



Online Smart Service (OSS) System Introduction



SHENZHEN GROWATT NEW ENERGY
TECHNOLOGY CO.,LTD

GROWATT

A sunset over a mountain range with a white text box containing the text "Dedicated to Becoming a Global Leader of Smart Energy Solutions". The background shows a gradient from dark blue to orange, with the sun low on the horizon over a range of dark mountains.

**Dedicated to Becoming a Global Leader
of Smart Energy Solutions**



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- 02 The Importance of Smart System
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- 04 OSS System-----the core of the intelligent solution
- 05 The Usage of OSS System
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01

Challenges of Modern PV Plants



Systematic Management

The number of plants, users and devices is huge,
how to manage the system is a big problem



So many plants!
So many users!
So many devices!

How to manage?
How to service?
How to find?

Data Collection and Analysis

Modern plants need to be frequently dispatched and controlled according to the situation, so it must be supported by comprehensive information and multi-angle analysis



Complex plant data require a long time to sort out and analyze

High Inspection and Maintenance Costs

The large and scattered plants require a lot of manpower for regular maintenance, the cost is also a large number



Emergency Service

Many modern power plants have complex environments, sometimes the problem happened very quickly, it's too late when the user find the problem and call the services



We're sorry the number you have reached is not in service at this time



Not to mention, sometimes there is no people answer the phone!

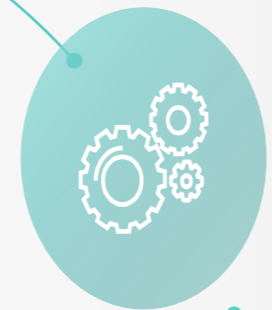
02

The Importance of Smart System



The Importance of Smart System

Nowadays, the PV system is not only a power generation system, but also an intelligent energy system, in order to achieve remote monitoring, operation and maintenance, a smart system is necessary.



Detailed data

The more you know about your plant, the better you can do the operation



Advanced remote setting

The more you can set remotely, the easier and quicker you can operate the plant, also you can save the cost of people for on-site operation.

