



Growatt 3600MTL

Growatt 4200MTL

Growatt 5000MTL

Installation & Operation Manual ▶

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Directory

1 Notes on this manual

- 1.1 Validity
- 1.2 Target Group
- 1.3 Safety

2 Growatt MTL Inverter

- 2.1 Overview
- 2.2 Identifying model and basic datasheet

3 Unpacking and inspection

4 Installation

- 4.1 Safety instructions
- 4.2 Selecting the INSTALLATION location
- 4.3 Fixed the mounting on the wall
- 4.4 Fixed the inverter on the wall
- 4.5 Check Inverter installation Status

5 Electrical Connection

- 5.1 System Diagram with Inverter Electrical connection
- 5.2 Safety
- 5.3 Connecting to the grid (AC utility)
- 5.4 Connect to PV Panel (DC input)
- 5.5 Country Selecting
- 5.6 Commissioning

6 Display

- 6.1 LCD display
- 6.2 LCD control
- 6.3 Setting the LCD display

7 Modes of Operation

- 7.1 Normal mode
- 7.2 Fault mode
- 7.3 Shutdown mode

8 Inverter Status

9 Communications

- 9.1 Communications software instructions
- 9.2 Monitor

10 Trouble Shooting

11 System Fault

12 Inverter Failure

13 Specifications

14 Growatt Factory warranty

15 Warranty conditions

16 Contact

1.1 Validity

This manual describes the assembly, installation, commissioning and maintenance of the following Growatt Inverters:

Growatt 3600 MTL
Growatt 4200 MTL
Growatt 5000 MTL

This manual does not cover any details concerning equipment connected to the Growatt MTL (e.g. PV modules). Information concerning the connected equipment is available from the manufacturer of the equipment.

1.2 Target Group

This manual is for qualified personnel. Qualified personnel have received training and have demonstrated skills and knowledge in the construction and operation of this device. Qualified personnel are trained to deal with the dangers and hazards involved in installing electric devices.

Additional information

Find further information on special topics in the download area at www.ginverter.com

1.3 Safety

Appropriate Usage

The Growatt is a PV Inverter that converts DC Current from PV generator into AC current. The Growatt is suitable for mounting indoors and outdoors.

You can use the AC current generated as follows:

House grid:

Energy flows into the house grid. The consumers connected, for example, household devices or lighting, consume the energy. The energy left over is fed into the public grid. When the Growatt is not generating any energy, e.g., at night, the consumers which are connected are supplied by the public grid. The Growatt does not have its own energy meter. When energy is fed into the public grid, the energy meter spins backwards.

Public grid

Energy is fed directly into the public grid. The Growatt is connected to a separate energy meter. The energy produced is compensated at a rate depending on the electric power company.

Stand-alone grid:

The Growatt is connected to a stand-alone grid. The energy generated is consumed directly on site, surplus energy can be stored in batteries.

Info: Policies vary from one utility company to another. Consult with a representative of the local utility company before

DC and AC Switch

Separate the Growatt securely from the grid and the PV generators using DC and AC Switch. You must provide an AC circuit breaker. If Growatt DC Switch is included in the delivery of the Growatt, it must be used for operating the inverter.

Grounding the PV modules

The Growatt 3600 MTL, 4200MTL and 5000MTL is a transformerless inverter. That is why it has no galvanic separation. Do not ground the DC circuits of the PV modules connected to the Growatt. Only ground the mounting frame of the PV modules.

If you connect grounded modules to the Growatt, the error message "PV ISO Low".

Based on transformer less technology, IEC61730 demand matching class A PV module. We normally recommend Monocrystalline silicon and polycrystalline silicon module. But it can also be applied to some thin-film technology which claims workable with transformer less inverter.

2.1 Overview



2.2 Identifying model and basic datasheet

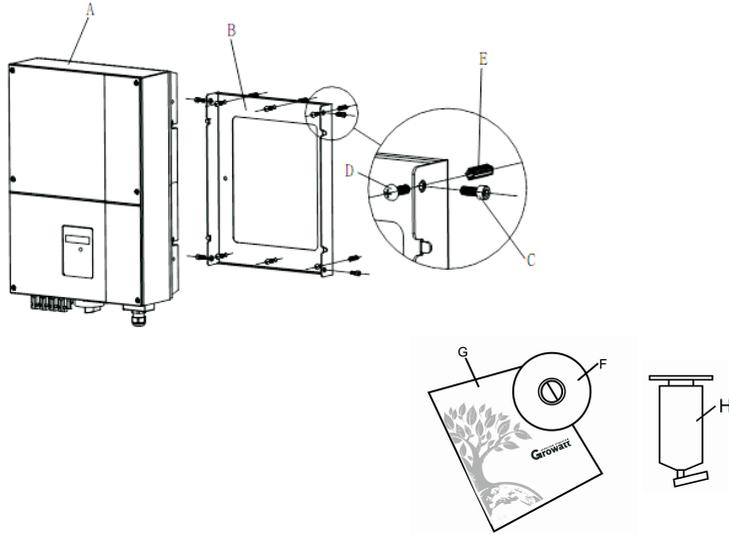
You can identify the pv inverter by the type label. It is on the left side of the enclosure.

