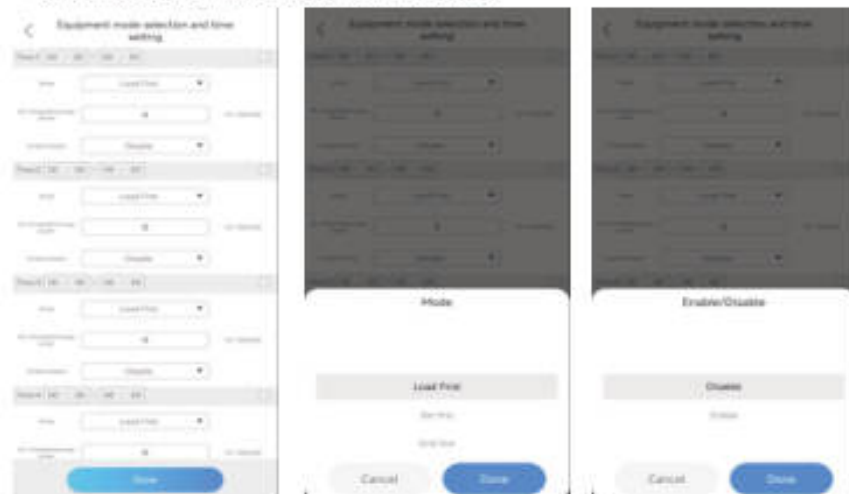
➤ Set the Maximum spontaneous self use

Tap Control > Advanced > Maximum spontaneous self use; you can enable/disable the Maximum spontaneous self use function, as the figure shows.



➤ Equipment mode selection and time setting

Tap Control > Advanced > Equipment mode selection and time setting; 6 time segments are configurable. You can set the start and end time of each period, the corresponding working mode, including Load First, Battery First and Grid First, solar only backup, IDLE/Charge From Clipped Solar, PTO and ECO., and whether to enable/disable the selected working mode. Choose the appropriate working mode considering the corresponding electricity rates and power consumption during the specific time period.



SRPSKI PREVOD

Originalna strana 90/143

SHINEPHONE – DEMAND MANAGEMENT I MICROGRID

1. Demand Management / Peak Shaving

Putanja: Control → Advanced → Demand Management/Peak Shaving.

Ovde možete podesiti:

- uključivanje/isključivanje funkcije Demand Management;
- uključivanje/isključivanje funkcije Peak Shaving Backup SOC;
- vrednost Peak Shaving Backup SOC.

2. Microgrid system

Putanja: Control → Advanced → Microgrid system.

Možete izabrati tip uređaja povezanog na GEN port:

- Generator;
- PV inverter;
- Smart Load.

Za generator se mogu podesiti:

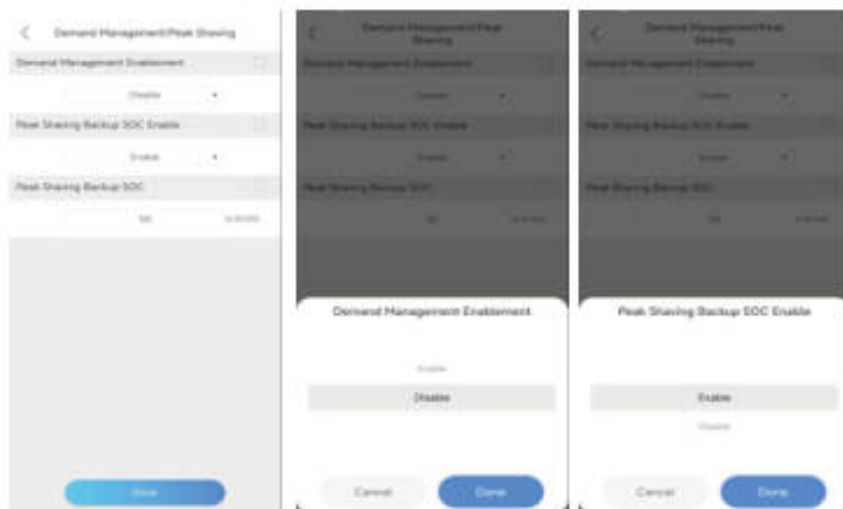
- Generator Enable;
- Generator Rating: 0-1000 kW;
- Off-grid oil engine startup SOC: 0-100%;
- Off-grid oil engine stop SOC: 0-100%;
- Heat up time: 0-3600 s;
- Power limit for oil engine charging: 0-1000 kW.

Napomena: Tip uređaja povezanog na GEN port i njegovo uključivanje moraju se podesiti dok je inverter u standby režimu.

➤ Demand Management/Peak Shaving

Tap Control > Advanced > Demand Management/Peak Shaving, you can enable/disable the Demand Management Enablement

Function, Peak Shaving Backup SOC Enable Function and setting Peak Shaving Backup SOC, as the figure shows.



➤ Microgrid system

Tap Control > Advanced > Microgrid system, you can select Types of Access for GEN Port Devices, include "Generator", "PV inverter" and "Smart Load"; Enable/Disable Generator Enable; Generator Rating, ranging from 0 to 1000kW; Off grid oil engine startup SOC, ranging from 0 to 100%; Off grid oil engine stops SOC, ranging from 0 to 100%; Heat up time, ranging from 0 to 3600s; Power limit for oil engine charging, ranging from 0 to 1000kW;

Note:

The type of equipment connected to the GEN port and whether it is enabled need to be configured while the inverter is in standby mode.

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SHINEPHONE – SAFETY FUNCTION CONTROL

Putanja: Control > Advanced > Safety function control.

U ovom odeljku moguće je uključiti ili isključiti funkciju Low voltage crossing i druge bezbednosne funkcije prema prikazanim opcijama aplikacije.



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SHINEPHONE – SAFETY FUNCTION CONTROL

Putanja: Control > Advanced > Safety function control.

Moguće je uključiti ili isključiti Low voltage crossing i druge bezbednosne funkcije dostupne u aplikaciji.

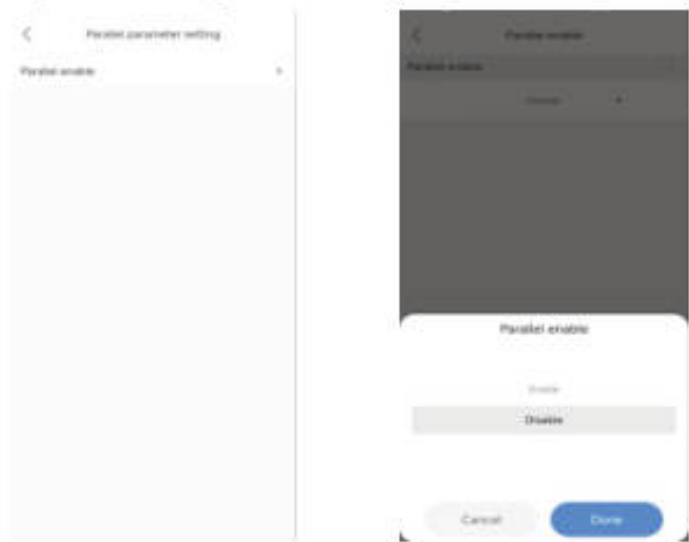
➤ Safety function control

Tap Control > Advanced > Safety function control, you can Enable/Disable Low voltage crossing etc.

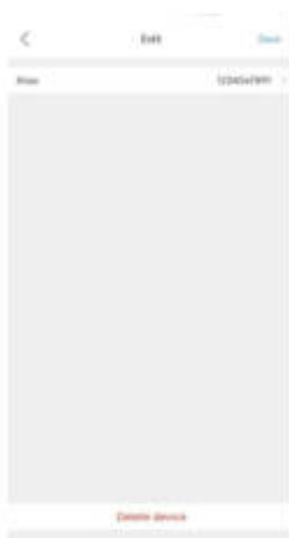


➤ **Parallel parameter setting**

Tap Control > Advanced > Parallel parameter setting, you can Enable/Disable Parallel parameter setting.



(6) On the "Edit" screen, you can change the device name as the figure shows.



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SHINEPHONE – PARALELNO POVEZIVANJE

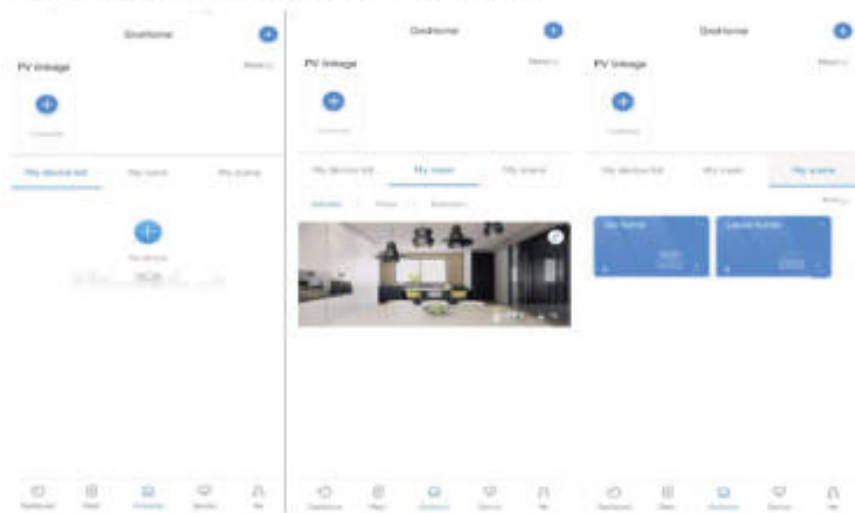
PARALLEL PARAMETER SETTING

Putanja: Control > Advanced > Parallel parameter setting.

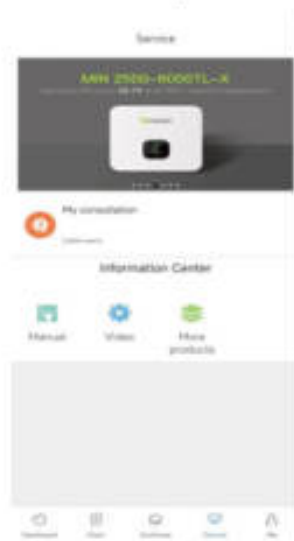
Moguće je uključiti ili isključiti funkciju podešavanja parametara za paralelni rad.

Na ekranu Edit moguće je promeniti naziv uređaja.

3. GroHome: displays the home energy system, including four sections: "PV linkage", "My device list", "My room" and "My scene"



4. Service: includes the common faults and troubleshooting suggestions, as shown in the figure below. Should you encounter any problem about our product, you can contact the Growatt after-sales support or refer to the related documents



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SHINEPHONE - GROHOME | SERVICE

GroHome

Prikazuje kućni energetska sistem kroz četiri odeljka:

1. PV linkage
2. My device list
3. My room
4. My scene

Service

Sadrži uobičajene kvarove i preporuke za otklanjanje problema. Ako imate problem sa proizvodom, možete kontaktirati Growatt after-sales podršku ili pogledati odgovarajuću dokumentaciju.

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SHINEPHONE – NASTAVAK I SHINESERVER

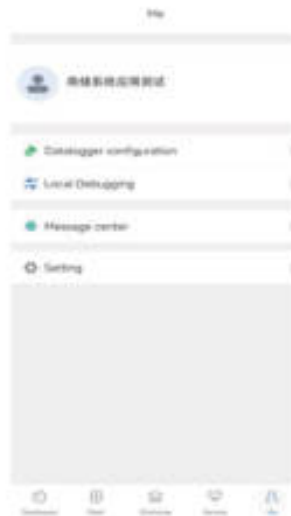
5. Me

Ovde možete pregledati informacije o nalogu, konfigurisati datalogger ili pregledati obaveštenja.

8.1.3 DALJINSKI MONITORING NA SHINESERVER WEB STRANICI

1. Otvorite internet pregledač i unesite adresu ShineServer prijave da biste pristupili stranici za prijavljivanje. Ako nemate nalog, izaberite Register an Account.

5. Me: You can check the account information, configure the datalogger or view notifications, as shown in the figure below.



8.1.3 Remote Monitoring on the ShineServer Webpage

1. Open the browser, then enter <https://server.growatt.com/login?lang=en> in the address box to access the login page. Click "Register an Account" if you do not have an account.



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SHINESERVER - REGISTRACIJA NALOGA

2. Kada se otvori stranica za registraciju, unesite tražene podatke i prihvatite Privacy Policy. Polja označena simbolom „*” su obavezna. Izaberite Next; otvoriće se stranica Add Plant. Zatim izaberite Back to Login u gornjem desnom uglu.

2. After the Registration Page is displayed, fill in the information as required and click to agree to the Privacy Policy. Fields marked with the "*" icon are mandatory. Click next, it will bring you to the "Add Plant" page. Then click "Back to Login" on the top right corner.

The screenshot shows a registration form with the following fields: Username, Password, Confirm Password, Email, and Phone Number. A red box highlights the 'Next' button at the bottom right. A red box also highlights the 'I agree to the terms and conditions' checkbox.

The screenshot shows a registration form with the following fields: Username, Password, Confirm Password, Email, and Phone Number. A red box highlights the 'Next' button at the bottom right. A red box also highlights the 'I agree to the terms and conditions' checkbox.

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SHINESERVER - PRIJAVA I DODAVANJE ELEKTRANE

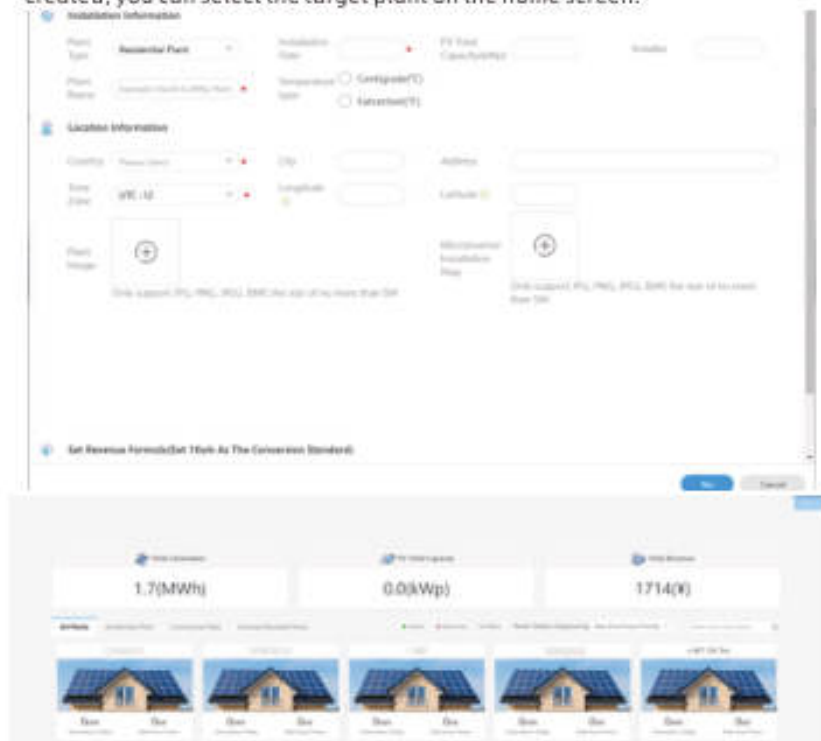
3. Na stranici za prijavu unesite korisničko ime i lozinku i prijavite se na početni ekran.

4. Nakon pristupa početnom ekranu pojaviće se prozor Add Plant. Unesite tražene podatke označene simbolom „.“ i izaberite Yes. Ako je elektrana već kreirana, možete je izabrati na početnom ekranu.