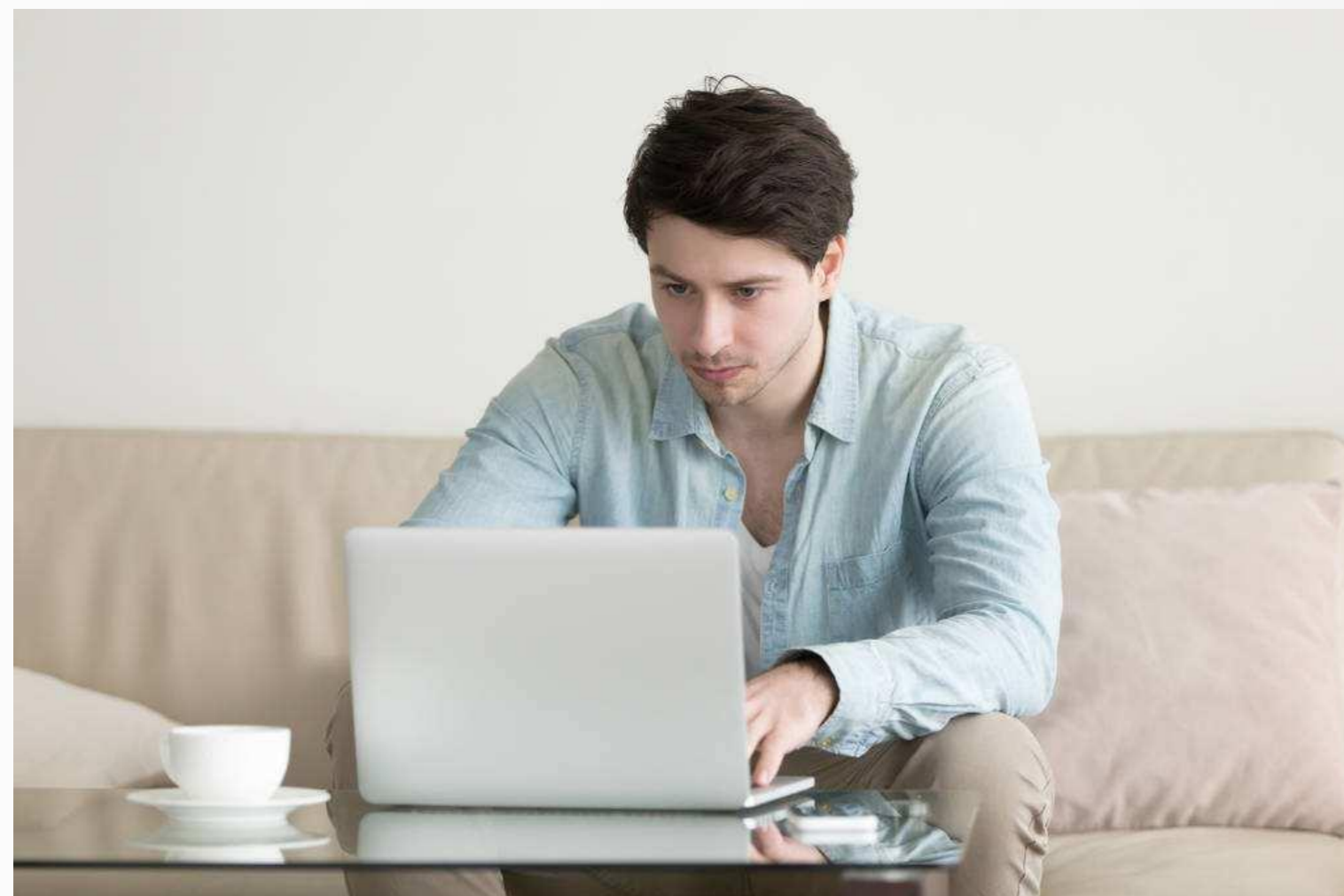


Full around diagnosis

The quick & full around plant diagnosis can help you locate the problem and find the solution immediately, which can keep the plant working stably in long term.

The Importance of Smart System

Due to COVID-19, many people cannot go to work, in this special time, it is important for the plant operators to own a smart system, which help them maintain the stability of plant



03

Growatt Intelligent Solutions



Growatt Intelligent Solution

Monitoring Devices

Monitoring Platform



ShineLink /-X



ShineWiFi/GPRS/
4G (-S/-X/-F)



ShineLan-X



Smart Energy Manager



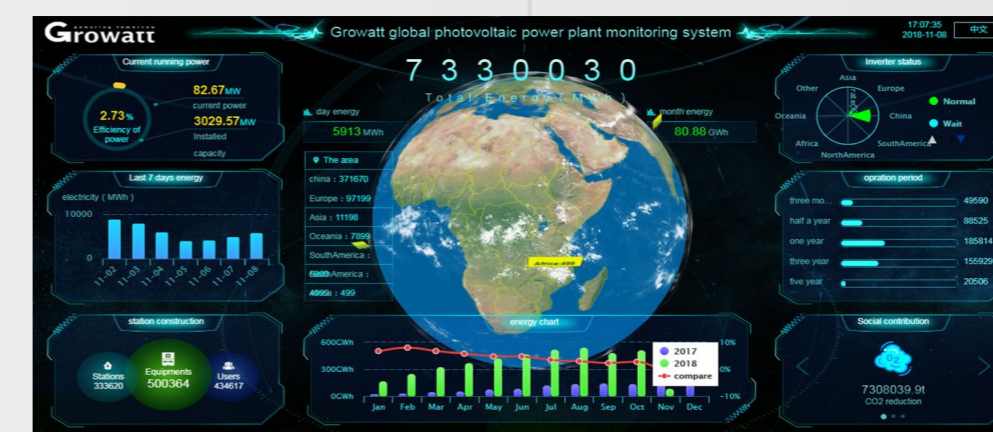
ShineMaster /-4G



ShinePhone APP



ShineServer system



OSS

Data Security

Growatt always pays great attention to data security,

Database is in European Union, located in **Frankfurt , Germany**

Comply with GDPR

Growatt monitoring platform complies with GDPR with SGS guidance.