- The type of product (Type/Model).
- Device-specific characteristics.
- Certificates and approvals.

GROWATT PV Grid Inverter	
Model Name	XXXXXXXX
Certificate Number	XXXXXXXX
U _{DCmax}	XXXXXXXX
I _{DCmax}	XXXXXXXX
U _{DCrange}	XXXXXXXX
V _{ACnorm}	XXXXXXXX
f _{ACnorm}	XXXXXXXX
P _{ACnorm}	XXXXXXXX
I _{ACnorm}	XXXXXXXX
PF	XXXXXXXX
Protection Degree	XXXXXXXX
Operation Ambient Temperature	XXXXXXXX
AS 4777 & AS 3100	

3 Unpacking and inspection

After opening the package, please check the contents of the box. It should contain the following:



Item	Name	Quantity
A	solar inverter	1
B	Mounting frame	1
C	Safety-lock screws	2
D	Mounting screws	4
E	Mounting frame screws sleeve	4
F	Monitor software(disk)	1(Optional)
G	manual	1
H	Bluetooth	1(Optional)

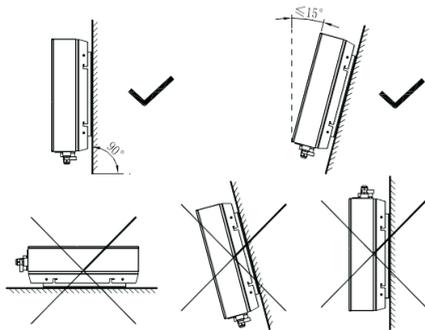
4.1 Safety instructions



- A** Do not remove the casing. Inverter contains no user serviceable parts. Refer servicing to qualified service personnel. All wiring and electrical installation should be conducted by a qualified service personnel and must meet national requirements of AS4777 or VDE0126-1-1.
- B** Both AC and DC voltage sources are terminated inside the PV Inverter. Please disconnect these circuits before servicing.
- C** When a photovoltaic panel is exposed to light, it generates a DC voltage. When connected to this equipment, a photovoltaic panel will charge the DC link capacitors.
- D** Energy stored in this equipment’s DC link capacitors presents a risk of electric shock. Even after the unit is disconnected from the grid and photovoltaic panels, high voltages may still exist inside the PV-Inverter. Do not remove the casing until at least 5 minutes after disconnecting all power sources.
- E** This unit is designed to feed power to the public power grid (utility) only. Do not connect this unit to an AC source or generator. Connecting Inverter to external devices could result in serious damage to your equipment.
- F** Carefully remove the unit from its packaging and inspect for external damage. If you find any imperfections, please contact your local dealer.
- G** Although designed to meet all safety requirements, some parts and surfaces of Inverter are still hot during operation. To reduce the risk of injury, do not touch the heat sink at the back of the PV-Inverter or nearby surfaces while Inverter is operating.

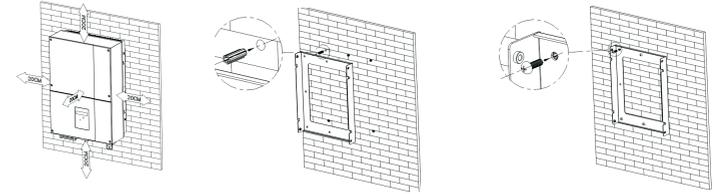
4.2 Selecting the INSTALLATION location

- A** The installation method and mounting location must be suitable for the weight and dimensions of the inverter. Select a wall or solid vertical surface that can support the PV-Inverter.
- B** Mount on a solid surface , The mounting location must be accessible at all times.
- C** Vertical installation or tilted backwards by max. 15°.
- D** The connection area must point downwards.
- E** Do not install horizontally.