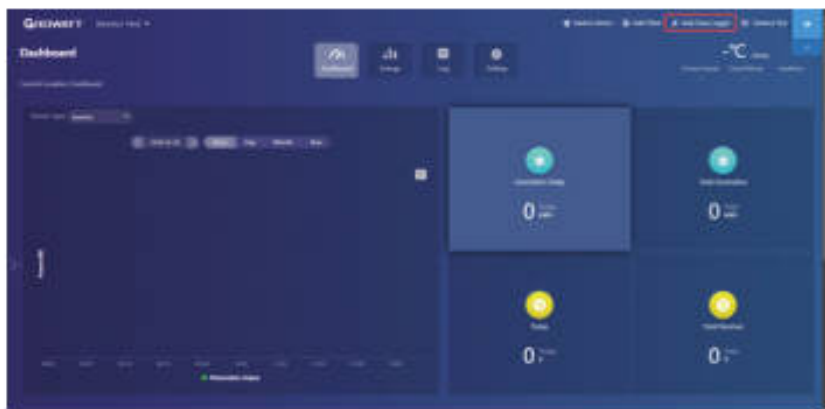
3. On the Login screen, enter the username and the password to log in to the home screen.



4. After accessing the home screen, the "Add Plant" window will pop up. Fill in the information as required (marked with ".") and click "Yes". If the plant has been created, you can select the target plant on the home screen.



5. Click the target plant and the detailed page will be displayed, click "Add Data Logger" on the upper right corner to add the datalogger connected to the inverter.
- 1) Enter the serial number (SN) of the datalogger.
- 2) Select the target power plant. You might need to enter the verification code of the datalogger as prompted.



Data Logger SN

Data Logger Check Code

Assigned Plant WIT 15K Test

Yes

Cancel

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SHINESERVER - DODAVANJE DATALOGGERA

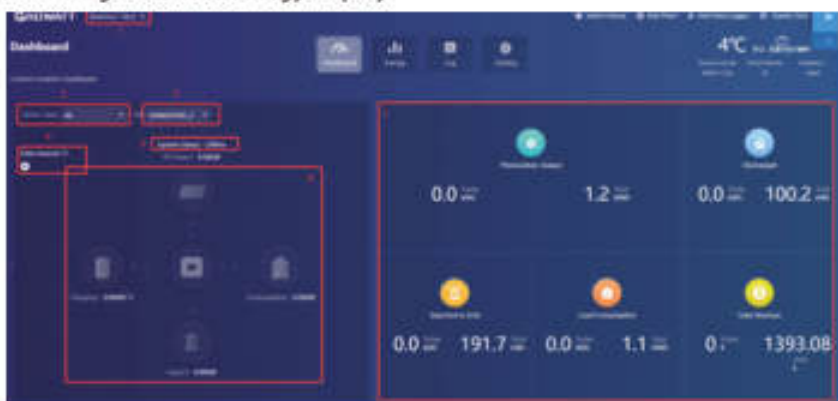
1. Unesite serijski broj (SN) dataloggera.
2. Izaberite ciljnu elektranu. Možda će biti potrebno uneti verifikacioni kod dataloggera prema prikazanom zahtevu.
5. Izaberite ciljnu elektranu; na detaljnoj stranici izaberite Add Data Logger u gornjem desnom uglu da dodate datalogger povezan sa inverterom.

6. After adding the datalogger successfully, you can click Dashboard to view details about related devices.



Dashboard:

1. Running status and energy display



- 1) Plant List: select the target plant from the drop-down list
- 2) Device Type: Select the device from the drop-down list
- 3) Input/Search Number: Upon the initial search, enter the serial number of the specific device; If you have searched for it before, you can select the device from the drop-down list
- 4) Data Sources: displays the data source of the selected device: Load First, Battery First and Grid first.
- 5) System Status: displays the running status of the selected device: operating, faulty, standby and off-line
- 6) System Running Graph: displays the power flow between the PV modules, the battery, the generator and the AC side
- 7) Energy: displays today's/total PV generation, power imported from grid, power exported to the grid and the load consumption

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SHINESERVER – DASHBOARD Nakon uspešnog dodavanja dataloggera izaberite „Dashboard“ za pregled detalja povezanih uređaja.

1. RUNNING STATUS AND

ENERGY DISPLAY

- 1) Plant List – izbor elektrane iz padajuće liste.
- 2) Device Type – izbor uređaja.
- 3) Input/Search Number – unos SN broja uređaja; ranije pronađeni uređaji mogu se izabrati iz padajuće liste.
- 4) Data Sources – izvor podataka: Load First, Battery First ili Grid First.
- 5) System Status – status uređaja: operating, faulty, standby ili off-line.
- 6) System Running Graph – tok energije između PV modula, baterije, generatora i AC strane.
- 7) Energy – današnja/ukupna PV proizvodnja, energija preuzeta iz mreže, energija predata mreži i potrošnja.

2.

ENERGY TREND

- 1) System Production – energija za sopstvenu potrošnju i energija predata mreži.
- 2) Date – izbor dana, meseca ili godine.
- 3) Load Consumption – energija za sopstvenu potrošnju i energija preuzeta iz mreže.
- 4) Display options – prikaz/skrivanje pojedinih podataka.

3. BATTERY INFORMATION

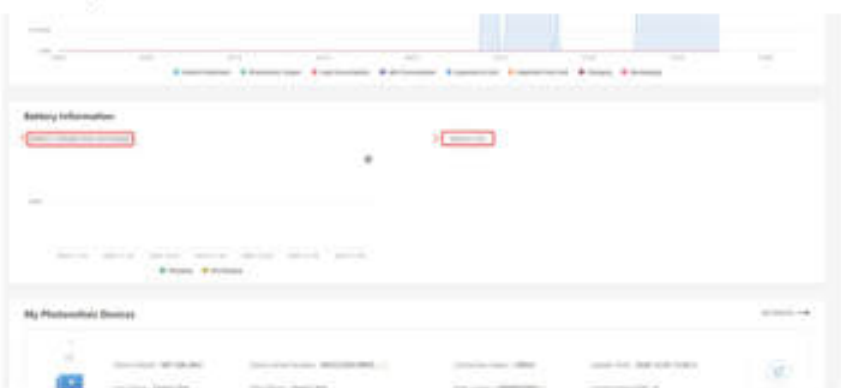
- 1) Istorija punjenja i pražnjenja baterijskih klastera za poslednjih sedam dana.
- 2) Dnevni SOC baterijskog rack-a.

2. Energy Trend

- 1) System Production: displays the power for self-consumption and the power exported to the grid
- 2) Date: select a specific date, you can view the energy data in a specific period, day, month or year
- 3) Load Consumption: displays the power for self-consumption and the power drawn from the grid
- 4) Display options: to show/hide the content by clicking the corresponding color circle. By placing the cursor on the specific color circle for a long period, it will display the energy trend of the selected item only



3. Battery Information



- 1) Battery charge and discharge information over the last seven days: It can display the charge and discharge history of the battery clusters over the past seven days.
- 2) Battery rack daily SOC information: displays the battery SOC.

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Originalna strana 100/143

SHINESERVER – DASHBOARD Nakon uspešnog dodavanja dataloggera izaberite „Dashboard“ za pregled detalja povezanih uređaja.

1. RUNNING STATUS AND

ENERGY DISPLAY

- 1) Plant List – izbor elektrane iz padajuće liste.
- 2) Device Type – izbor uređaja.
- 3) Input/Search Number – unos SN broja uređaja; ranije pronađeni uređaji mogu se izabrati iz padajuće liste.
- 4) Data Sources – izvor podataka: Load First, Battery First ili Grid First.
- 5) System Status – status uređaja: operating, faulty, standby ili off-line.
- 6) System Running Graph – tok energije između PV modula, baterije, generatora i AC strane.
- 7) Energy – današnja/ukupna PV proizvodnja, energija preuzeta iz mreže, energija predata mreži i potrošnja.

2.

ENERGY TREND

- 1) System Production – energija za sopstvenu potrošnju i energija predata mreži.
- 2) Date – izbor dana, meseca ili godine.
- 3) Load Consumption – energija za sopstvenu potrošnju i energija preuzeta iz mreže.
- 4) Display options – prikaz/skrivanje pojedinih podataka.

3. BATTERY INFORMATION

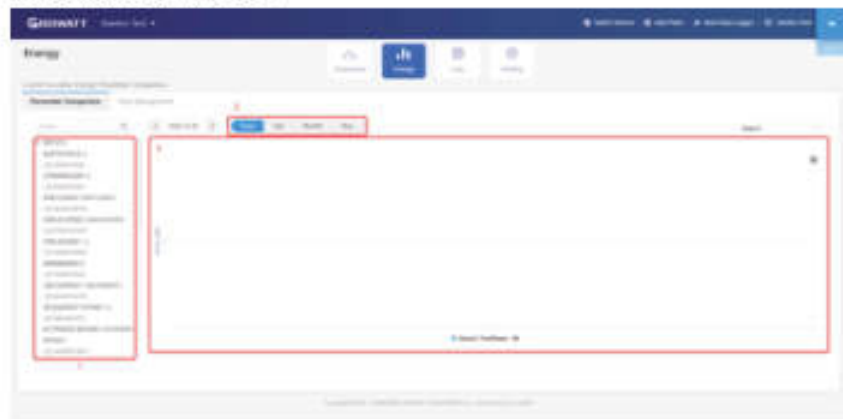
- 1) Istorija punjenja i pražnjenja baterijskih klastera za poslednjih sedam dana.
- 2) Dnevni SOC baterijskog rack-a.

4. My PV devices

This section displays all devices involved in the selected PV plant (online devices are shown first, followed by offline devices).

Energy

1. Parameter comparison



- 1) Device type: Select the device type for comparison, such as the WIT inverter or the meter.
- 2) Date: select a specific date, you can view the energy data in a specific period, day, month or year.
- 3) Power curve: Show the power curve of the machine operation.

2. Plant Management



Click Plant Management and you can view all PV plants associated with the current account.

- 1) Edit: Click the "Edit" icon (indicated in the figure above) to modify the PV plant information.
- 2) Delete: Click the "Delete" icon (indicated in the figure above) to delete the selected PV plant.
- 3) Data: Click the "Data" icon (indicated in the figure above) to view the energy yield and power of the selected plant.

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SHINESERVER - MY PV DEVICES,

ENERGY I PLANT MANAGEMENT

4. My PV devices - prikazuje sve uređaje uključene u izabranu PV elektranu; online uređaji prikazuju se pre offline uređaja.

ENERGY

1. Parameter comparison - poređenje parametara.

1) Device type - izbor tipa uređaja, npr. WIT inverter ili brojilo.

2) Date - izbor datuma i perioda: dan, mesec ili godina.

3) Power curve - prikaz krive snage rada uređaja.

2. Plant Management Izaberite Plant Management za pregled svih PV elektrana povezanih sa nalogom.

1) Edit - izmena podataka PV elektrane.

2) Delete - brisanje izabrane PV elektrane.

3) Data - pregled proizvodnje energije i snage izabrane elektrane.

LOG Na stranici Log mogu se pregledati kod greške i opis kvara.

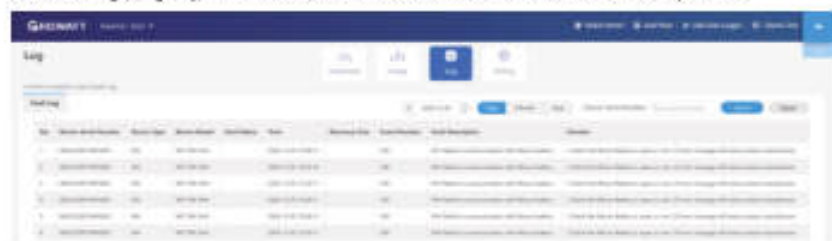
SETTING

1. Account management - izmena podataka naloga i promena lozinke.

2. Download - dostupni dokumenti za preuzimanje.

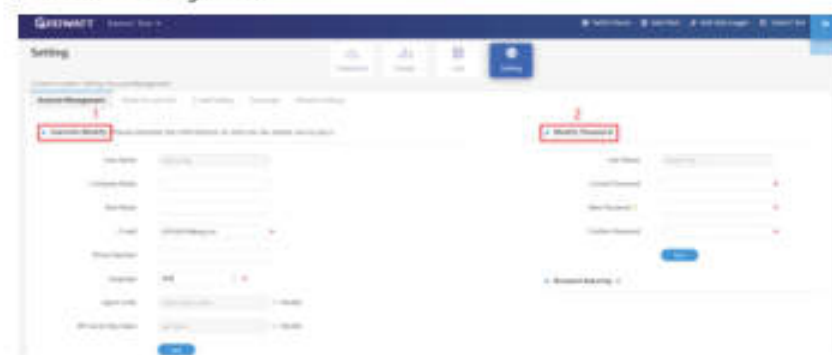
Log

On the Log page, you can view the error code and the fault description.



Setting

1. Account management

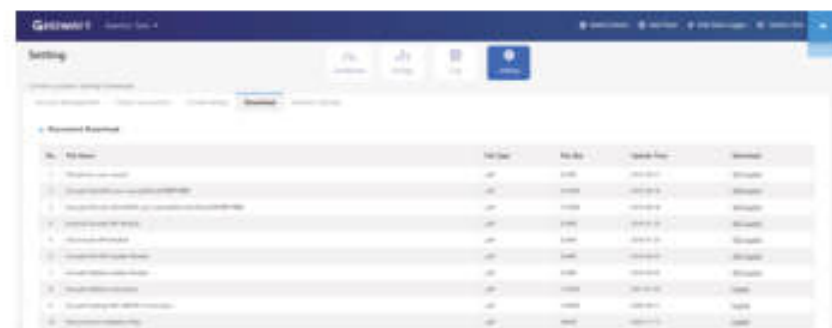


1) Modify your account information

2) Change the password: you can change the password on this page

2. Download

A range of documents are available for download.



SRPSKI PREVOD

Originalna strana 102/143

SHINESERVER – MY PV DEVICES,

ENERGY I PLANT MANAGEMENT

4. My PV devices – prikazuje sve uređaje uključene u izabranu PV elektranu; online uređaji prikazuju se pre offline uređaja.

ENERGY

1. Parameter comparison – poređenje parametara.

1) Device type – izbor tipa uređaja, npr. WIT inverter ili brojilo.

2) Date – izbor datuma i perioda: dan, mesec ili godina.

3) Power curve – prikaz krive snage rada uređaja.

2. Plant Management Izaberite Plant Management za pregled svih PV elektrana povezanih sa nalogom.

1) Edit – izmena podataka PV elektrane.

2) Delete – brisanje izabrane PV elektrane.

3) Data – pregled proizvodnje energije i snage izabrane elektrane.

LOG Na stranici Log mogu se pregledati kod greške i opis kvara.

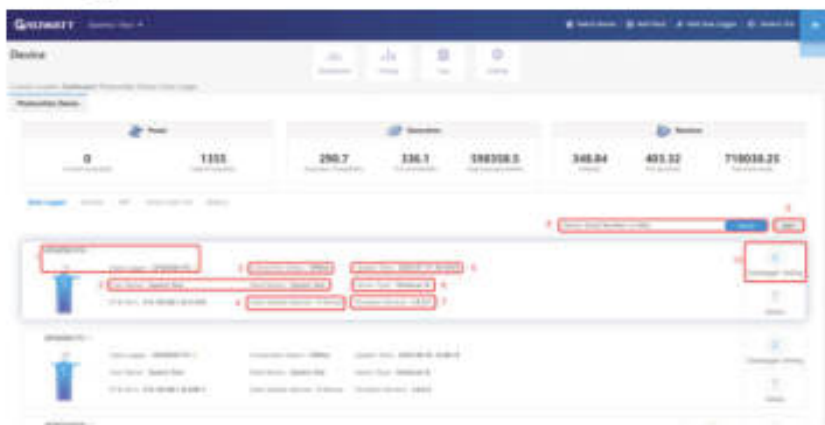
SETTING

1. Account management – izmena podataka naloga i promena lozinke.

2. Download – dostupni dokumenti za preuzimanje.

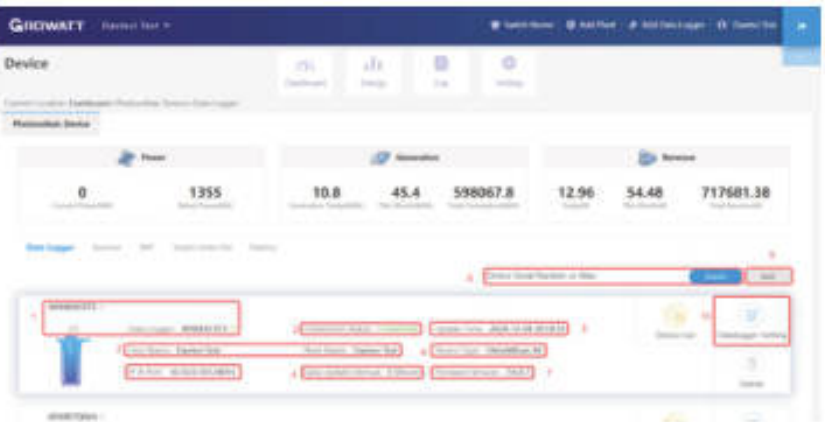
Device

1. Datalogger



- 1) Serial number: each datalogger has a specific SN, which can be used to search for the device;
- 2) User name and the PV plant to which the datalogger is connected;
- 3) Connection status: connected or disconnected;
- 4) Data update interval;
- 5) Device type;
- 6) Type of equipment;
- 7) Firmware version;
- 8) Enter the serial number to search for the target datalogger;
- 9) Add a datalogger: enter the serial number to add the datalogger;
- 10) Datalogger settings: you can set the update time for the datalogger.