Secure communication

Encrypted transfer of data to the solar portal
Data encryption in line with SSL and AES standard



General Data Protection Regulation (GDPR)

04


OSS System – the Core of Intelligent Solution



Advantages of OSS


 **Detail information**
Detail statistics and analysis

 **Free**
Free for all Growatt distributors and installers

 **Easy management**
Different level and different way to manage all your devices and customers



 **Easy control**
Remote parameter setting and firmware update

 **24*7**
Keep scanning and always have engineers for service

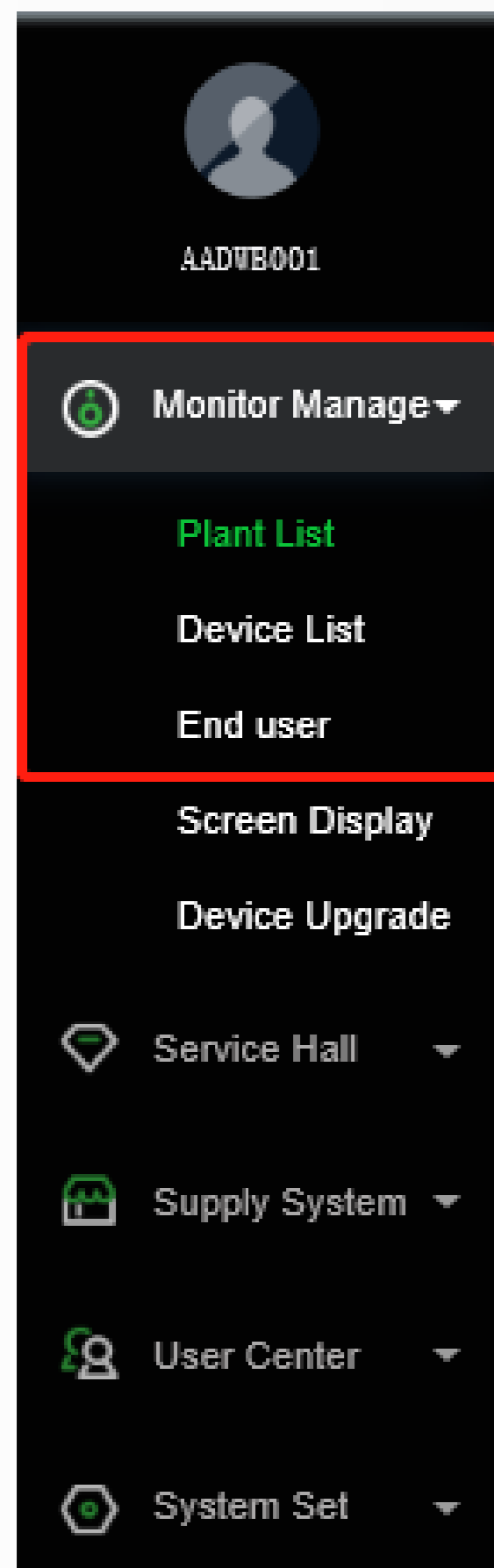
05

The Usage of OSS System











Diverse Management Methods

 Distributor/installer can check their devices by plant, device & end user;



Plant Management List Online: 1103 abnormal: 6 Offline: 2019 Total 3128 + Add plants in batches Download list(3) Plant groups manage Export List Parameter display (6/17)

Add plant PlantType Plant name/user name Please choose the city Search Advanced screening

<input type="checkbox"/>	No.	Status	Plant name	User name	City	Plant revenue	Number of device	Generation today	Full hours	Operating tools
<input type="checkbox"/>	1	Online	NAC08190E5			882.4	1	0.2kWh	0	   
<input type="checkbox"/>	2	Online	AEA374408C			5988.6	2	0kWh	0	   

Comprehensive information

Including basic information, status, generation, etc..