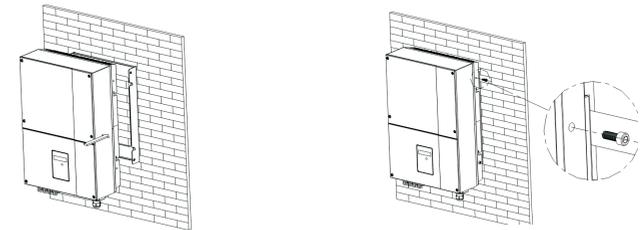
4.3 Fixed the mounting on the wall

- A** Inverter requires adequate cooling space. Allow at least 20cm space above and below the inverter.
- B** Using the mounting frame as a template, drill 4 holes as illustrated in image.
- C** Fix the mounting frame as the figure shows. Do not make the screws to be flush to the wall. Instead, leave 2 to 4mm exposed



4.4 Fixed the inverter on the wall

- A** Hang the inverter on the mounting frame.
- B** Insert safety-lock screws to the bottom leg to secure the inverter.



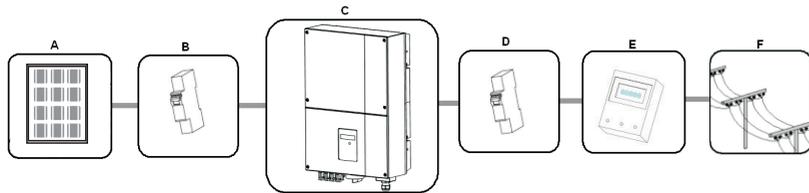
4.5 Check Inverter Installation Status

- A** Check the upper straps of PV-Inverter and ensure it fits on to the bracket.
- B** Check the secure mounting of the PV-Inverter by trying to raise it from the bottom. The PV-Inverter should remain firmly attached.
- C** Select the installation location so that the status display can be easily viewed.
- D** Choose a strong mounting wall to prevent vibrations while inverter is operating.

5 Electrical Connection

5.1 System Diagram with Inverter Electrical connection

- A** PV Panel: Provide DC power to inverter.
- B** Converts DC (Direct Current) power from PV panel(s) to AC (Alternating Current) power. Because Inverter is grid-connected it controls the current amplitude according to the PV Panel power supply. Inverter always tries to convert the maximum power from your PV panel(s).
- C** Connection system: This "interface" between Utility and PV-Inverter may consist of electrical breaker, fuse and connecting terminals. To comply with local safety standards and codes, the connection system should be designed and implemented by a qualified technician.
- D** Utility: Referred to as "grid" in this manual, is the way your electric power company provides power to your place. Please note that Inverter can only be connected to low-voltage systems (namely, 230VAC, 50Hz).



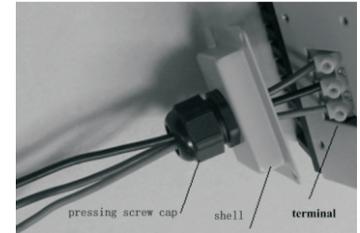
Position	Description
A	PV modules
B	DC load circuit breaker
C	Growatt PV Inverter
D	AC load circuit breaker
E	Energy meter
F	Utility grid

5.2 Safety

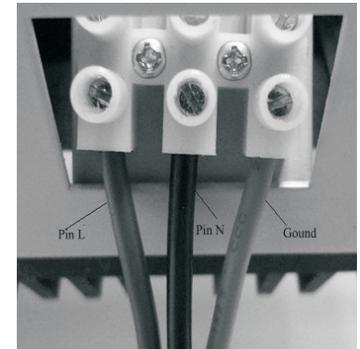
The PV Inverter must be connected to the AC ground from the utility via the Ground Terminal (PE)

5.3 Connecting to the grid (AC utility)

- A** Measure grid (utility) voltage and frequency. It should be 230VAC , 50Hz and single phase.
- B** Open the breaker or fuse between PV Inverter and utility.



- C** Screw torsional force is 8kg/cm.
- D** cable requirements



Model	_ (mm)	Area(mm ²)	AWG no.
3600MTL	_2.05	3.332	12
4200MTL	_2.59	5.260	10
5000MTL	_2.59	5.260	10



5.4 Connect to PV Panel (DC input)

- A** Under any condition! Make sure the maximum open circuit voltage (Voc) of each PV string is less than 600VDC. The length of input wire must be less than 30m.
- B** Use MC (Multi-contact) connectors for PV array terminals.
- C** Connect the positive and negative terminals from the PV panel to positive (+) terminals and negative (-) terminals on the PV-Inverter. Each DC terminal on Inverter can withstand 15A_{dc} for 5000MTL, 15A_{dc} for 4200MTL, 10A_{dc} for 3600MTL.
- D** Before connecting PV panels to DC terminals, please make sure the polarity is correct. Incorrect polarity connection could permanently damage the unit. Check short-circuit current of the PV string. The total short-circuit current of the PV string should be less than the inverter's maximum DC current.
- E** High voltages exist when the PV panel is exposed to the sun. To reduce risk of electric shock, avoid touching live components and treat connection terminals carefully.
- F** cable requirements