2. WIT



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SHINESERVER – UREĐAJI

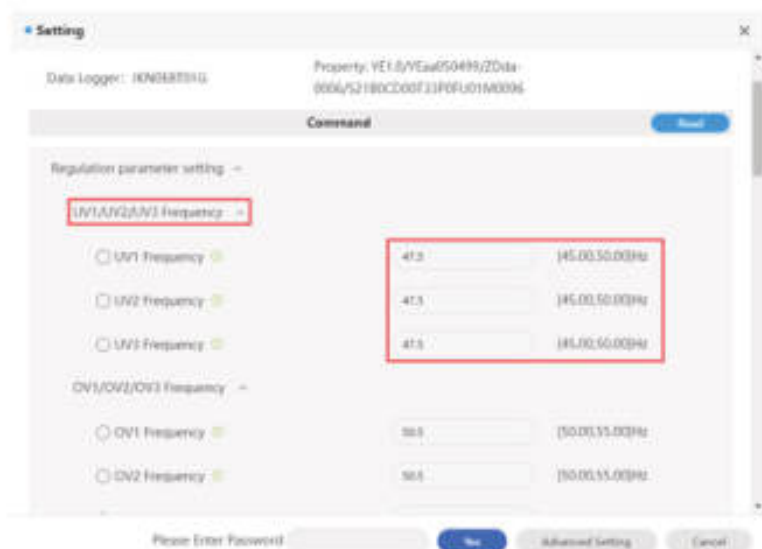
1. Datalogger

- 1) Serijski broj: svaki datalogger ima svoj SN koji se koristi za pronalaženje uređaja.
- 2) Korisničko ime i PV elektrana na koju je datalogger povezan.
- 3) Status veze: connected ili disconnected.
- 4) Interval ažuriranja podataka.
- 5) Tip uređaja.
- 6) Tip opreme.
- 7) Verzija firmvera.
- 8) Unesite serijski broj da biste pronašli ciljni datalogger.
- 9) Dodavanje dataloggera: unesite njegov serijski broj da biste ga dodali.
- 10) Podešavanja dataloggera: možete podesiti vreme ažuriranja dataloggera.

2. WIT

Ovaj odeljak prikazuje uređaje WIT i njihove osnovne informacije.

- 1) Enter the serial number to find the device;
- 2) Device model;
- 3) User name and the PV plant to which the device is connected;
- 4) Daily and monthly energy yield;
- 5) Serial number of the selected device;
- 6) Operating status: operating, standby, disconnected or faulty;
- 7) Serial number of the datalogger connected to the device;
- 8) Rated power;
- 9) Current power;
- 10) Parameter settings.
- 10.1) Setting of safety parameters, including 1st, 2nd and 3rd order underfrequency point, overfrequency point, undervoltage point and overvoltage point.



SRPSKI PREVOD

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SHINESERVER – INFORMACIJE O WIT UREĐAJU

- 1) Unesite serijski broj da biste pronašli uređaj.
- 2) Model uređaja.
- 3) Korisničko ime i PV elektrana na koju je uređaj povezan.
- 4) Dnevni i mesečni prinos energije.
- 5) Serijski broj izabranog uređaja.
- 6) Radni status: operating, standby, disconnected ili faulty.
- 7) Serijski broj dataloggera povezanog sa uređajem.
- 8) Nazivna snaga.
- 9) Trenutna snaga.
- 10) Podešavanje parametara.

10.1 Podešavanje bezbednosnih parametara

Obuhvata parametre prvog, drugog i trećeg nivoa za podfrekvenciju, nadfrekvenciju, podnapon i prenapon.

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SHINESERVER - MREŽNI NAPON 10.2 HIGH GRID VOLTAGE LIMIT Gornja granica napona mreže, odnosno gornji prag napona za priključenje na mrežu. 10.3 LOW GRID VOLTAGE LIMIT Donja granica napona mreže, odnosno donji prag napona za priključenje na mrežu. Vrednosti se podešavaju u „Setting“ meniju nakon unosa odgovarajuće lozinke.

The screenshot shows the 'Setting' menu with the following settings:

- ☐ UV3 Frequency: 47.2, [45.00,50.00]Hz
- ☒ OV1/OV2/OV3 Frequency: 50.0, [50.00,55.00]Hz
- ☐ OV1 Frequency: 50.0, [50.00,55.00]Hz
- ☐ OV2 Frequency: 50.0, [50.00,55.00]Hz
- ☐ OV3 Frequency: 50.0, [50.00,55.00]Hz
- ☒ UV1/UV2/UV3 Voltage: 118.0, [17.3,1762.0]V
- ☐ UV1 Voltage: 118.0, [17.3,1762.0]V
- ☐ UV2 Voltage: 118.0, [17.3,1762.0]V
- ☐ UV3 Voltage: 118.0, [17.3,1762.0]V
- ☐ OV1/OV2/OV3 Voltage: 118.0, [17.3,1762.0]V

Buttons at the bottom: Please Enter Password, Yes, Advanced Setting, Cancel.

The screenshot shows the 'Setting' menu with the following settings:

- ☐ UV1 Voltage: 118.0, [17.3,1762.0]V
- ☐ UV2 Voltage: 118.0, [17.3,1762.0]V
- ☐ UV3 Voltage: 118.0, [17.3,1762.0]V
- ☒ OV1/OV2/OV3 Voltage: 118.0, [17.3,1762.0]V
- ☐ OV1 Voltage: 118.0, [17.3,1762.0]V
- ☐ OV2 Voltage: 118.0, [17.3,1762.0]V
- ☐ OV3 Voltage: 118.0, [17.3,1762.0]V
- ☐ Grid related settings: 118.0, [17.3,1762.0]V
- ☐ High Grid Voltage Limit: 118.0, [17.3,1762.0]V
- ☐ Low Grid Voltage Limit: 118.0, [17.3,1762.0]V

Buttons at the bottom: Please Enter Password, Yes, Advanced Setting, Cancel.

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SHINESERVER - MREŽNI NAPON 10.2 HIGH GRID VOLTAGE LIMIT Gornja granica napona mreže, odnosno gornji prag napona za priključenje na mrežu. 10.3 LOW GRID VOLTAGE LIMIT Donja granica napona mreže, odnosno donji prag napona za priključenje na mrežu. Vrednosti se podešavaju u „Setting“ meniju nakon unosa odgovarajuće lozinke.

10.2) High grid voltage limit (voltage upper threshold of grid connection).

The screenshot shows the 'Setting' menu with the following options:

- ☐ ONV Voltage: 117.9, 117.3,762.0V
- Grid related settings**
 - ☒ High Grid Voltage Limit: 408.2, 117.3,762.0V (highlighted with a red box)
 - ☐ Low Grid Voltage Limit: 108.6, 117.3,762.0V
 - ☐ High Grid Frequency Limit: 50.1, 50.00,55.00Hz
 - ☐ Low Grid Frequency Limit: 48.5, 48.00,50.00Hz
- Loading, embarking, and unloading rates**
 - ☐ Loading rate: 300.0, 11.0,000.0%
 - ☐ Restart loading rate: 300.0, 11.0,000.0%
 - ☐ Load reduction rate: -61, 11.0,000.0%

At the bottom, there is a 'Please Enter Password' field, a 'Yes' button, and 'Advanced Setting' and 'Cancel' buttons.

10.3) Low grid voltage limit (voltage lower threshold of grid connection).

The screenshot shows the 'Setting' menu with the following options:

- ☐ ONV Voltage: 117.9, 117.3,762.0V
- Grid related settings**
 - ☐ High Grid Voltage Limit: 408.2, 117.3,762.0V
 - ☒ Low Grid Voltage Limit: 108.6, 117.3,762.0V (highlighted with a red box)
 - ☐ High Grid Frequency Limit: 50.1, 50.00,55.00Hz
 - ☐ Low Grid Frequency Limit: 48.5, 48.00,50.00Hz
- Loading, embarking, and unloading rates**
 - ☐ Loading rate: 300.0, 11.0,000.0%
 - ☐ Restart loading rate: 300.0, 11.0,000.0%
 - ☐ Load reduction rate: -61, 11.0,000.0%

At the bottom, there is a 'Please Enter Password' field, a 'Yes' button, and 'Advanced Setting' and 'Cancel' buttons.

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SHINESERVER - FREKVENCIJA

10.4 HIGH GRID FREQUENCY LIMIT

Gornja granica frekvencije mreže, odnosno gornji prag frekvencije za priključenje na mrežu.

10.5 LOW GRID FREQUENCY LIMIT

Donja granica frekvencije mreže, odnosno donji prag frekvencije za priključenje na mrežu.

10.4) High grid frequency limit (frequency upper threshold of grid connection).

The screenshot shows a 'Setting' window with a 'Grid related settings' section. The 'High Grid Frequency Limit' is selected and highlighted with a red box. The value is set to 50.1, with a range of [50.00, 55.00]Hz. Other settings include OV3 Voltage (517.8), High Grid Voltage Limit (436.2), Low Grid Voltage Limit (318.8), Low Grid Frequency Limit (49.5), Loading rate (80.0), Restart loading rate (80.0), and Load reduction rate (-0.1).

Setting	Value	Range
OV3 Voltage	517.8	[17.3, 762.0]V
High Grid Voltage Limit	436.2	[17.3, 762.0]V
Low Grid Voltage Limit	318.8	[17.3, 762.0]V
High Grid Frequency Limit	50.1	[50.00, 55.00]Hz
Low Grid Frequency Limit	49.5	[45.00, 50.00]Hz
Loading rate	80.0	[1.0, 8000.0]%
Restart loading rate	80.0	[1.0, 8000.0]%
Load reduction rate	-0.1	[1.0, 8000.0]%

10.5) Low grid frequency limit (frequency lower threshold of grid connection).

The screenshot shows the same 'Setting' window, but with the 'Low Grid Frequency Limit' selected and highlighted with a red box. The value is set to 49.5, with a range of [45.00, 50.00]Hz. The 'High Grid Frequency Limit' is now 50.1. Other settings remain the same as in the previous screenshot.

Setting	Value	Range
OV3 Voltage	517.8	[17.3, 762.0]V
High Grid Voltage Limit	436.2	[17.3, 762.0]V
Low Grid Voltage Limit	318.8	[17.3, 762.0]V
High Grid Frequency Limit	50.1	[50.00, 55.00]Hz
Low Grid Frequency Limit	49.5	[45.00, 50.00]Hz
Loading rate	80.0	[1.0, 8000.0]%
Restart loading rate	80.0	[1.0, 8000.0]%
Load reduction rate	-0.1	[1.0, 8000.0]%

SRPSKI PREVOD

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SHINESERVER - BRZINE PROMENE SNAGE

10.6 LOADING, RESTART LOADING AND UNLOADING RATE SETTINGS

Podešavanje brzine povećanja snage, brzine ponovnog povećanja snage i brzine smanjenja snage.

10.7 START POINT OF OVERFREQUENCY LOAD SHEDDING

Podešava se početna tačka smanjenja opterećenja pri nadfrekvenciji. Smanjenje opterećenja počinje kada frekvencija pređe podešenu vrednost.

10.6) Load, restart load, and down load rate settings.

The screenshot shows a 'Setting' dialog box with the following settings:

- High Grid Frequency Limit: 50.1 (50.00, 55.00)Hz
- Low Grid Frequency Limit: 49.9 (45.00, 50.00)Hz
- Loading, restarting, and unloading rates:
 - ☒ Loading rate: 99.9 (1.0, 100.0)%
 - ☐ Restart loading rate: 99.9 (1.0, 100.0)%
 - ☐ Load reduction rate: -0.1 (1.0, 100.0)%
- Settings related to OF derating:
 - ☐ Derating Start point(f): 50.2 (50.00, 66.50)Hz
 - ☐ Derating Gradient(f): 50 (0.2000)
 - ☐ Over-frequency load reduction delay time: 0.0 (0.0, 20.0)s

Buttons at the bottom: Please Enter Password, Yes, Advanced Setting, Cancel.

10.7) Setting the start point of overfrequency load shedding: Load shedding after higher than the set frequency.

The screenshot shows a 'Setting' dialog box with the following settings:

- Settings related to OF derating:
 - ☒ Derating Start point(f): 50.2 (50.00, 66.50)Hz
 - ☐ Derating Gradient(f): 50 (0.2000)
 - ☐ Over-frequency load reduction delay time: 0.0 (0.0, 20.0)s
 - ☐ Over-frequency load reduction response time: 0.0 (0.0, 40.0)s
- Settings related to UF increasing:
 - ☐ UF increasing Enable: On
 - ☐ UF increasing Start Point: 49.8 (50.00, 66.50)Hz
 - ☐ Under-frequency loading slope: 50 (20.4000)
 - ☐ Under-frequency loading delay time: 0.0 (0.0, 2.0)s

Buttons at the bottom: Please Enter Password, Yes, Advanced Setting, Cancel.

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SHINESERVER - FREKVENCIJA

10.8 UNDERFREQUENCY LOADING ENABLE

Podešava se da li je dozvoljeno uključivanje funkcije povećanja snage pri podfrekvenciji.

10.9 FREQUENCY RATE OF CHANGE ENABLE

Uključivanje ili isključivanje funkcije promene frekvencije.

10.8) Set underfrequency loading enable: you can set whether to allow the underfrequency loading function to be enabled.

The screenshot shows a 'Setting' window with a list of configuration options. The 'UF Increasing Enable' option is selected and highlighted with a red box. To its right, a dropdown menu is open, also highlighted with a red box, showing three options: 'On' (selected), 'Off', and 'Disable'. Other settings visible include 'Over-frequency load reduction response time' (0.0), 'UF Increasing Start Point' (0.006650Hz), 'Under-frequency loading slope' (20.400), 'Under-frequency loading delay time' (0.0), 'Under-frequency loading response time' (0.0), 'Grid recovery reconnection wait time' (0), and 'Frequency change rate enable' (On). At the bottom, there is a 'Common Set' button and a 'Please Enter Password' field with 'Yes', 'Advanced Setting', and 'Cancel' buttons.

10.9) Set the frequency rate of change enable.

The screenshot shows the same 'Setting' window, but now the 'Frequency change rate enable' option is selected and highlighted with a red box. Its dropdown menu is open, also highlighted with a red box, showing three options: 'On' (selected), 'Off', and 'Disable'. The other settings remain the same as in the previous screenshot. At the bottom, there is a 'Common Set' button, a 'Battery settings' button, an 'Off grid parameter settings' button, a 'See Function Book' button, and a 'Please Enter Password' field with 'Yes', 'Advanced Setting', and 'Cancel' buttons.