Easy search

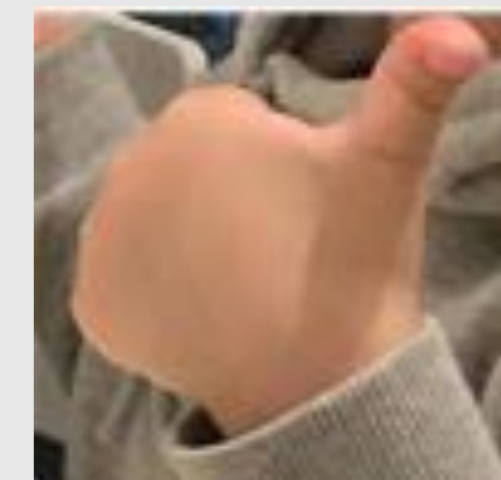
Fuzzy search function, using any information can help you find what you want

Manage in group

Set in groups, batch management

More direct setup and management

Directly set the parameters, information and account



➤ System User Manage

💡 The system may be used by many people, to manage the people who use OSS, administrator can create sub-accounts with different permissions

- AADWB001
- Monitor Manage
- Service Hall
- Supply System
- User Center
- User Manage
- User Information
- System Set

User list User center > User list Account number (Job) Distributor All states Name Search

User Management List Authority manage + New user

No.	Account	User type	Real name	Nickname	Last login time	Permission type	Status	Operating tools
1	AADWB004	Distributor(Staff)	[blurred]	Staff Growatt	2020-04-09 15:39:19	view	Normal	[edit] [delete]
2	AADWB003	Distributor(Staff)	[blurred]		2019-02-07 19:58:51	View account	Disabled	[edit] [delete]

Change the permission type

Permission type: view

- No permission
- View account
- Limited
- view

Confirm
Cancel

➤ Associated Installer

💡 Installer account can be associated with distributor and managed by distributor when installer agreed, the functions of installer account is nearly same as distributor account.

Navigation sidebar showing the following items:

- Monitor Manage
- Service Hall
- Supply System
- User Center
- System Set** (expanded)
 - Installers List** (highlighted)
 - Plant Display Set
 - User research

Installers list System Set > Installers list

Installer code Alias Company name select country Search Export

Installers List

Installer Management List [+ Add installer](#)

<input type="checkbox"/>	No.	Installer code	Alias	Company name	Phone number	E-mail	Country	Number of device	Operating tools
<input type="checkbox"/>	1	APEX3	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Italy	2388	[Icons]
<input type="checkbox"/>	2	ADDGE	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	Italy	103	[Icons]

➤ End User Management

💡 Distributor & installer can manage the end user directly, you can help the customer to create plant and also help the customer to change the password directly when they forget.

AADUF001

- Monitor Manage
- Plant List
- Device List
- End user**
- Screen Display
- Device Upgrade
- Service Hall
- Supply System
- User Center
- System Set

Dialog box titled "Edit()" with fields for:

- Alias
- Name
- E-mail
- Company name
- Language (中文)
- Phone number
- User Token

Options at the bottom:

- Whether to reset the password
- Send new password to customer's email

Buttons: Confirm, Cancel

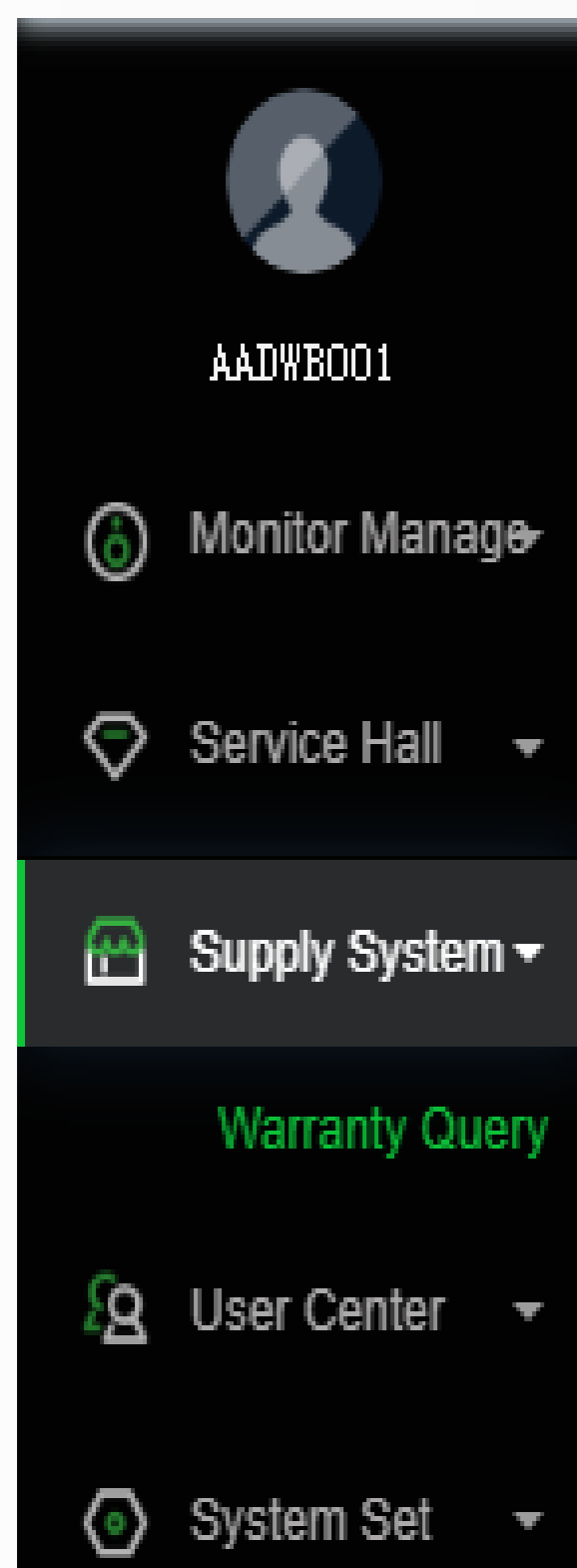
Dialog box titled "Add plant" with fields for:

- Plant name
- Capital revenue (EUR(€) 0)
- Alias
- Saving standard coal... (0)
- Installation date
- CO2 less emission (0)
- PV capacity(kWp)
- SO2 less emission (0)
- PlantType (Residential Plant)
- Country (Netherlands)
- City (Nistelrode)
- Time zone (GMT +1)
- Latitude
- Longitude
- Plant picture

Buttons: Confirm, Cancel

➤ Warranty Management

💡 All the products will be automatically recorded in OSS system, including the warranty information, you can easily query the devices warranty by simple searching



Warranty query Supply system >Warranty query

Serial number Order number Customer name Warranty duration Device model Delivery time Expire date Remarks [Search](#)

[Export](#)

Warranty query [↔](#) Parameter display (10/10) [v](#)

<input type="checkbox"/>	No.	Order number	Customer name	Model	Serial number	Check code	Delivery time	telecommunication data time limit	Warranty duration	Expire date	Remarks
<input type="checkbox"/>	1	GNL0137C211	SOLAR NRG	ShineLan	YUZ0635211	5DE42	2017-03-31		1Year ⓘ	2018-03-31	
<input type="checkbox"/>	2	GNL135E121	SOLAR NRG	Growatt 3000MTL	CS25150128		2015-05-19		10Year ⓘ	2025-05-19	
<input type="checkbox"/>	3	GNL135E121	SOLAR NRG	Growatt 3000MTL	CS25150119		2015-05-19		10Year ⓘ	2025-05-19	
<input type="checkbox"/>	4	GNL135E121	SOLAR NRG	Growatt 3000MTL	CS25150117		2015-05-19		10Year ⓘ	2025-05-19	