Model	_ (mm)	Area(mm ²)	AWG no.
3600MTL	_2.05	3.332	12
4200MTL	_2.59	5.260	10
5000MTL	_2.59	5.260	10

5.5 Country Selecting

When the PV panels are connected and their output voltage is greater than 100V_{dc} but the AC grid is not yet connected, inverter will start up automatically. If it is the first time to power on the inverter after installation, you may need to select a specific country*. Otherwise, the interface will stay at the 'Please Select' interface all the time. There are eleven options to select, as the list below.

* If you have ordered the inverter with specific country settings, the parameters have been preset in factory and you don't need to operate this step any more.

Country/Regulation Name	options
VDE0126-1-1	// 0
Germany	// 1
UK_G83	// 2
Italy	// 3
France	// 4
Denmark	// 5
Belgium	// 6
Spain	// 7
Greece	// 8
Turkey	// 9
Hungary	// 10

Note: If the country you want to select is not in the above list, please directly select VDE0126-1-1.

Please finish the country selecting according to the following steps:

A The LCD will quickly switch to and stay at the 'Please select' interface after power on, as Fig 5-5-1.

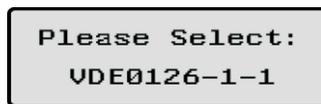


Fig 5-5-1

B Single knock on the LCD, countries will vary from one to another along the above list order. Fig 5-5-2 acts as an example, and Germany is the second selection.

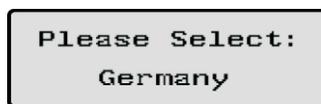


Fig 5-5-2

C When you need to select any of these countries, you can Double knock to enter the next interface. Here we select Italy as an example, as Fig 5-5-3.



Fig 5-5-3

D When the country arrives at Italy, Double knock to enter the two options 'YES' and 'NO', and the cursor stays at 'NO' in default, as Fig 5-5-4.



Fig 5-5-4

E Single knock to select 'YES', as Fig 5-5-5.



Fig 5-5-5

F Double knock to confirm your selection, LCD will display 'Select OK' with the country name in the below, as Fig 5-5-6.

Note: if you still single knock at the interface as Fig 5-5-5, the cursor will go to 'NO' again as Fig 5-5-4, then if you double knock, the display will switch to the interface as Fig 5-5-3.



Fig 5-5-6

G When the selection is successful, the inverter will reboot automatically.

Note: If you have selected and confirmed an unwanted country neglectful, please contact Growatt for specific software to clear and reset again.

5.6 Commissioning

- ▶ After the inverter reboot, LCD will produce the following messages in order: 'Ser NO: xxx'->'xxxxx'->'FW version'->'Waiting'->'No AC connection', the display repeats 'NO Utility' and LED will be red.
- ▶ Close the AC breaker or fuse between PV-Inverter and grid. Turn on the DC switch. The normal operating sequence begins.
- ▶ Under normal operating conditions the LCD displays 'Power: xxx.x W'. That is the power fed to the grid. The LED turns green.
- ▶ This completes the check.

6.1 LCD display

Starting-up display sequence, once the PV power is sufficient, inverter displays information as shown in the flow chart as follow:

```

Module: xxxxxx
SerNo: xxxxxxxxxx
FW Version: x.x.x
Connect in: xxS
Connect: OK
Power: xxx.xW
    
```

6.2 LCD control

To save power, the LCD display's backlight automatically turns off after 30 seconds. The display on the inverter can be control by Knock on the front of it.

The first line will show some status of the inverter, there are 5 status listed in below table.

The First Line Of LCD

STATE	DISPLAY CONTENT	REMARK
Wait State	Standby	PV voltage low
	Waiting	Initial waiting
	Connect in xxS	System checking
	Reconnect in xxS	System checking
Inverter State	Connect OK	Connect to Grid
	Power: xxx.xW	Inverter watt at working
Fault State	Error: xxx	System Fault
Auto Test State	Auto Testing	Protection auto test
Program State	Programming	Update Software

While Growatt inverter is working, the first line will normally show Power status:

```
Power : 2016.2W
AC: 241V F: 49.9Hz
```