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SHINESERVER - UPRAVLJANJE UREĐAJEM I VREME

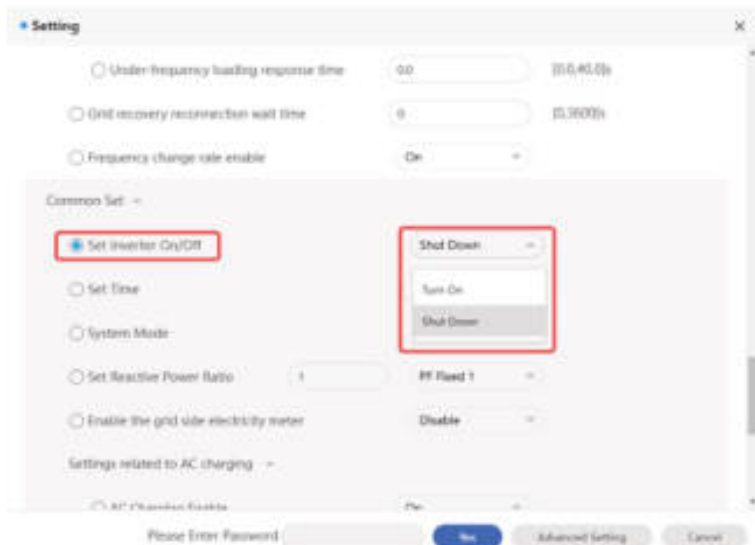
10.10 POWERING ON/OFF THE DEVICE

Daljinsko uključivanje ili isključivanje uređaja.

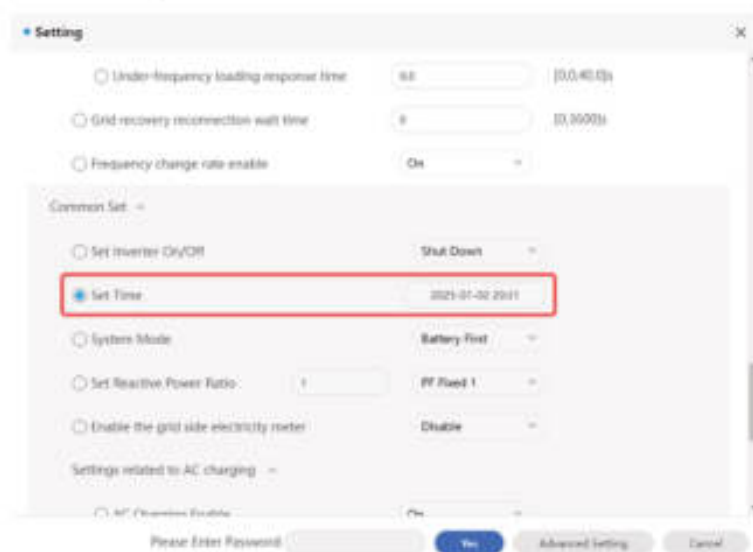
10.11 SET THE TIME

Podešavanje vremena uređaja.

10.10) Powering on/off the device: you can power on/off the device remotely.



10.11) Set the time: you can set the time for the device.



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Originalna strana 111/143

SHINESERVER - OPŠTI PARAMETRI

10.12 DEFAULT WORKING MODE

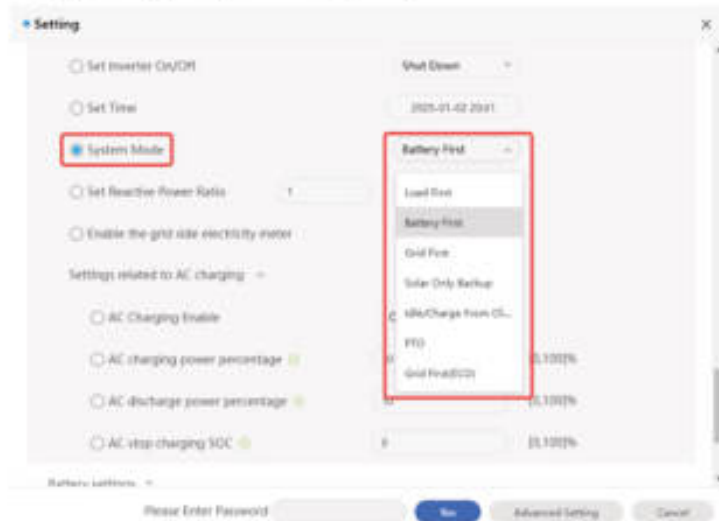
Izbor podrazumevanog režima rada prema potrebama korisnika. Dostupni režimi:

- Load Priority
- Battery Priority
- Grid Priority
- Pure PV Energy Storage
- Idle Grid Priority for Energy Storage
- PTO
- Grid Priority (ECO)

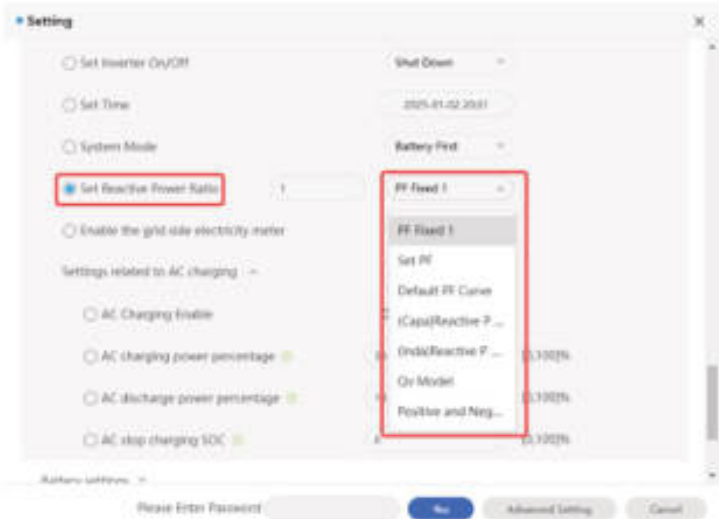
10.13 REACTIVE POWER

Podešavanje odgovarajućeg PF režima.

10.12) Setting the default working mode of the system: selecting the working mode according to the customer's needs, the working modes are Load Priority, Battery Priority, Grid Priority, Pure PV Energy Storage, Idle Grid Priority for Energy Storage, PTO, Grid Priority (ECO).



10.13) Setting the reactive power: The corresponding PF mode can be set.



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SHINESERVER - BROJILO I AC CHARGING

10.14 NETWORK SIDE METER ENABLE

Uključivanje ili isključivanje funkcije brojila na strani mreže.

10.15 AC CHARGING

Uključivanje ili isključivanje funkcije punjenja baterije iz mreže.

10.14) Setting the network side meter enable: you can choose whether to enable the network side meter function or not.

The screenshot shows a 'Setting' window with various configuration options. Under the 'Settings related to AC charging' section, the 'Enable the grid side electricity meter' option is selected with a blue radio button. A red box highlights this option and the adjacent dropdown menu, which is open and shows 'Disable' as the selected option. Other options in the list include 'Set Inverter On/Off', 'Set Time', 'System Mode', 'Set Reactive Power Ratio', 'AC Charging Enable', 'AC charging power percentage', 'AC discharge power percentage', and 'AC stop charging SOC'. The bottom of the window has a 'Please Enter Password' field and buttons for 'Yes', 'Advanced Setting', and 'Cancel'.

10.15) AC charging: you can set whether to enable the mains charging function or not.

The screenshot shows the same 'Setting' window, but now the 'AC Charging Enable' option is selected with a blue radio button. A red box highlights this option and the adjacent dropdown menu, which is open and shows 'On' as the selected option. The 'Enable the grid side electricity meter' option is now unselected. The rest of the interface, including the password field and navigation buttons, remains the same.

SRPSKI PREVOD

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SHINESERVER - AC CHARGING

10.16 AC CHARGE POWER

Podešavanje snage punjenja baterije iz AC mreže.

10.17 AC DISCHARGING POWER

Podešavanje snage pražnjenja preko AC strane.

10.16) AC charge power: you can set the AC charge power.

The screenshot shows a 'Setting' window with a close button (X) in the top right corner. It contains several sections: 'Enable the grid side electricity meter' with a 'Disable' button; 'Settings related to AC charging' with a minus sign icon; 'AC Charging Enable' with a 'On' button; 'AC charging power percentage' with a value of 100 and a range of (0,100]%; 'AC discharge power percentage' with a value of 10 and a range of (0,100]%; 'AC stop charging SOC' with a value of 0 and a range of (0,100]%; 'Battery settings' with a minus sign icon; 'Off grid parameter settings' with a minus sign icon; 'Set Export limit' with a minus sign icon; and 'Parallel parameter setting' with a minus sign icon. At the bottom, there is a 'Please Enter Password' field, a 'Yes' button, an 'Advanced Setting' button, and a 'Cancel' button.

10.17) AC discharging power: you can set the AC discharge power.

The screenshot shows the same 'Setting' window as above. In this view, the 'AC discharge power percentage' is highlighted with a red box and set to 10, with a range of (0,100]%. The 'AC charging power percentage' is now set to 10. All other elements, including the 'Please Enter Password' field and buttons at the bottom, remain the same.

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SHINESERVER - SOC GRANICE

10.18 AC STOP CHARGING SOC

Podešavanje SOC pri kojem se punjenje baterije iz AC izvora zaustavlja. Preporučena vrednost je 100%.

10.19 DISCHARGE STOP SOC

Podešavanje SOC pri kojem se pražnjenje baterije zaustavlja. Preporučena vrednost je 10%.

Postoje odvojeni pragovi za zaustavljanje pražnjenja u on-grid i off-grid režimu.

10.18) AC stop charging SOC: the battery charge cut-off SOC can be set (100 recommended).

The screenshot shows a 'Setting' window with a red box highlighting the 'AC stop charging SOC' option, which is set to 100%.

Setting	Value	Unit
AC stop charging SOC	100	10.100%

10.19) Discharge stop SOC: you can set the battery discharge cut-off SOC (recommended 10), the discharge cut-off SOC is divided into grid-connected discharge stop SOC and off-grid discharge stop SOC.

The screenshot shows a 'Setting' window with a red box highlighting the 'Off-grid cut-off SOC' option, which is set to 10%.

Setting	Value	Unit
Off-grid cut-off SOC	10	10.01%

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SHINESERVER - BATERIJA

10.20 ENABLE BATTERY

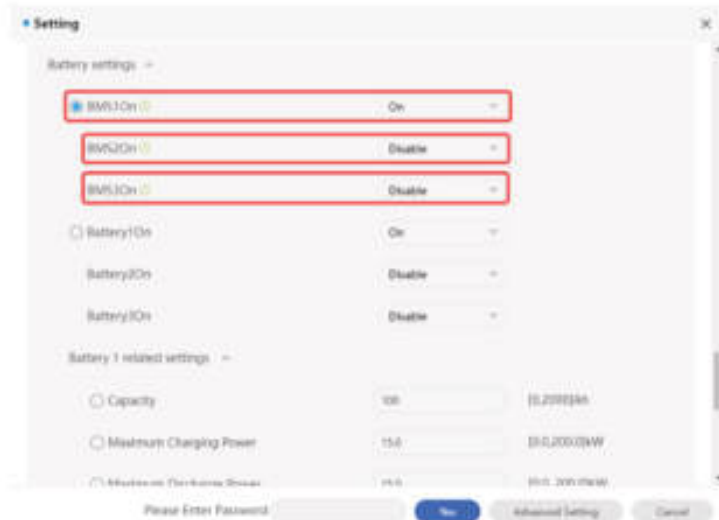
Uključivanje ili isključivanje baterije.

10.21 BATTERY SETTINGS

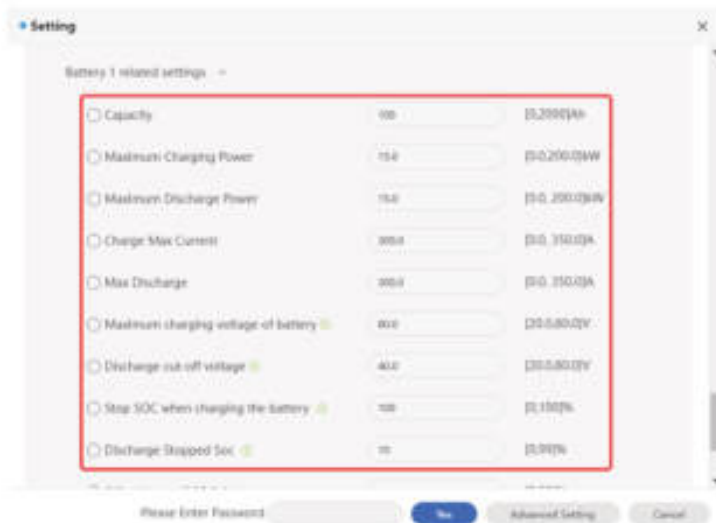
Podešavanje parametara baterije, uključujući:

- kapacitet baterije;
- maksimalnu snagu punjenja/pražnjenja;
- maksimalnu struju punjenja/pražnjenja;
- maksimalni napon punjenja baterije;
- napon prekida punjenja;
- napon prekida pražnjenja;
- off-grid napon prekida.

10.20) Enable Battery: You can choose to enable or disable battery.



10.21) Battery Settings: Battery related parameters can be set, including battery capacity, maximum charging/ discharging power, maximum charging/ discharging current, maximum battery charging voltage, battery charging cut-off voltage, battery discharging cut-off voltage, off-grid cut-off voltage.



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SHINESERVER - REŽIM RADA

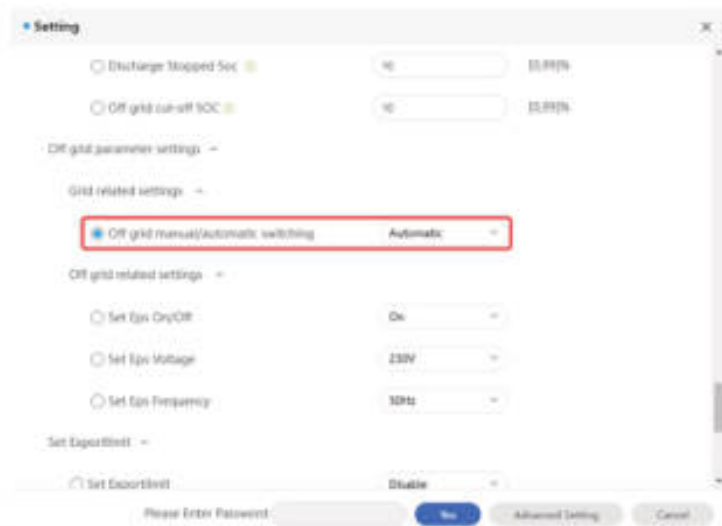
10.22 MODE SWITCHING

Izbor ručnog ili automatskog prebacivanja režima rada. Uobičajeno se preporučuje izbor režima Auto.

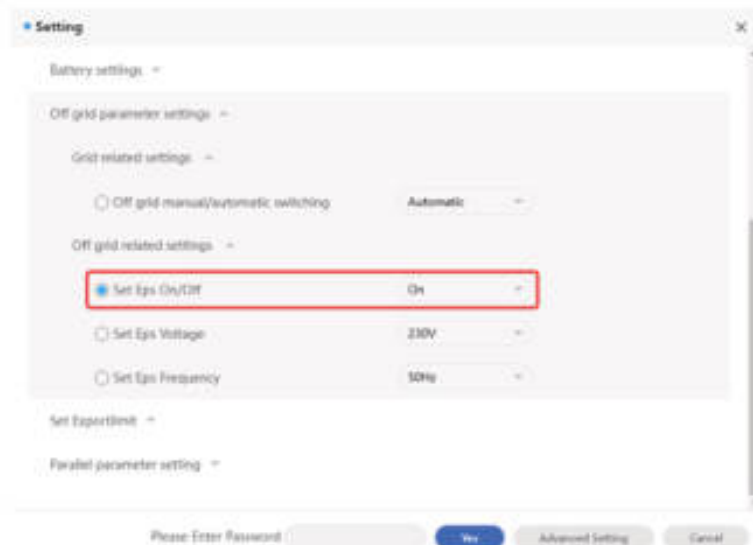
10.23 SETTING OFF-GRID ENABLE

Podešavanje da li inverter radi u off-grid režimu.