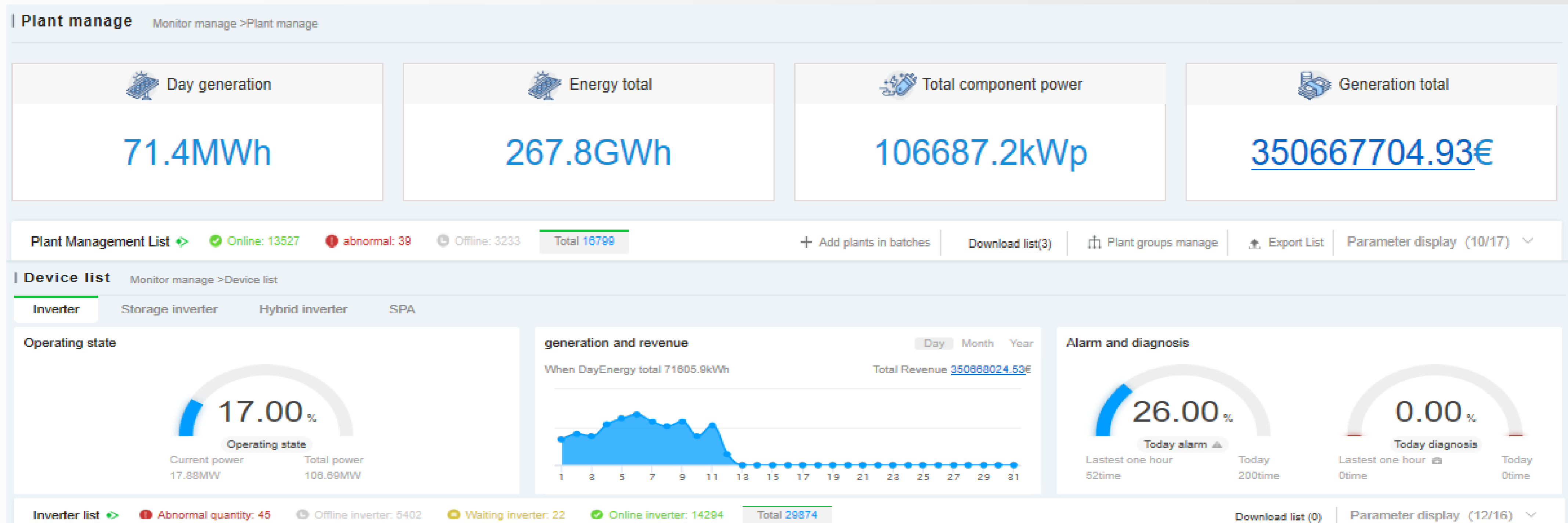


Have a drink and relax~
Everything is under control!

➤ Statistics and Analysis of Total Data

💡 Dynamic statistical power generation, revenue

💡 Dynamic analysis all devices status



➤ Statistics for Single Plant

💡 Plant basic information & Location maps

Plant details
+ Add device

Plant At a Glance

Status

•Online

Number of device

14station

PlantType

Ground-mounted plants

Power

1000KWP

Total component power

Generation

293.1kWh

Generation today

Revenue

21208.7

Total

[More plant information ↗](#)

User info
Edit

Account name	<input type="text"/>	<input type="button" value="User resets password"/>	<input type="text"/>	Name	Company
E-mail	<input type="text"/>	Phone/Mobile	<input type="text"/>	Language	English
Time zone		GMT 2			