The Second Line Of LCD

CYCLE DISPLAY	DISPLAY TIME/S	REMARK
Power : 2013.4W Module: P7U1M2S4	2	The inverter model
Power : 2017.2W FW Version: G.1.3	2	The software version
Power : 2012.8W SerNO: DK00000000	2	The Serial Number
Power : 2009.6W Etoday: 7.1kWh	4	The energy today
Power : 2017.0W Eall : 90KWH	4	The energy all
Power : 2123.4W Ppv: 786 1488W	4	PV input watt

CYCLE DISPLAY	DISPLAY TIME/S	REMARK
Power : 2103.4W PV: 310/313 B: 370V	4	The PV and Bus Votage
Power : 2016.2W AC: 241V F: 49.9Hz	4	The grid system
Enable auto test Power : 2021.8W Enale Auto Test	4	The enable auto test
Set Language Power : 2019.5W Set Language	4	Set Language
Set contrast Power : 2008.2W Set LCD Contrast	4	Set LCD Contrast
Set COM Address Power : 2019.5W COM Address: Move	4	Set Communications Address

6.3 Setting the LCD display

Sound control can define the display language, luminance of the display, auto-test and frequency. When the LCD is dark, Knock and double knock make it becomes bright. Knock to make it display next information or change the set situation. Double knock make the display stand for 30 second on 1-5. And enter set menu on 6-12.

Setting language

Knock to make the display bright→ knock to “set language”→ double knock to enter “language: English”→knock to select the language you need and wait until the display become dark.

Setting luminance of the display

Knock to make the display bright →knock to “set LCD contrast”→double knock to enter “LCD contrast 2”→knock to select the luminance you need and wait until the display become dark.

Setting communication address

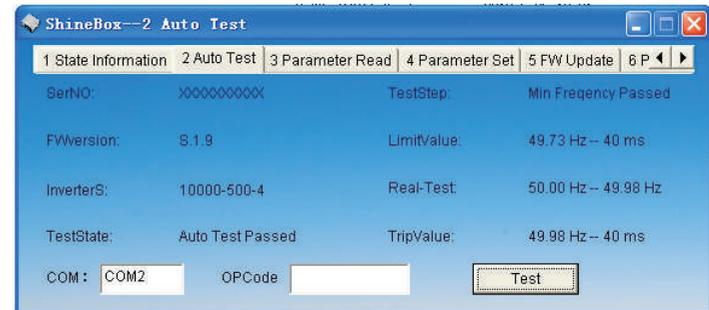
Knock to make the display bright-->knock to “COM Address:xx” -->double knock to change the Address model-->clock to set address.

Setting frequency

Knock to make the display bright→ knock to “System F: xxHz → double knock to enter “System F: xxHz”→knock to select the Frequency you need and wait until the display become dark.

Auto test

1. Let the inverter work at normal status, Knock to make the display bright ->knock to “Enable Auto test”, then double knock to enter “ Connect to PC ”;
2. Connect the inverter to PC by RS232, and open the “ShineBox.exe”, select page “2.Auto test”, and input the COM port, click the “Test” button to start the auto test;



3. check the info on the software and the inverter;
4. after the test ended or stopped, open the file “Auto test report of xxxxxxxxx.txt” under the software directory(xxx... is the serial No. of the inverter), you can check the result of the test is pass or fail.

Auto test design model:

1. Step flow is max voltage -> min voltage -> max frequency -> min frequency protection test;
2. For each step, the protection actives when the grid real value reached the limit value; and the limit value is initialed as the ENEL spec, and is increased or decreased every second, the voltage step is 1V/s, and the frequency is 0.05Hz/s;
3. For the protection time, the time counter is reset when the limit is changed, and is recorded when the protection active. And then check the protection time is the range of the spec or not.
4. When testing, if the PC software sends commands to read the testing data, the inverter will return all the test data to the PC. The pc software will display the test state and save the test data in the file.

Auto test Process :

1. Click Start Test, first read the serial number and firmware version;
2. After starting the test, read the inverter status real-time

3. First test over-voltage protection, read the limit value, time value, protection value;
4. The second step test under-voltage protection, read the limit value, time value, protection value;
5. The third step test over-frequency protection, read the limit value, time value, the protection value;
6. The fourth step test under-frequency protection, read the limit value, time value, the protection value;
7. Upon completion of these four steps to complete the test and production test display the document, as follows:

SerialNO. : XXXXXXXXXX

FW Version : S.1.9

Test Date : 22/07/2011

Start Time : 19:43:50

Max Voltage

Limit Value : 270.0 V -- 40 ms

Trip Value : 222.0 V -- 40 ms

Step Result : PASS

Min Voltage

Limit Value : 190.0 V -- 40 ms

Trip Value : 222.0 V -- 40 ms

Step Result : PASS

Max Frequency

Limit Value : 50.27 Hz -- 40 ms

Trip Value : 50.02 Hz -- 40 ms

Step Result : PASS

Min Frequency

Limit Value : 49.73 Hz -- 40 ms

Trip Value : 49.98 Hz -- 40 ms

Step Result : PASS

There are 3 different modes of operation.