10.22) Mode switching: You can choose to switch the operating mode manually or automatically. In general, it is recommended that you select the "Auto" mode switch.



10.23) Setting off-grid enable: you can set whether or not the inverter operates in off-grid mode.



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SHINESERVER - OFF-GRID

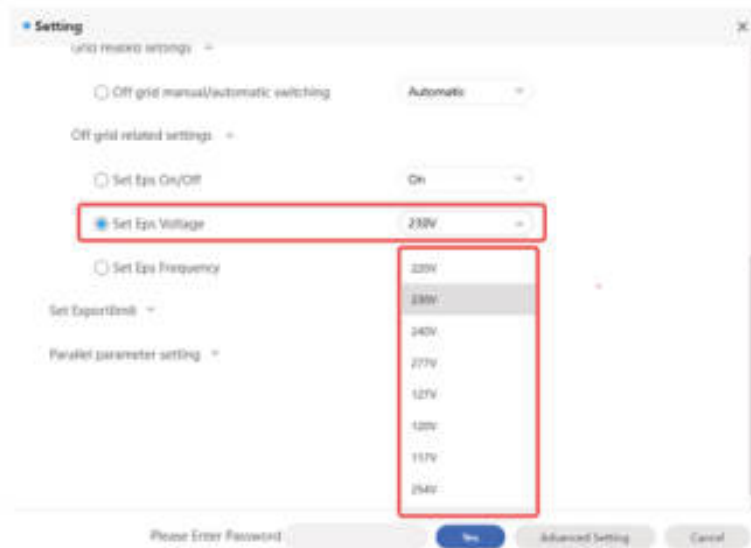
10.24 OFF-GRID VOLTAGE

Moguće je podesiti 220 V ili 230 V.

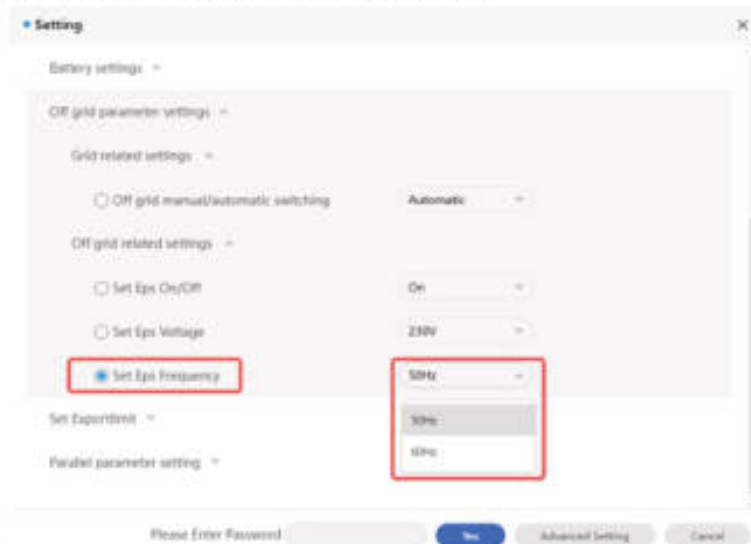
10.25 OFF-GRID FREQUENCY

Moguće je izabrati 50 Hz ili 60 Hz.

10.24) Off-grid voltage: 220V/230V can be set.



10.25) Off-grid frequency: two options: 50Hz/60Hz.



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SHINESERVER - PARALELNI RAD

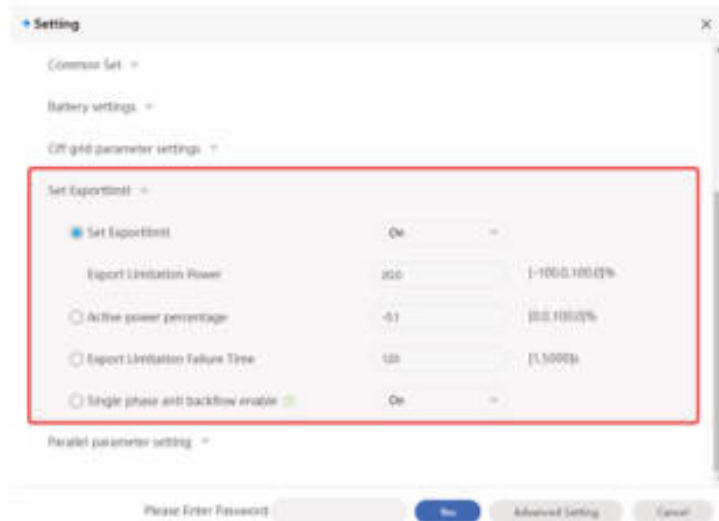
10.26 ANTI-REVERSE FLOW SETTINGS

Uključivanje ili isključivanje funkcije sprečavanja povratnog toka u skladu sa lokalnim propisima i podešavanje snage povratnog toka kada je funkcija uključena.

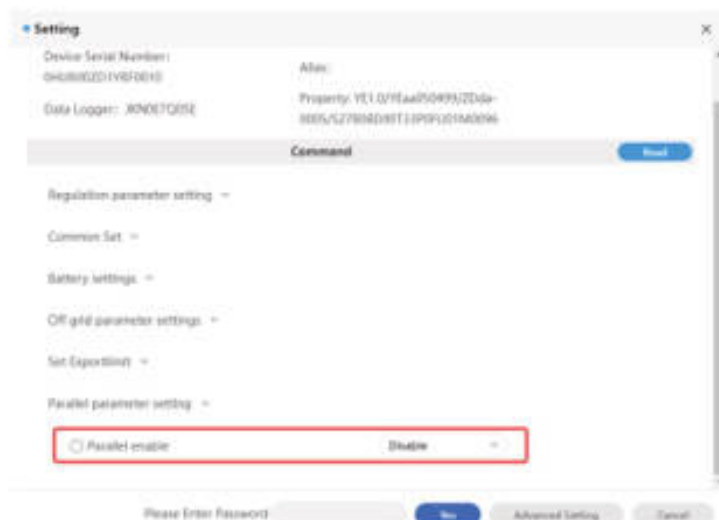
10.27 SET PARALLEL ENABLE

Uključivanje ili isključivanje funkcije paralelnog povezivanja.

10.26) Anti-reverse flow settings: You can enable/disable the anti-reverse flow feature in accordance with applicable local regulations and set the anti-reverse flow power when the feature is enabled.



10.27) Set Parallel Enable: you can set whether to enable the parallel function or not.



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SHINESERVER - RADNI REŽIMI

10.28 SETTING THE WORKING MODE AND TIME PERIOD

Podšavanje režima rada i vremenskog perioda.

10.29 DEMAND MANAGEMENT / PEAK SHAVING

Uključivanje ili isključivanje funkcije Demand Management / Peak Shaving.

10.28) Setting the working mode and time period

Setting

Advanced Setting

Maximum spontaneous self use On

Equipment mode selection and time setting

Time Slot 1

Load First

100 %

Disable

Time Slot 2

Load First

100 %

Disable

Time Slot 3

Load First

100 %

Disable

Time Slot 4

Load First

100 %

Disable

Please Enter Password

Advanced Setting

10.29) Disable/Enable Demand Management/Peak Shaving

Setting

100 %

Disable

Demand Management/Peak Shaving

Demand Management Setting

Disable

Peak Shaving Backup SOC Enable

Disable

Microgrid system

Safety function control

Register

Value

Please Select

Read

Start Address

End Address

Advanced Read

Event Record

Please Enter Password

Advanced Setting

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SHINESERVER - GEN PORT

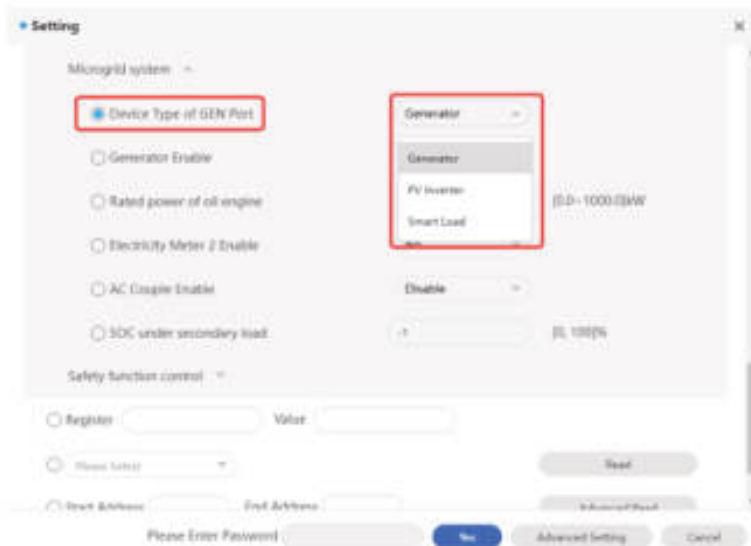
10.30 GEN PORT ACCESS DEVICE TYPE

Tip uređaja povezanog na GEN port može biti Generator, PV inverter ili Smart Load.

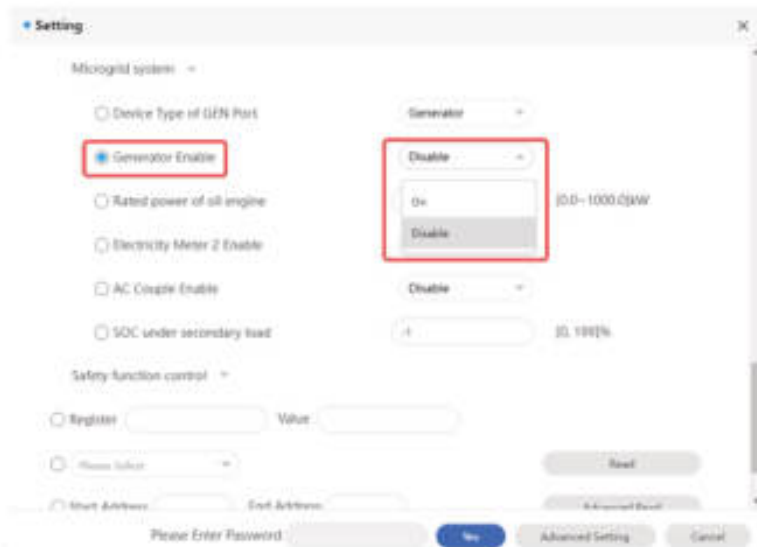
10.31 GENERATOR ENABLE

Uključivanje ili isključivanje GEN funkcije.

10.30) GEN port access device type: can be set as generator/PV inverter/smart load.



10.31) Generator Enable: Option to enable or disable the GEN.



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SHINESERVER - GENERATOR, BROJILO I AC COUPLE

10.32 TANKER POWER

Podšavanje snage generatora („Tanker power“ u originalnom meniju).

10.33 UKLJUČIVANJE/ISKLUČIVANJE BROJILA 2

Funkcija za uključivanje ili isključivanje drugog električnog brojila.

WATTMETER

Unesite serijski broj brojila ili dataloggera da biste pronašli željeno brojilo. Nakon pretrage prikazuju se tip brojila, model dataloggera koji radi sa uređajem, status brojila i serijski broj WIT invertera na koji je brojilo povezano.

10.32) Tanker power: Tanker power can be set.

Setting

Microgrid system

☐ Device Type of GEN Port Generator

☐ Generator Enable Disable

☒ Rated power of oil engine 10.0 0.0-1000.0kW

☐ Electricity Meter 2 Enable No

☐ AC Couple Enable Disable

☐ NOC under secondary load -1 0% 100%

Safety function control

☐ Register Value

☐ Please Select

☐ Start Address End Address

Please Enter Password

Save

Advanced Setting

Cancel

10.33) Enable/Disable Electricity Meter 2

Setting

Microgrid system

☐ Device Type of GEN Port Generator

☐ Generator Enable Disable

☐ Rated power of oil engine 10.0 0.0-1000.0kW

☒ Electricity Meter 2 Enable No

☐ AC Couple Enable Disable

☐ NOC under secondary load -1 0% 100%

Safety function control

☐ Register Value

☐ Please Select

☐ Start Address End Address

Please Enter Password

Save

Advanced Setting

Cancel

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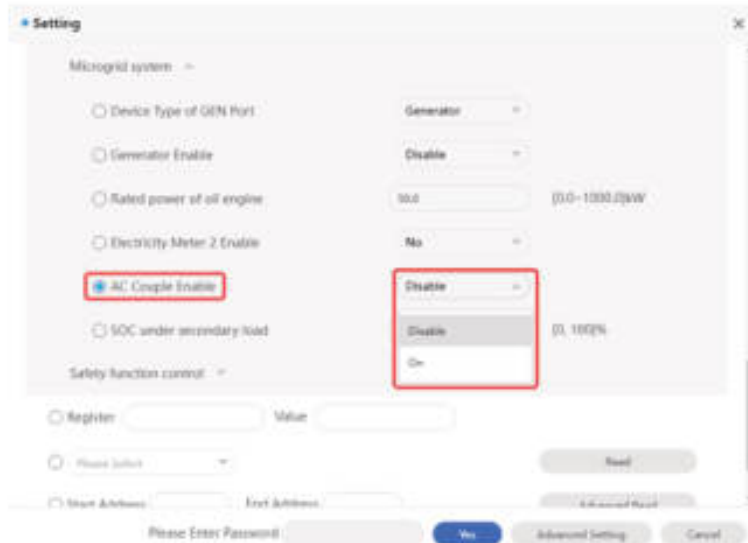
WATTMETER – nastavak

Nakon pretrage prikazuju se tip brojila, model dataloggera koji radi sa uređajem, status brojila i serijski broj WIT invertera na koji je brojilo povezano.

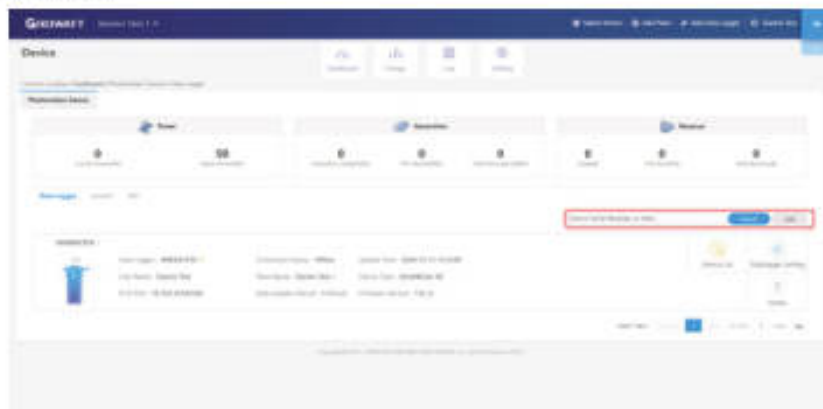
10.34 AC COUPLE ENABLE

Podešavanje da li će AC Couple funkcija biti uključena ili isključena.

10.34) AC Couple Enable: you can set whether to enable the AC Couple function.



Wattmeter



Enter the serial number of the meter or Datalogger to search for the desired meter. Once the search is complete, the type of meter, the model of the Datalogger working with the device, the status of the meter, and the serial number of the WIT inverter to which the meter is connected are displayed.

9 System Maintenance

9.1 Routine Maintenance

9.1.1 Clean the Chassis

 DANGER	• Before performing any operation, disconnect the AC and DDC power supply and wait for 5 minutes after the system is powered off. • Wipe the dust off the chassis and clean the chassis with a moistened cloth.
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- 1) Check periodically that the humidity is within the acceptable range and keep it away from dust;
- 2) Check the ventilation and heat dissipation of the equipment regularly. For details, see Section 9.1.2.

9.1.2 Fan Maintenance

 DANGER	• Only qualified and trained electrical technicians are allowed to perform operations. Technicians must observe instructions in this manual and comply with local regulations. • Before performing any operation, disconnect all power supplies and wait for 5 minutes until the residual voltage is completely discharged.
 WARNING	• Do not use the air pump to clean the fan. Otherwise, the fan may be damaged.

Ventilation and heat dissipation is essential to protect the WIT Inverter from performance de-rate due to excess heat. The fan in the WIT Inverter works to cool the components and the heat sink when the temperature is too high. Check the following possible causes and measures when an exception occurs:

- 1> The fan is stuck with foreign objects or there is dust accumulation on the heat sink; clean the fan cover, fan blades and the heat sink.
- 2> The fan is damaged and needs to be replaced.
- 3> The installation position of the WIT Inverter is not well-ventilated. Select an appropriate installation position that meets the basic installation requirements.

Cleaning and replacing the fan:

- 1> Before cleaning or replacing a fan, disconnect the DC and AC power supply and wait for at least 5 minutes.
- 2> Remove the fan fixing plate using a cross-head screwdriver, as shown in Fig 9.1:

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9 ODRŽAVANJE SISTEMA

9.1 REDOVNO ODRŽAVANJE

9.1.1 ČIŠĆENJE KUĆIŠTA

- Obrišite prašinu sa kućišta i očistite kućište vlažnom krpom.
- Pre bilo kakvog rada isključite AC i DC napajanje i sačekajte 5 minuta nakon isključivanja sistema.
- Periodično proveravajte da li je vlažnost u dozvoljenom opsegu i održavajte uređaj bez prašine.
- Redovno proveravajte ventilaciju i odvođenje toplote.

9.1.2 ODRŽAVANJE VENTILATORA

- Pre rada isključite sve izvore napajanja i sačekajte 5 minuta da se preostali napon potpuno isprazni.
- Radove smeju da izvode samo kvalifikovani i obučeni elektrotehničari, uz poštovanje ovog uputstva i lokalnih propisa.
- Ne koristite vazдушnu pumpu za čišćenje ventilatora, jer može doći do njegovog oštećenja.

Ventilacija i odvođenje toplote štite inverter od smanjenja snage zbog previsoke temperature. Mogući uzroci i mere:

1. Ventilator je blokiran stranim predmetima ili se na hladnjaku nakupila prašina – očistite poklopac ventilatora, lopatice i hladnjak.
2. Ventilator je oštećen – potrebno ga je zameniti.
3. Mesto instalacije nije dovoljno provetreno – izaberite odgovarajuće mesto prema zahtevima za instalaciju.

ČIŠĆENJE I ZAMENA VENTILATORA

1. Pre čišćenja ili zamene isključite DC i AC napajanje i sačekajte najmanje 5 minuta.
2. Krstastim odvijačem uklonite ploču za pričvršćivanje ventilatora, kao na slici 9.1.

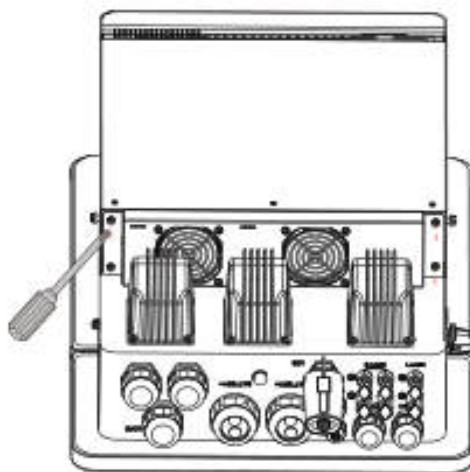


Fig 9.1

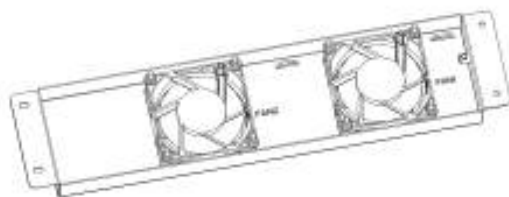


Fig 9.2 Position of the fan fixing plate

3> Disconnect the fan connector, remove the fan fixing plate with a screwdriver, and remove the fan.

4> Clean the fan cover, fan blades, and the heat sink, or replace the fan.

- (1) Use an air pump to clean the heat sink, and use a brush or wet cloth to clean the fan and its cover;
- (2) Remove the fan for cleaning if necessary;
- (3) Remove the fan that needs to be replaced using a cross-head screwdriver and install a new fan.
- (4) Bind the cables and fix them with a cable tie.
- (5) Reinstall the fan, the fan fixing plate, and the WIT inverter.

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ČIŠĆENJE I ZAMENA VENTILATORA – nastavak

3. Odvojite konektor ventilatora, uklonite ploču za pričvršćivanje i izvadite ventilator.
4. Očistite poklopac ventilatora, lopatice i hladnjak ili zamenite ventilator.
5. Ponovo montirajte ventilator, ploču za pričvršćivanje i WIT inverter.

Postupak čišćenja:

1. Vazдушnom pumpom očistite hladnjak.
2. Po potrebi skinite ventilator radi čišćenja.
3. Ventilator koji treba zameniti uklonite krstastim odvijačem i postavite novi.
4. Kablove povežite i pričvrstite vezicom.

Slika 9.1 – položaj ploče za pričvršćivanje ventilatora.

Slika 9.2 – položaj ploče za pričvršćivanje ventilatora.

9.2 Troubleshooting

	- It must be operated by trained and professional electrical technicians. Technicians must observe instructions in this manual and local regulations. - If the WIT Inverter reports the "PV Isolation low" alarm, do not touch the equipment as a ground fault might have occurred. - Beware of high voltages which can cause electric shocks.
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9.2.1 Warning

Warnings indicate abnormal situations of WIT 4-15K-HU Hybrid Inverters, leading to a reduction in the output power. The warning sign will disappear once the fault is rectified by restarting the inverter or reconfiguring the system. The warning codes are shown in Table 9.1:

Table 9.1 Warning codes

Warning	Description	Suggestion
Warning 200	String fault	1. Check if the PV panels are normal after shutdown. 2. If the error message persists, contact Growatt support.
Warning 201	PV string/PID quick-connect terminals abnormal	1. Check the wiring of the string terminals after shutdown. 2. If the error message persists, contact Growatt support.
DC SPD Warning	DC SPD function abnormal	1. Check the DC SPD after shutdown. 2. If the error message persists, contact Growatt support.
Warning 203	PV1 or PV2 short circuited	1. Check if PV1 or PV2 is short circuited. 2. If the error message persists, contact Growatt support.
Boost Warning	PV Boost driver abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
AC SPD Warning	AC SPD function abnormal	1. Power off the system and check the fuse. 2. If the fault persists, contact Growatt.
Warning 208	DC fuse blows	1. Power off the system and check the fuse. 2. If the fault persists, contact Growatt.

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9.2 OTKLANJANJE PROBLEMA

9.2.1 UPOZORENJA

Upozorenja označavaju nenormalna stanja WIT 4-15K-HU hibridnih invertera koja dovode do smanjenja izlazne snage. Upozorenje nestaje nakon otklanjanja uzroka i ponovnog pokretanja ili rekonfiguracije sistema.

Warning 200 – String fault: nakon isključivanja proverite PV panele; ako poruka ostane, kontaktirajte Growatt podršku.
Warning 201 – PV string/PID quick-connect terminali abnormalni: proverite ožičavanje terminala; ako problem ostane, kontaktirajte Growatt podršku.

DC SPD Warning – DC SPD funkcija abnormalna: isključite sistem i proverite DC SPD.

Warning 203 – PV1 ili PV2 u kratkom spoju: proverite da li je PV1 ili PV2 u kratkom spoju.

Boost Warning – PV Boost driver abnormalan: ponovo pokrenite inverter.

AC SPD Warning – AC SPD funkcija abnormalna: isključite sistem i proverite osigurač; ako kvar ostane, kontaktirajte Growatt.

Warning 208 – DC fuse blows: isključite sistem i proverite osigurač.

Warning 209 – DC ulazni napon prelazi gornji prag: odmah isključite DC prekidač i proverite DC napon.

Warning	Description	Suggestion
Warning 209	DC input voltage exceeds the upper threshold	1. Turn off the DC switch immediately and check the DC voltage. 2. If the DC voltage is within the specified range and the error message persists, contact Growatt support.
PV Reversed	PV string is reversely connected	1. Check the polarity of the PV terminals. 2. If the error message persists, contact Growatt support.
Warning 219	PID function abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 220	PV string disconnected	1. Check if the PV string is properly connected. 2. If the error message persists, contact Growatt support.
Warning 221	PV string current unbalanced	1. Check if the PV panels of the corresponding string are normal. 2. If the error message persists, contact Growatt support.
Warning 300	No utility grid connected or utility grid power failure	1. Check if the grid is down. 2. If the error message persists, contact Growatt support.
Warning 301	Grid voltage is beyond the permissible range	1. Check if the grid voltage is within the specified range. 2. If the error message persists, contact Growatt support.
Warning 302	Grid frequency is beyond the permissible range	1. Check if the grid frequency is within the specified range. 2. If the error message persists, contact Growatt support.
Warning 303	Overload	1. Please reduce the load connected to the EPS output terminal. 2. If the error message persists, contact Growatt support.
Warning 308	Meter disconnected	1. Check if the meter is properly connected. 2. If the error message persists, contact Growatt support.

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9.2.1 UPOZORENJA – nastavak

PV Reversed – PV string obrnut: proverite polaritet PV terminala; ako poruka ostane, kontaktirajte Growatt podršku.

Warning 219 – PID funkcija abnormalna: ponovo pokrenite inverter.

Warning 220 – PV string disconnected: proverite da li je PV string pravilno povezan.

Warning 221 – PV string current unbalanced: proverite PV panele odgovarajućeg stringa.

Warning 300 – nema mreže / nestanak mrežnog napajanja: proverite da li je mreža isključena.

Warning 301 – mrežni napon van dozvoljenog opsega: proverite mrežni napon.

Warning 302 – mrežna frekvencija van dozvoljenog opsega: proverite mrežnu frekvenciju.

Warning 303 – preopterećenje: smanjite opterećenje povezano na EPS izlaz.

Warning 308 – brojilo nije povezano: proverite da li je brojilo pravilno povezano.

Warning	Description	Suggestion
Warning 309	Meter is reversely connected	1. Check if the L line and the N line of the meter are reversely connected. 2. If the error message persists, contact Growatt support.
Warning 310	The voltage difference between the N line and the PE cable is abnormal	1. Check if the PE cable is reliably connected after shutdown. 2. If the error message persists, contact Growatt support.
Warning 311	Phase sequence error	No operation is required. The PCS will automatically adjust the phase sequence.
Warning 400	Fan failure	1. Check if the fan is properly connected after shutdown. 2. If the error message persists, contact Growatt support.
Warning 401	Meter abnormal	1. Check if the meter is turned on. 2. If the meter is correctly connected to the inverter.
Warning 402	Communication between the optimizer and the inverter is abnormal	1. Check if the optimizer is turned on. 2. If the optimizer is correctly connected to the inverter.
Warning 407	Over-temperature	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 407	overtemperature alarm	1. Restart the inverter 2. If the fault message persists, contact the manufacturer
Warning 408	NTC temperature sensor is broken	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 411	Sync signal abnormal	1. Check if the sync cable is abnormal. 2. If the error message persists, contact Growatt support.

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9.2.1 UPOZORENJA – nastavak

Warning 309 – brojilo je obrnuto povezano: proverite da L i N vodovi brojila nisu zamenjeni.

Warning 310 – napon između N i PE je abnormalan: nakon isključivanja proverite da li je PE kabl pouzdano povezan.

Warning 311 – greška redosleda faza: nije potrebna intervencija; PCS automatski podešava redosled faza.

Warning 400 – kvar ventilatora: nakon isključivanja proverite da li je ventilator pravilno povezan.

Warning 401 – brojilo abnormalno: proverite da li je brojilo uključeno i pravilno povezano sa inverterom.

Warning 402 – abnormalna komunikacija optimizatora i invertera: proverite da li je optimizator uključen i pravilno povezan.

Warning 407 – previsoka temperatura: ponovo pokrenite inverter; ako poruka ostane, kontaktirajte Growatt podršku.

Warning 408 – NTC senzor temperature neispravan: ponovo pokrenite inverter.

Warning 411 – sinhronizacioni signal abnormalan: proverite da li je sync kabl ispravan.

Warning	Description	Suggestion
Warning 412	Startup requirements of grid connection are not met	1. Check if the grid voltage is within the specified range and check if the grid-connection startup voltage configuration is correct. 2. Check if the PV voltage is within the specified range. 3. Restart the inverter. If the error message persists, contact Growatt support.
Warning 500	The inverter failed to communicate with the battery	1. Check if the battery is turned on. 2. Check if the battery is correctly and securely connected to the inverter.
Warning 501	Battery disconnected	1. Check if the battery is properly connected. 2. If the error message persists, contact Growatt support.
Warning 502	Battery voltage too high	1. Check if the battery voltage is within the permissible range. 2. Check if the battery is correctly connected. 3. If the error message persists, contact Growatt support.
Warning 503	Battery voltage too low	1. Check if the battery voltage is within the permissible range. 2. Check if the battery is correctly connected. 3. If the error message persists, contact Growatt support.
Warning 504	Battery terminals are reversely connected	1. Check if the positive and negative terminals of the battery are reversely connected. 2. If the error message persists, contact Growatt support.
Warning 505	Temperature sensor of the lead-acid battery is disconnected	1. Check if the temperature sensor of the lead-acid battery is installed or not. 2. Check if the temperature sensor is well-connected. 3. If the error message persists, contact Growatt support.

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9.2.1 UPOZORENJA – nastavak

Warning 412 – uslovi za pokretanje priključenja na mrežu nisu ispunjeni: proverite mrežni napon, konfiguraciju početnog napona za priključenje na mrežu i PV napon; zatim ponovo pokrenite inverter.

Warning 500 – inverter ne komunicira sa baterijom: proverite da li je baterija uključena i pravilno i čvrsto povezana sa inverterom.

Warning 501 – baterija isključena: proverite da li je baterija pravilno povezana.

Warning 502 – napon baterije previsok: proverite napon baterije i njeno povezivanje.

Warning 503 – napon baterije prenizak: proverite napon baterije i njeno povezivanje.

Warning 504 – terminali baterije obrnuto povezani: proverite polaritet pozitivnog i negativnog terminala.

Warning 505 – temperaturni senzor olovne baterije isključen: proverite da li je senzor ugrađen i pravilno povezan.

Warning	Description	Suggestion
Warning 506	Battery temperature is out of range	1. Check if the ambient temperature of the battery is within the specified range. 2. If the error message persists, contact Growatt support.
Warning 507	BMS reported a fault; both charging and discharging failed	1. Figure out the cause according to the BMS error code. 2. If the error message persists, contact Growatt support.
Warning 508	Lithium battery overload protection	1. Check if the power of the load exceeds the BAT rated discharge power. 2. If the error message persists, contact Growatt support.
Warning 509	BMS communication abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 510	BAT SPD function abnormal	1. Check the BAT SPD after powering off the device. 2. If the error message persists, contact Growatt support.
Warning 600	Output DC component bias abnormality	1. Restart the inverter 2. If the fault message persists, contact the manufacturer
Warning 601	DC component over high in output voltage	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Warning 602	Off-grid output voltage too low	1. Restart the inverter 2. If the fault message persists, contact the manufacturer
Warning 603	Off-grid output voltage too high	1. Restart the inverter 2. If the fault message persists, contact the manufacturer
Warning 604	Off-grid output current overcurrent	1. Detect whether the load is out of specification 2. Restart the inverter, if the fault message still exists, contact the manufacturer

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9.2.1 UPOZORENJA – nastavak

Warning 506 – temperatura baterije van opsega: proverite temperaturu okoline baterije.

Warning 507 – BMS prijavio kvar; punjenje i pražnjenje nisu mogući: utvrdite uzrok prema BMS kodu greške.

Warning 508 – zaštita litijumske baterije od preopterećenja: proverite da snaga potrošača ne prelazi nazivnu snagu pražnjenja baterije.

Warning 509 – BMS komunikacija abnormalna: ponovo pokrenite inverter.

Warning 510 – BAT SPD funkcija abnormalna: isključite uređaj i proverite BAT SPD.