7.1 Normal mode

In this mode, Inverter works normally. Whenever the supplied power from PV panel is sufficient (voltage>150VDC), Inverter converts power to the grid as generated by the PV panel. If the power is insufficient(voltage<120VDC) , Inverter enters a "waiting" state. Whilst "waiting" Inverter uses just enough power from the PV panel monitor internal system status. In normal mode the LED is green.

7.2 Fault mode

The internal intelligent controller can continuously monitor and adjust the system status. If Inverter finds any unexpected conditions such as grid problems or internal failure, it will display the information on its LCD and the LED will be red.

7.3 Shutdown mode

During periods of little or no sunlight, Inverter automatically stops running. In this mode, Inverter does not take any power from the grid. The display and LED's on the front panel do not work.

Notes :
Operating inverter is quite easy. During normal operation, Inverter runs automatically. However, to achieve maximum conversion efficiency of Inverter, please read the following information:

Automatic ON-OFF: Inverter starts up automatically when DC-power from the PV panel is sufficient.

Once the PV-Inverter starts it enters one of the following 3 states:

1. Standby: The PV string can only provide just enough voltage to minimum requirements of the controller.
2. Waiting: When the PV string DC voltage is greater than 100V, Inverter enters "waiting" state and attempts to connect to the grid.
3. Normal operation: When PV string DC voltage is greater than 150V, Inverter operates in the normal state.

Inverter is designed to be user-friendly; therefore, the status of the Inverter can be easily understood by reading the information shown on the front panel display. All possible messages are shown in the following table.

system fault	
DISPLAY	OPERATION
Auto Test Failed	Auto Test do not pass
No AC Connection	No Utility, No Grid Connect
PV Isolation Low	Insulation Problem
Output High DCI	Output Current DC Offset too high
PV Voltage High	PV panel Voltage too high
AC V Outrange	Grid Voltage out of range
AC F Outrange	Grid Frequency out of range

Inverter fault	
DISPLAY	OPERATION
Error: 100	2.5V Reference Voltage Fault
Error: 101	Communication Fault
Error: 102	Consistent Fault
Error: 116	EEPROM Fault
Error: 117	Relay Fault
Error: 118	Init Model Fault
Error: 120	HCT Fault
Error: 121	Auto Test Fail
Error: 122	Communication Fault
Error: 123	Bus Voltage Fault

9.1 Communications software instructions

ShineNET is a PC software that communicate with Shine Inverter to analyze the inverter working state. It is convenient for you to know the inverter real time working state and the history work information.

Spec:

- A** Communicate with inverter by RS232 and Bluetooth.
- B** Construct net with inverter , GRO monitor and Shine NET by RS232, Bluetooth and Internet.
- C** Two Interfaces: Multi Inverter Interface and Wave Data Interface.
- D** In Multi Inverter Interface: See at most 4 inverters working data at the same time, you can select your own compare inverters and parameters.
- E** In Wave Data Interface: Query the inverter real time and history power wave , work data and error information.
- F** Multi languages: English, French, German, Spanish and etc.
- G** Support OS: Win XP / Vista/win 7/2000/2003.

9.2 Monitor

After setting the software the user can monitoring the inverter. The right side of the main interface is the detailed information of inverter.

9.3 Detailed information

Detailed setting method and other functions refer to "Shine NET Manual." in the CD.

10 TROUBLE SHOOTING

In most situations, the Inverter requires very little service. However, if Inverter is not able to work perfectly, please refer to the following instructions before calling your local dealer.

Should any problems arise, the LED on the front panel will be red and the LCD displays the relevant information. Please refer to the following table for a list of potential problems and their solutions.

11 SYSTEM FAULT

Ground Fault

1. The ground current is too high.
2. Unplug the inputs from the PV generator and check the peripheral AC system.
3. After the cause is cleared, re-plug the PV panel and check PV-Inverter status.
4. If the problem persists please call service.

Isolation Fault

1. Check the impedance is between PV (+) & PV (-) and the PV-Inverter is earthed.
The impedance must be greater than 8M.
2. If the problem persists please call service.