Warning 600 – DC komponenta na izlazu abnormalna: ponovo pokrenite inverter.

Warning 601 – DC komponenta u izlaznom naponu previsoka: ponovo pokrenite inverter.

Warning 602 – off-grid izlazni napon prenizak: ponovo pokrenite inverter.

Warning 603 – off-grid izlazni napon previsok: ponovo pokrenite inverter.

Warning 604 – off-grid izlazna struja prevelika: proverite da li je opterećenje u dozvoljenom opsegu, zatim ponovo pokrenite inverter.

Warning	Description	Suggestion
Warning 605	Off-grid bus voltage too low	1. Check if the load power exceeds the upper limit. 2. Restart the inverter. If the error message persists, contact Growatt support.
Warning 606	Off-grid output overload	1. Detect whether the load is out of specification 2. Restart the inverter, if the fault message still exists, contact the manufacturer
Warning 609	Balanced circuit abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.

9.2.2 Error

The error code indicates that the device is damaged or the configurations are abnormal. Only qualified and trained electrical technicians are allowed to rectify the faults. The error message will disappear after the fault is rectified. If the problem persists, please contact Growatt.

Table 9.2 Error codes

Error Code	Description	Suggestion
AFCI Fault	An arc fault has been detected	1. After shutdown, check the connection of the PV string. 2. Restart the inverter. 3. If the error message persists, please contact Growatt support.
GFCI High	An excessively high leakage current has been detected	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
PV Voltage High	DC input voltage exceeds the upper threshold	1. Disconnect the DC switch immediately and check the voltage. 2. If the DC input voltage is within the permissible range and the error message persists, please contact Growatt support.

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9.2.1 UPOZORENJA – nastavak

Warning 605 – off-grid BUS napon prenizak: proverite da li snaga potrošača prelazi gornju granicu; zatim ponovo pokrenite inverter.

Warning 606 – off-grid izlaz preopterećen: proverite da li je opterećenje u dozvoljenom opsegu; zatim ponovo pokrenite inverter.

Warning 609 – balansno kolo abnormalno: ponovo pokrenite inverter.

9.2.2 GREŠKE

Kod greške ukazuje da je uređaj oštećen ili da su podešavanja abnormalna. Otklanjanje kvarova smeju da obavljaju samo kvalifikovani i obučeni elektrotehničari. Poruka o grešci nestaje nakon otklanjanja kvara. Ako problem ostane, kontaktirajte Growatt podršku.

AFCI Fault: detektovan električni luk – nakon isključivanja proverite povezivanje PV stringa i ponovo pokrenite inverter.

GFCI High: detektovana previsoka struja curenja – ponovo pokrenite inverter.

PV Voltage High: DC ulazni napon prelazi gornji prag – odmah isključite DC prekidač i proverite napon.

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9.2.2 GREŠKE – nastavak

PV Isolation Low: PV paneli imaju nizak otpor izolacije – proverite uzemljenje PV stringova.

PV Reversed: PV string je obrnut – nakon isključivanja proverite polaritet i ponovo pokrenite inverter.

AC V Outrange: mrežni napon van dozvoljenog opsega – proverite mrežni napon.

No AC: nema mreže ili je došlo do nestanka napajanja – nakon isključivanja proverite AC ožičavanje.

PE Abnormal: napon između N i PE je abnormalan – nakon isključivanja proverite pouzdanost uzemljenja.

AC F Outrange: mrežna frekvencija van dozvoljenog opsega – proverite frekvenciju i ponovo pokrenite inverter.

Error 309 – Grid ROCOF abnormal: proverite mrežnu frekvenciju i ponovo pokrenite inverter.

NE Fault: napon neutralnog voda prema zemlji je prenizak – proverite N/PE vezu i da li je izlaz izolovan transformatorom.

Error 311 – Export limitation fail-safe: nakon isključivanja proverite CT i brojilo.

Error Code	Description	Suggestion
PV Isolation Low	PV panels have low insulation resistance	1. Check if the PV strings are properly grounded. 2. If the error message persists, please contact Growatt support.
PV Reversed	PV string reversely connected	1. After shutdown, check if the PV string is reversely connected to the inverter. 2. Restart the inverter. 3. If the error message persists, please contact Growatt support.
AC V Outrange	Grid voltage is beyond the permissible range	1. Check the grid voltage. 2. If the grid voltage is within the permissible range and the error message persists, please contact Growatt support.
No AC	No utility grid connected or utility grid power failure	1. After shutdown, check the AC wiring. 2. If the error message persists, please contact Growatt support.
PE Abnormal	The voltage difference between the N line and the PE cable is abnormal	1. After shutdown, check if the ground cable is reliably connected. 2. If the error message persists, please contact Growatt support.
AC F Outrange	Grid frequency is beyond the permissible range	1. Check the grid frequency and restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 309	Grid ROCOF (Rated of Change of Frequency) abnormal	1. Check the grid frequency and restart the inverter. 2. If the error message persists, please contact Growatt support.
NE Fault	Neutral-to-Ground voltage is too low	1. Check whether the N line on the inverter side with PV negative grounding is short-circuited with the ground cable and whether the output side is isolated with a transformer. 2. If the error message persists, please contact Growatt support.
Error 311	Export limitation fail-safe	1. After shutdown, check the connection of the CT and the meter. 2. If the error message persists, please contact Growatt support.

Error Code	Description	Suggestion
Error 400	DCI bias abnormal	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Error 402	High DC component in output current	1. Restart the inverter. 2. If the error message persists, contact Growatt support.
Error 404	Bus voltage sampling abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 405	Relay fault	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 408	Over-temperature	1. After shutdown, check the temperature of the inverter and restart the inverter after the temperature is within the acceptable range. 2. If the error message persists, please contact Growatt support.
Error 409	Bus voltage abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 411	Internal communication failure	1. Check the wiring of the communication board after shutdown. 2. If the error message persists, please contact Growatt support.
Error 412	Temperature sensor disconnected	1. Check the wiring of the communication board after shutdown. 2. If the error message persists, please contact Growatt support.
Error 413	IGBT drive fault	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 414	EEPROM error	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 415	Auxiliary power supply abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 416	DC/AC overcurrent protection	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.

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9.2.2 GREŠKE – nastavak

Error 400 – DCI bias abnormal: ponovo pokrenite inverter.

Error 402 – visoka DC komponenta izlazne struje: ponovo pokrenite inverter.

Error 404 – abnormalno uzorkovanje BUS napona: ponovo pokrenite inverter.

Error 405 – kvar releja: ponovo pokrenite inverter; ako poruka ostane, kontaktirajte Growatt podršku.

Error 408 – previsoka temperatura: nakon isključivanja proverite temperaturu invertera; ponovo ga pokrenite kada temperatura bude u dozvoljenom opsegu.

Error 409 – abnormalan BUS napon: ponovo pokrenite inverter.

Error 411 – interni komunikacioni kvar: nakon isključivanja proverite ožičavanje komunikacione ploče.

Error 412 – temperaturni senzor isključen: proverite ožičavanje komunikacione ploče.

Error 413 – IGBT pogonski kvar: ponovo pokrenite inverter.

Error 414 – EEPROM greška: ponovo pokrenite inverter.

Error 415 – pomoćno napajanje abnormalno: ponovo pokrenite inverter.

Error 416 – zaštita od prevelike DC/AC struje: ponovo pokrenite inverter.

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9.2.2 GREŠKE – nastavak

Error 417 – neslaganje komunikacionog protokola: ponovo pokrenite inverter.

Error 418 – neslaganje DSP i COM verzije firmvera: ponovo pokrenite inverter.

Error 419 – neslaganje DSP softverske i hardverske verzije: ponovo pokrenite inverter.

Error 421 – CPLD abnormalan: ponovo pokrenite inverter.

Error 422 – redundantno uzorkovanje nije usklađeno: ponovo pokrenite inverter.

Error 423 – PWM pass-through signal neispravan: ponovo pokrenite inverter.

Error 425 – AFCI samotest neuspešan: ponovo pokrenite inverter.

Error 426 – abnormalno uzorkovanje PV struje: ponovo pokrenite inverter.

Error 427 – abnormalno uzorkovanje AC struje: ponovo pokrenite inverter.

Error 429 – BUS softboot neuspešan: ponovo pokrenite inverter.

Error 430 – EPO kvar: ponovo pokrenite inverter.

Error 431 – BOOT verifikacija monitoring čipa neuspešna: ponovo pokrenite inverter.

Error Code	Description	Suggestion
Error 417	Communication protocol mismatch	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 418	DSP and COM firmware version mismatch	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 419	DSP software and hardware version mismatch	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 421	CPLD abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 422	Redundancy sampling inconsistent	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 423	PWM pass-through signal failure	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 425	AFCI self-test failure	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 426	PV current sampling abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 427	AC current sampling abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 429	BUS softboot failure	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 430	EPO fault	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 431	Monitoring chip BOOT verification failed	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.

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9.2.2 GREŠKE – nastavak

Error 500 – BMS ne komunicira sa inverterom: proverite RS485 kabl između invertera i baterije i da baterija nije u sleep režimu.

Error 501 – BMS prijavljuje da baterija ne može da se puni/prazni: utvrdite kvar prema BMS kodu.

Bat Voltage Low: napon baterije je ispod donjeg praga – proverite napon baterije.

Error 503: napon baterije prelazi gornji prag – proverite napon; ako je u dozvoljenom opsegu, ponovo pokrenite inverter, a ako nije, zamenite bateriju.

Error 504: temperatura baterije je van opsega za punjenje/praznjenje – proverite temperaturu baterije.

Bat Reversed: terminali baterije obrnuto povezani – proverite polaritet.

Error 506: baterija je u prekidu – proverite ožičavanje terminala baterije.

Error 507: zaštita baterije od preopterećenja – proverite da snaga potrošača ne prelazi nazivnu snagu pražnjenja baterije.

Error 508 – BUS2 Volt Abnormal: ponovo pokrenite inverter.

Error Code	Description	Suggestion
Error 500	BMS failed to communicate with the inverter	1. Check the connection of the RS485 cable between the inverter and the battery. 2. Check if the battery is in the sleep mode. 3. If the error message persists, please contact Growatt support.
Error 501	The BMS reports that the battery failed to charge/discharge	1. Figure out the fault based on the BMS error code. 2. If the error message persists, please contact Growatt support.
Bat Voltage Low	The battery voltage is below the lower threshold	1. Check the battery voltage. 2. If the error message persists, please contact Growatt support.
Error 503	The battery voltage exceeds upper threshold	1. Check the battery voltage. If it is within the permissible range, please restart the inverter. If not, please replace the battery. 2. If the error message persists, please contact Growatt support.
Error 504	The battery temperature is beyond the range for charging / discharging	1. Check the temperature of the battery. 2. If the error message persists, please contact Growatt support.
Bat Reversed	Battery terminals reversed	1. Check if the battery terminals are reversely connected. 2. If the error message persists, please contact Growatt support.
Error 506	Battery open-circuited	1. Check the wiring of the battery terminals. 2. If the error message persists, please contact Growatt support.
Error 507	Battery overload protection	1. Check if the power of the load exceeds the battery rated discharge power. 2. If the error message persists, please contact Growatt support.
Error 508	BUS2 Volt Abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.

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9.2.2 GREŠKE – nastavak

Error 509 – BAT Charge OCP: proverite da PV napon nije previsok.

Error 510 – BAT Discharge OCP: proverite podešavanje struje pražnjenja baterije.

Error 511 – BAT soft start failed: ponovo pokrenite inverter.

EPS Output Short: off-grid izlaz je u kratkom spoju – ponovo pokrenite inverter.

Error 601 – Off-grid BUS Volt Low: proverite da baterija pravilno radi i da nema gubitka kapaciteta.

Error 602 – abnormalan napon na off-grid terminalu: proverite da li postoji napon na AC portu.

Error 603 – soft start failed: ponovo pokrenite inverter.

Error 604 – off-grid izlazni napon abnormalan: ponovo pokrenite inverter.

Error 605 – balanced circuit self-test failed: ponovo pokrenite inverter.

Error 606 – visoka DC komponenta izlaznog napona: ponovo pokrenite inverter.

OverLoad: off-grid izlaz preopterećen – proverite opterećenje i ponovo pokrenite inverter.

Error 608 – off-grid paralelni signal abnormalan: proverite komunikacione kablove.

Error Code	Description	Suggestion
Error 509	BAT Charge OCP (Overcurrent Protection)	1. Check if the PV voltage is oversized. 2. If the error message persists, please contact Growatt support.
Error 510	BAT Discharge OCP (Overcurrent Protection)	1. Check if the battery discharge current configuration is proper. 2. If the error message persists, please contact Growatt support.
Error 511	BAT soft start failed	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
EPS Output Short	Off-grid output short-circuited	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 601	Off-grid BUS Volt Low	1. Check if the battery is working properly or the battery experiences capacity loss. 2. If the error message persists, please contact Growatt support.
Error 602	Abnormal Volt at the off-grid terminal	1. Check if a voltage is present at the AC port. 2. If the error message persists, please contact Growatt support.
Error 603	Soft start failed	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 604	Off-grid output voltage abnormal	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 605	Balanced circuit self-test failed	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 606	High DC component in output voltage	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
OverLoad	Off-grid output overload	1. Restart the inverter. 2. If the error message persists, please contact Growatt support.
Error 608	Off-grid parallel signal abnormal	1. Check if the communication cables are properly connected. 2. If the error message persists, please contact Growatt support.

Product Specifications 10

Table 10.1 WIT 4/5/6/8/10/12/15K-HU Specifications

Model	WIT 4K-HU	WIT 5K-HU	WIT 6K-HU	WIT 8K-HU	WIT 10K-HU	WIT 12K-HU	WIT 15K-HU
Specifications							
Input data(PV)							
Max. recommended PV power(for module STC)	6.4kw	8kw	9.6kw	12.8kw	16kw	19.2kw	24kw
Max. DC voltage	1000V						
Start voltage	180V						
Nominal voltage	600V						
MPP voltage range	150V-850V						
Full Load DC Voltage Range	200V-750V	200V-750V	240V-750V	320V-750V	400V-750V	320V-750V	400V-750V
No. of MPP trackers	1			2			
No. of PV strings per MPP tracker	2			1+1		2+1	
Max. input current per MPP tracker	40A			20A+20A		40A+20A	
Max. short-circuit current per MPP tracker	50A			25A/25A		50A/25A	
Battery data (DC)							
Battery voltage range	40-60V						
Full load battery voltage range	40-60V	42-60V	42-60V	42.6-60V	48.4-60V	51.6-60V	55-60V
Recommended battery voltage	51.2V						
No. of battery input	1						
Max. charging / discharging current	110A	125A	150A	200A	220A	250A	290A
BMS communication	RS485/CAN						
AC Input/Output (GRID)							
AC input/output nominal power	8kw/4kw	10kw/5kw	12kw/6kw	16kw/8kw	20kw/10KW	24kw/12kw	30kw/15kw
Max. AC input/output apparent power	8.8kVA/4.4kVA	11kVA/5.5kVA	13.2kVA/6.6kVA	17.6kVA/8.8kVA	22kVA/11kVA	26.4kVA/13.2kVA	33kVA/16.5kVA

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10 SPECIFIKACIJE PROIZVODA

PV ULAZ

Maksimalno preporučena PV snaga (STC), po modelima WIT 4/5/6/8/10/12/15K-HU: 6,4 / 8 / 9,6 / 12,8 / 16 / 19,2 / 24 kW.

Maksimalni DC napon: 1000 V • Startni napon: 180 V • Nazivni napon: 600 V • MPP opseg: 150-850 V.

Opseg DC napona pri punom opterećenju, redom po modelima: 200-750 / 200-750 / 240-750 / 320-750 / 400-750 / 320-750 / 400-750 V.

Broj MPP trackera: 1 ili 2. Broj PV stringova po MPP trackeru: 2 / 1+1 / 2+1. Maksimalna ulazna struja po MPP trackeru: 40 A / 20 A+20 A / 40 A+20 A. Maksimalna struja kratkog spoja po MPP trackeru: 50 A / 25 A+25 A / 50 A+25 A.

BATERIJA

Opseg napona: 40-60 V. Opseg napona pri punom opterećenju, redom po modelima: 40-60 / 42-60 / 42-60 / 42,6-60 / 48,4-60 / 51,6-60 / 55-60 V.

Preporučeni napon: 51,2 V. Broj baterijskih ulaza: 1. Maksimalna struja punjenja/praznjenja: 110 / 125 / 150 / 200 / 220 / 250 / 290 A. BMS komunikacija: RS485/CAN.

AC ULAZ/IZLAZ – GRID

Nazivna AC ulazna/izlazna snaga, redom po modelima: 8/4, 10/5, 10/6, 12/8, 16/10, 20/12, 24/15, 30/15 kW, prema konfiguraciji modela.

Maksimalna AC prividna snaga: do 33 kVA / 16,5 kVA kod WIT 15K-HU. Nazivni AC napon: 220/230 V L-N, 380/400 V L-L, -15% do +10%. Frekvencija: 45-55 Hz / 55-65 Hz. Faktor snage pri nazivnoj snazi: >0,99. Podesivi faktor snage: -1 do +1. THDi: <3%. Tip priključenja: 3P3W+PE / 3P4W+PE.

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AC ULAZ/IZLAZ – GRID, nastavak

Maksimalna ulazna/izlazna struja, redom po modelima, prema originalnoj tabeli: 13,4/6,7 A; 16,7/8,4 A; 20,0/10,0 A; 26,6/13,3 A; 33,3/16,7 A; 40/20 A; 50,1/25 A na 220 V, prema modelu.

Maksimalni kontinuirani AC passthrough: 50,1 A. Faktor snage: >0,99. Podesivi faktor snage: -1...+1. THDi: <3%.

Mrežni priključak: 3P3W+PE / 3P4W+PE.

GEN / AC COUPLE

Nazivna AC snaga: 8 / 10 / 16 / 16 / 20 / 24 / 30 kW.

Maksimalna ulazna struja GEN/AC Couple, prema modelima: 11,6 A; 12,2/14,4 A; 15,2/17,4 A; 18,2/23,2 A; 24,2/29 A; 30,4/34,8 A; 36,4/43,4 A prema originalnoj tabeli.

Maksimalni kontinuirani AC passthrough: 50,1 A. Nazivni AC napon: 220/230 V L-N, 380/400 V L-L. Frekvencija: 50/60 Hz. AC priključak: 3P3W+PE / 3P4W+PE.

SAMOSTALNI (BACKUP) IZLAZ

Nazivna AC izlazna snaga: 4 / 5 / 6 / 8 / 10 / 12 / 15 kW. Maksimalna prividna snaga: iste vrednosti. Nazivni napon: 220/230 V L-N, 380/400 V L-L. Frekvencija: 50/60 Hz. Maksimalna izlazna struja: 12,2 / 15,2 / 18,2 / 24,2 / 30,2 / 36,4 / 45,5 A.

Model	WIT 4K-HU	WIT 5K-HU	WIT 6K-HU	WIT 8K-HU	WIT 10K-HU	WIT 12K-HU	WIT 15K-HU
Specifications							
Nominal AC voltage/range	220V/230V L-N, 380V/400V L-L, -15% ~ 10%						
Nominal AC grid frequency/range	45~55 Hz/55~65 Hz						
Max. input/output current	13.4A/ 6.7A@ 220V	16.7A/ 8.4A@ 220V	20.0A/ 10.0A@ 220V	26.6A/ 13.3A@ 220V	33.3A/ 16.7A@ 220V	40A/ 20A@ 220V	50.1A/ 25A@ 220V
Max. Continuous AC Passthrough	50.1A						
Power factor (@nominal power)	>0.99						
Adjustable power factor	-1...+1						
THDI	<3 per cent						
AC grid connection type	3P3W+PE/3P4W+PE						
Input/Output Generator (GEN)							
AC nominal power	8kW	10kW	16kW	16kW	20kW	24kW	30kW
Max. input current(GEN/AC Couple)	12.2A/ 11.6A	15.2A/ 14.4A	18.2A/ 17.4A	24.2A/ 23.2A	30.4A/ 29A	36.4A/ 34.8A	45.4A/ 43.4A
Max. Continuous AC Passthrough	50.1A						
Nominal AC voltage	220V/230V L-N, 380V/400V L-L						
Nominal AC grid frequency	50Hz/60Hz						
AC connection type	3P3W+PE/3P4W+PE						
Stand alone(Back up)							
AC nominal output power	4kW	5kW	6kW	8kW	10kW	12kW	15kW
Max. AC apparent power	4kW	5kW	6kW	8kW	10kW	12kW	15kW
Nominal AC voltage	220V/230V(L-N) 380V/400V(L-L)						
Nominal AC frequency	50/60HZ						
Max. output current	12.2A	15.2A	18.2A	24.2A	30.2A	36.4A	45.5A

Model	WIT 4K-HU	WIT 5K-HU	WIT 6K-HU	WIT 8K-HU	WIT 10K-HU	WIT 12K-HU	WIT 15K-HU
Specifications							
Overload Capability	2x rated power, 10 s						
THDv	<3% (Linear full load)						
Switch time*	≤10ms						
Efficiency							
Max. efficiency	97.60%						
European efficiency	97.00%						
MPPT efficiency	99.90 %						
Protection devices							
DC reverse polarity protection	adjuvant						
Battery reverse protection	adjuvant						
Insulation resistance monitoring	adjuvant						
AC/DC surge protection	Type II						
AC short-circuit protection	adjuvant						
Ground fault monitoring	adjuvant						
Grid monitoring	adjuvant						
String monitoring	adjuvant						
Anti-islanding protection	adjuvant						
Residual-current monitoring unit	adjuvant						
PID function	selectable						
AFCI protection	selectable						
General data							
Dimensions (W / H / D)	475/698/240mm						
Weight	43kg						
Operating temperature range	-30°C - 60°C (>45°C, derated)						

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10 SPECIFIKACIJE PROIZVODA – nastavak

PREOPTEREĆENJE

2 × nazivna snaga tokom 10 s.

THDv: <3% pri linearnom punom opterećenju.

Vreme prebacivanja: ≤10 ms.

EFIKASNOST

Maksimalna efikasnost: 97,60% • Evropska efikasnost: 97,00% • MPPT efikasnost: 99,90%.

ZAŠTITNE FUNKCIJE

Zaštita od obrnutog DC polariteta: pomoćna.

Zaštita od obrnutog polariteta baterije: pomoćna.

Nadzor izolacionog otpora: pomoćni.

AC/DC prenaponska zaštita: tip II.

AC zaštita od kratkog spoja: pomoćna.

Nadzor greške uzemljenja: pomoćni.

Nadzor mreže: pomoćni.

Nadzor stringova: pomoćni.

Anti-islanding zaštita: pomoćna.

Nadzorna jedinica rezidualne struje: pomoćna.

PID funkcija: izborna.

AFCI zaštita: izborna.

OPŠTI PODACI

Dimenzije (Š/V/D): 475 / 698 / 240 mm • Težina: 43 kg • Radna temperatura: –30 °C do +60 °C (>45 °C, smanjena snaga).

Model	WIT 4K-HU	WIT 5K-HU	WIT 6K-HU	WIT 8K-HU	WIT 10K-HU	WIT 12K-HU	WIT 15K-HU
Specifications							
Noise emission (typical)	≤50dB						
Altitude	3000m						
Topology	Transformerless						
Cooling	Smart air cooling						
Protection degree	IP66						
Relative humidity	0-95%						
PV connection	MC2						
AC connection	Cable glands +terminals						
Battery connection	OT terminal						
Interfaces							
Display	OLED+LED/APP						
RS485/CAN/USB	RS485/CAN/USB						
WIFI/4G/LAN	WIFI/LAN						
Warranty: 5 / 10 years	Yes/Opt.						
Certificates and approvals							
Grid regulation	IEC 61727, IEC 62116, IEC 61683, IEC 60068, EN 50549-10/1, VDE 4105, NC RfG						
EMC	IEC/EN 61000-6-1/2/3/4, EN 55011, EN 62920						
Safety	IEC/EN62109-1, IEC/EN62109-2						

*After enabling high/low voltage ride-through function,the switching time between on-grid and off-grid modes will increase,which may lead to load power loss during abnormal grid conditions.

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10 SPECIFIKACIJE PROIZVODA – opšti podaci i sertifikati

Buka (tipično): ≤50 dB • Nadmorska visina: 3000 m • Topologija: bez transformatora • Hlađenje: pametno vazdušno hlađenje • Stepen zaštite: IP66 • Relativna vlažnost: 0-95%.

PV priključak: MC2 • AC priključak: kablovske uvodnice + terminali • Baterijski priključak: OT terminal.

Interfejsi: displej OLED+LED/APP; komunikacija RS485/CAN/USB; mrežne veze prema modelu WIFI/4G/LAN ili WIFI/LAN.

Garancija: 5 / 10 godina, prema opciji.

SERTIFIKATI I ODOBRENJA

Mrežni propisi: IEC 61727, IEC 62116, IEC 61683, IEC 60068, EN 50549-10/1, VDE 4105, NC RfG.

EMC: IEC/EN 61000-6-1/2/3/4, EN 55011, EN 62920.

Bezbednost: IEC/EN 62109-1, IEC/EN 62109-2.

* Nakon omogućavanja funkcije prolaza kroz visoki/niski napon (ride-through), vreme prebacivanja između mrežnog i vanmrežnog režima rada biće duže, što može dovesti do gubitka napajanja potrošača tokom abnormalnih uslova mreže.

Decommissioning the WIT 11 Inverter

Handle the WIT Inverter that will not be operated in the future properly.

- 1> Disconnect the external AC circuit breaker and prevent accidental reconnection due to improper operation.
- 2> Set the DC switches to the OFF position.
- 3> Disconnect the battery side switch.
- 4> Disconnect the upstream battery circuit breaker..
- 5> Wait at least 5 minutes before performing operations on it..
- 6> Disconnect the AC output power cables.
- 7> Disconnect the DC input power cables.
- 8> Remove the inverter from the bracket.
- 9> Dispose of the inverter according to local disposal rules.

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11 RASHODOVANJE WIT INVERTERA

WIT inverter koji se ubuduće neće koristiti mora se pravilno demontirati i odložiti u skladu sa lokalnim propisima o odlaganju električne i elektronske opreme.

Postupak isključivanja i demontaže:

1. Isključite spoljni AC prekidač i sprečite slučajno ponovno uključenje usled nepravilnog rukovanja.
2. Postavite DC prekidače u položaj OFF.
3. Isključite prekidač na strani baterije.
4. Isključite uzvodni baterijski prekidač.
5. Sačekajte najmanje 5 minuta pre bilo kakvog rada na uređaju.
6. Odvojite AC izlazne energetske kablove.
7. Odvojite DC ulazne energetske kablove.
8. Skinite inverter sa nosača.
9. Odložite inverter u skladu sa lokalnim pravilima za odlaganje.

UPOZORENJE: Tokom demontaže poštujujte sve bezbednosne procedure i obezbedite da uređaj nije pod naponom.

12 Warranty

Growatt guarantees maintenance and replacement of the defective product under warranty.

12.1 Conditions

1. Growatt will ask users to provide product information by filling a form before making warranty repairs, including the date of purchase and installation, the serial number of the WIT Inverter, fault description and other information.
2. The defected product shall be returned to Growatt for recycling and disposal.

12.2 Disclaimer

Growatt shall not be liable for any consequences of the following circumstances:

1. Unauthorized removal of the product, such as removing the tamper-proof label and the upper cover of the WIT Inverter.
 2. Damage caused during transportation.
 3. Improper operations during installation and commissioning.
 4. Failure to observe the operation instructions regarding the installation, operation and storage of the WIT Inverter.
 5. Unauthorized modifications or improper maintenance on the WIT Inverter.
 6. Improper use and operation.
 7. Damage caused by storage conditions that do not meet the requirements specified in this manual.
 8. Failure to follow the safety precautions and applicable laws and regulations due to customer's negligence.
 9. Damage due to force majeure, such as lightning, floods, storms, fire.
 10. Power off the PCS before upgrading the firmware; otherwise it will shut down automatically during the upgrade process and supply no power to the loads.
- In the event of a product malfunction or failure caused by the circumstance mentioned above, Growatt can provide paid maintenance services after conducting a fault diagnosis if required.

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1. neovlašćenog uklanjanja proizvoda, npr. uklanjanja zaštitne nalepnice ili gornjeg poklopca;
 2. oštećenja nastalih tokom transporta;
 3. nepravilnih postupaka tokom instalacije i puštanja u rad;
 4. nepridržavanja uputstava za instalaciju, rad i skladištenje;
 5. neovlašćenih izmena ili nepravilnog održavanja;
 6. nepravilne upotrebe i rukovanja;
 7. uslova skladištenja koji nisu u skladu sa zahtevima ovog uputstva;
 8. nepoštovanja bezbednosnih mera i važećih zakona i propisa zbog nemara korisnika;
 9. više sile, kao što su udar groma, poplava, oluja ili požar. Ako je kvar posledica navedenih okolnosti, Growatt nakon dijagnostike može ponuditi plaćeni servis. NAPOMENA O NADOGRADNJI Pre nadogradnje firmvera isključite PCS; u suprotnom će se tokom nadogradnje automatski isključiti i neće napajati potrošače. KOMUNIKACIONI NAČIN WIT INVERTERA Za tehničku podršku pripremite:
1. model WIT invertera;
 2. serijski broj WIT invertera;
 3. kod greške;
 4. informacije prikazane na LED ekranu;
 5. DC ulazni napon i AC izlazni napon.

Contact Us 13

If you have technical problems with our products, please contact Growatt for technical support. To provide you with the necessary assistance, please have the following information ready:

1. Model number of the WIT Inverter
2. Serial number of the WIT Inverter
3. Error code of the WIT Inverter
4. Information indicated on the LED display
5. DC input voltage and AC output voltage of the WIT Inverter
6. Communication method of the WIT Inverter

Shenzhen Growatt New Energy Co., Ltd.

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

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W en.growatt.com

For local customer support, please visit <https://en.growatt.com/support/contact>

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 2. oštećenja nastalih tokom transporta;
 3. nepravilnih postupaka tokom instalacije i puštanja u rad;
 4. nepridržavanja uputstava za instalaciju, rad i skladištenje;
 5. neovlašćenih izmena ili nepravilnog održavanja;
 6. nepravilne upotrebe i rukovanja;
 7. uslova skladištenja koji nisu u skladu sa zahtevima ovog uputstva;
 8. nepoštovanja bezbednosnih mera i važećih zakona i propisa zbog nemara korisnika;
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 3. kod greške;
 4. informacije prikazane na LED ekranu;
 5. DC ulazni napon i AC izlazni napon.



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WIT 4-15K-HU HIBRIDNI INVERTER Korisničko uputstvo Shenzhen Growatt New Energy Co., Ltd. 4-13/F, Building A, Sino-German (Europe) Industrial Park, Hangcheng Blvd, Bao'an District, Shenzhen, China Web: en.growatt.com
E-mail: service@growatt.com GR-UM-476-A-01 (PN: 044.0140401) Za lokalnu korisničku podršku posetite Growatt stranicu za kontakt.

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Ovo je bilingvalna verzija korisničkog uputstva, izrađena radi lakšeg razumevanja sadržaja na srpskom jeziku.

Prevod je urađen uz nastojanje da se u potpunosti očuva značenje originalnog dokumenta, ali se ne može isključiti mogućnost grešaka ili nenamernih odstupanja.

Autor prevoda ne preuzima odgovornost za eventualne greške, propuste ili netačnosti nastale tokom prevođenja.

Za tehničke podatke, bezbednosne zahteve, podešavanja i druge informacije od značaja za pravilan rad uređaja, uvek treba konsultovati originalno uputstvo proizvođača.