No Utility

1. Grid is not connected.
2. Check grid connection cables.
3. Check grid usability.

INVERTER FAILURE 12

PV Over Voltage

1. Check the open PV voltage, see if it is greater than or too close to 600VDC.
2. If PV voltage is less than 600VDC, and the problem still occurs, please call local service.

Consistent Fault

1. Disconnect PV (+) or PV (-) from the input, restart the PV-Inverter.
2. If it does not work, call service.
 - > If there is no display on the panel, please check PV-input connections. If the voltage is higher than 150V, call your local service.
 - > During periods of little or no sunlight, the PV-Inverter may continuously start up and shut down. This is due to insufficient power generated to operate the control circuits

SPECIFICATIONS 13

	3600MTL	4200MTL	5000MTL
Input Data			
Max. DC power	3800W	4400W	5200W
Max. DC voltage	600V	600V	600V
PV voltage range MPPT	120V-550V	120V-550V	120V-550V
Full load voltage	250V-540V	250V-540V	250V-540V
Initial feeding voltage	150V	150V	150V
Max. number of parallel strings	2/2	2/2	2/2
Number of MPP trackers	2(can parallel)	2(can parallel)	2(can parallel)
Max. input current of the MPP tracker	10A/10A	15A/15A	15A/15A

	3600MTL	4200MTL	5000MTL
Output Data			
Nominal AC power	3600W	4200W	4600W/5000W *
Nominal output current	15.6A	18.5A	20A
Max. output current	18A	21A	25A
AC voltage range	220V / 230V / 240V 180V - 280V	220V / 230V / 240V 180V - 280V	220V / 230V / 240V 180V - 280V
AC grid frequency range	50Hz,60Hz/±5Hz	50Hz,60Hz/±5Hz	50Hz,60Hz/±5Hz
Phase shift (cos φ) at full load	1	1	
THDI at full load	<3%	<3%	<3%
AC connection	Single phase	Single phase	Single phase

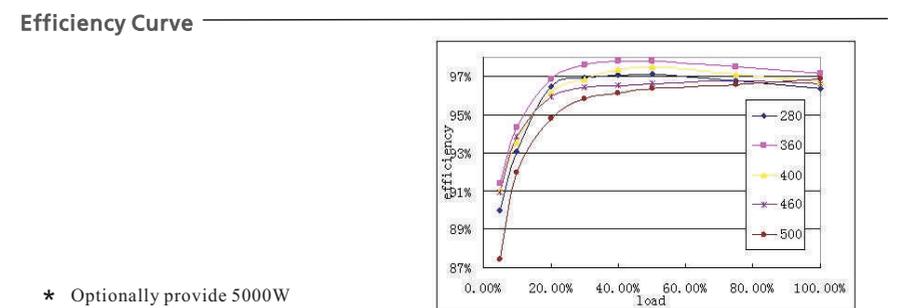
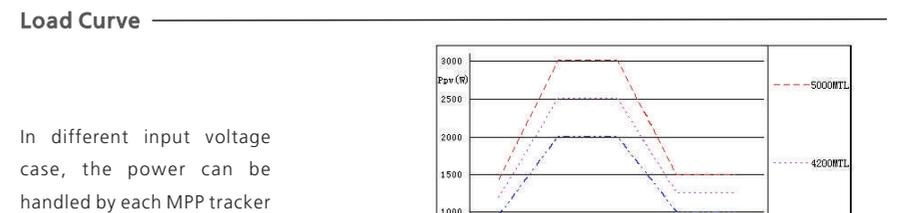
Efficiency			
Max . efficiency	97.6%	97.9%	97.9%
Euro-eta	97%	97.4%	97.4%
MPPT efficiency	99.5%	99.5%	99.5%

Protection Devices			
DC reverse polarity protection	yes	yes	yes
AC short-circuit protection	yes	yes	yes
Ground fault monitoring	yes	yes	yes
Grid monitoring	yes	yes	yes
Integrated all-pole sensitive leakage current monitoring unit	yes	yes	yes

General Data			
Dimensions (W / D / H) in mm	360/510/188	360/510/188	360/510/188
Weight	24 KG	24 KG	24 KG
Operating ambient temperature range	-25°C...+60°C	-25°C...+60°C	-25°C...+60°C
Continuous full output power temperature range	-25°C...+50°C	-25°C...+50°C	-25°C...+50°C
Protection degree	IP 65	IP 65	IP 65
Outdoor/Indoor	yes / yes	yes / yes	yes / yes
Noise emission (typical)	≤ 25 dB(A)	≤ 25 dB(A)	≤ 25 dB(A)

	3600MTL	4200MTL	5000MTL
General Data			
Consumption: operating (standby) / night	<5W / < 0.5 W	<5W / < 0.5 W	<5W / < 0.5 W
Topology	transformerless	transformerless	transformerless
Overvoltage category	III	III	III
Cooling concept	No fan	No fan	No fan
Altitude XX	Up to 2000m without power derating	Up to 2000m without power derating	Up to 2000m without power derating
Humidity XX	0 - 95%, no condensation	0 - 95%, no condensation	0 - 95%, no condensation

Features			
DC connection: MC3/MC4/H4	opt / opt / yes	opt / opt / yes	opt / opt / yes
LCD displqy	yes	yes	yes
Interfaces: Bluetooth/RS485/RS232	opt / opt / yes	opt / opt / yes	opt / opt / yes
Warranty:5years/10years	yes / opt	yes / opt	yes / opt



14 Growatt Factory warranty

This certificate represents a 5 year warranty for the Growatt inverter products listed below. Possession of this certificate validates a standard factory warranty of 5 years from the date of purchase.

Warranted products

This warranty is applicable solely to the following products:

Growatt 1500, Growatt 2000, Growatt 3000, Growatt 4000, Growatt 5000, Sungold 1500, Sungold 2000, Sungold 5000, Growatt 3600MTL, Growatt 4200MTL, Growatt 5000MTL.

Limited Product Warranty

(Applicable under normal application, installation, use and service conditions)

Growatt warrants the above listed products to be free from defects and/or failure specified for a period not exceeding five (5) years from the date of sale as shown in the Proof of Purchase to the Original purchaser.

The warranties described in these "Limited Warranties " are exclusive and are expressly in lieu of and exclude all other warranties, whether written, oral, express or implied, including but not limited to, warranties of merchantability and of fitness for a particular purpose, use ,or application, and all other obligations or liabilities on the part of GROWATT , unless such other obligations or liabilities are expressly agreed to it in writing signed and approved by GROWATT , GROWATT shall have no responsibility or liability whatsoever for damage or injury to persons or property, or for other loss or injury resulting from any cause whatsoever arising out of or related to the modules, including, without limitation, any defects in the modules or from use or installation. Under no circumstances shall GROWATT be liable for incidental , consequential or special damages howsoever caused; loss of use, loss of production, loss of revenues are therefore specifically and without limitation excluded to the extent legally permissible, GROWATT 's aggregate liability, if any, in damages or otherwise, shall not exceed the invoice as paid by the customer.

The "Limited Product Warranties" described above shall not apply to, and Growatt shall have no obligation of and kind whatsoever with respect to, any inverter which has been subjected to:

- Misuse, abuse, neglect or accident;
- Alteration, improper installation or application;
- Unauthorised modification or attempted repairs;
- Insufficient ventilation of the product;
- Transport damage;
- Breaking of the original manufacturers seal;
- Non-observance of Growatt installation and maintenance instruction;
- Failure to observe the applicable safety regulations
- Power failure surges, lighting, flood, fire, exposure to incorrect use, negligence, accident, force majeure, explosion, terrorist act, vandalism or damage caused by incorrect installation, modification or extreme weather conditions or other circumstances not reasonably attributable to Growatt.

The warranty shall also cease to apply if the product cannot be correctly identified as the product of Growatt. Warranty claims will not be honored if the type of serial number on the inverters have been altered, removed or rendered illegible.

Liability

The liability of Growatt in respect of any defects in its PV inverters shall be limited to compliance with the obligations as stated in these terms and conditions of warranty. Maximum liability shall be limited to the sale price of the product. Growatt shall accept no liability for loss of profit, resultant of indirect damage, any loss of electrical power and / or compensation of energy suppliers within the express meaning of that term.

The warranty rights as meant herein are not transferable or assignable to any third party excepting the named warranty holder.

15 Warranty conditions

If a device becomes defective during the agreed Growatt factory warranty period and provided that it will not be impossible or unreasonable, the device will be, as selected by Growatt,

1. Shipped to a Growatt service center for repair, or
2. repaired on-site, or
3. exchanged for a replacement device of equivalent value according to model and age.

The warranty shall not cover transportation costs in connection with the return of defective modules. The cost of the installation or reinstallation of the modules shall also be expressly excluded as are all other related logistical and process costs incurred by all parties in relation to this warranty claim.

Contact 16

If you have technical problems concerning our products, contact your installer or Growatt. During inquiring, please provide below information:

1. Inverter type
2. Modules information
3. Communication method
4. Serial number of Inverters
5. Error code of Inverters
6. Display of inverters