Installation Information
Panel management

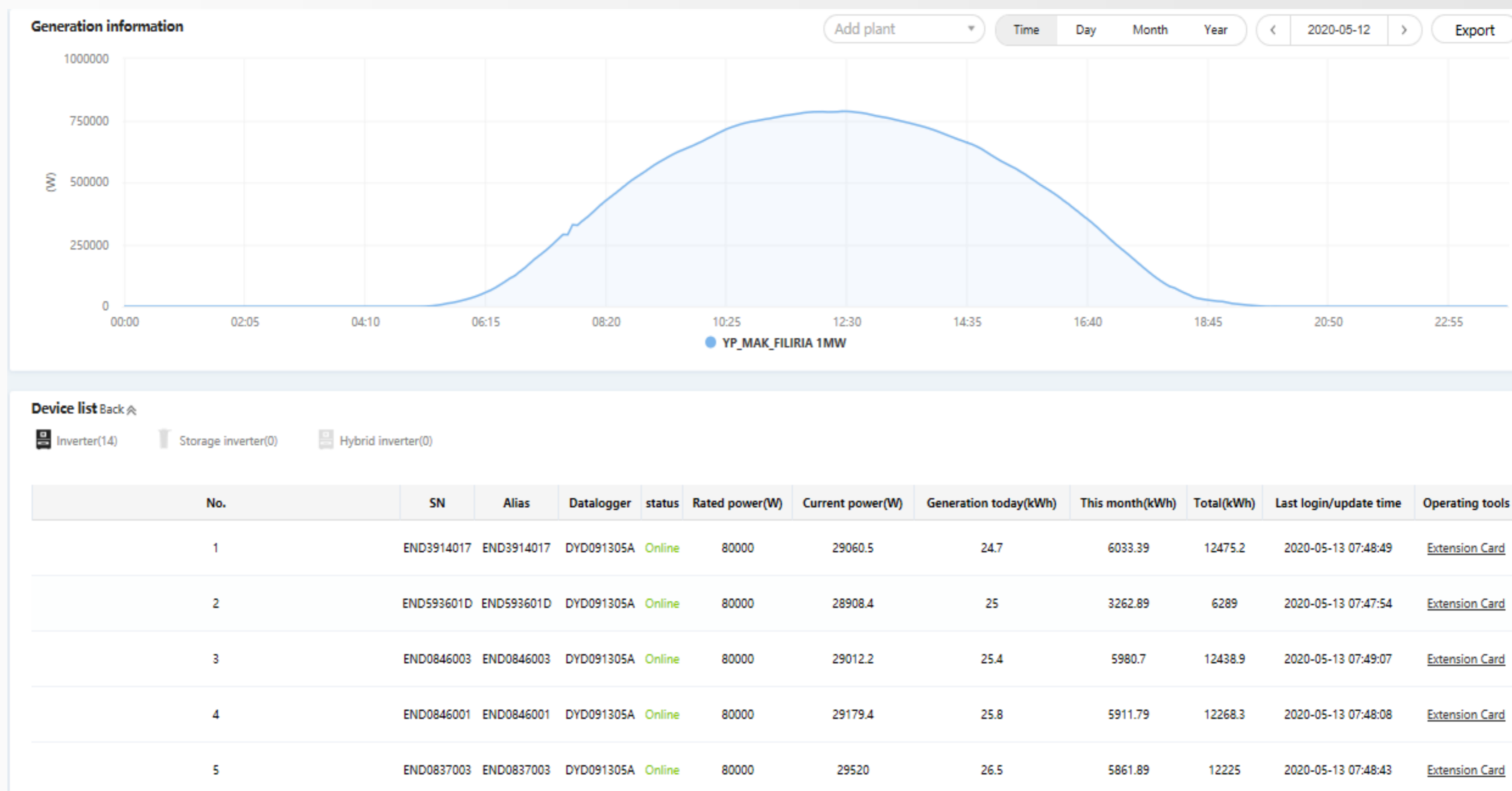
Plant name	<input type="text"/>	Owner's phone	<input type="text"/>	Alias	<input type="text"/>	Installation date	2020-04-14
Total component power (kWp)	1000	Installer		PlantType	Ground-mounted plants	Capital revenue	0.0
Saving standard coal(kg)	0.0	CO2 less emission	0.0	SO2 less emission	0.0	Number of panels	0
Distributor	null	Installer	null	Voltage level	nullIV	Panel model and quantity:	
Bracket type:		Plant orientation, inclination: 0kW, Azimuth0, inclination0: 0kW, Azimuth0, inclination0:0kW, Azimuth0, inclination0:0kW, Azimuth0, inclination0:					

Geographic information

Country	Greece	City	Central Macedonia	Time zone	2	Latitude	
Longitude		Plant picture					

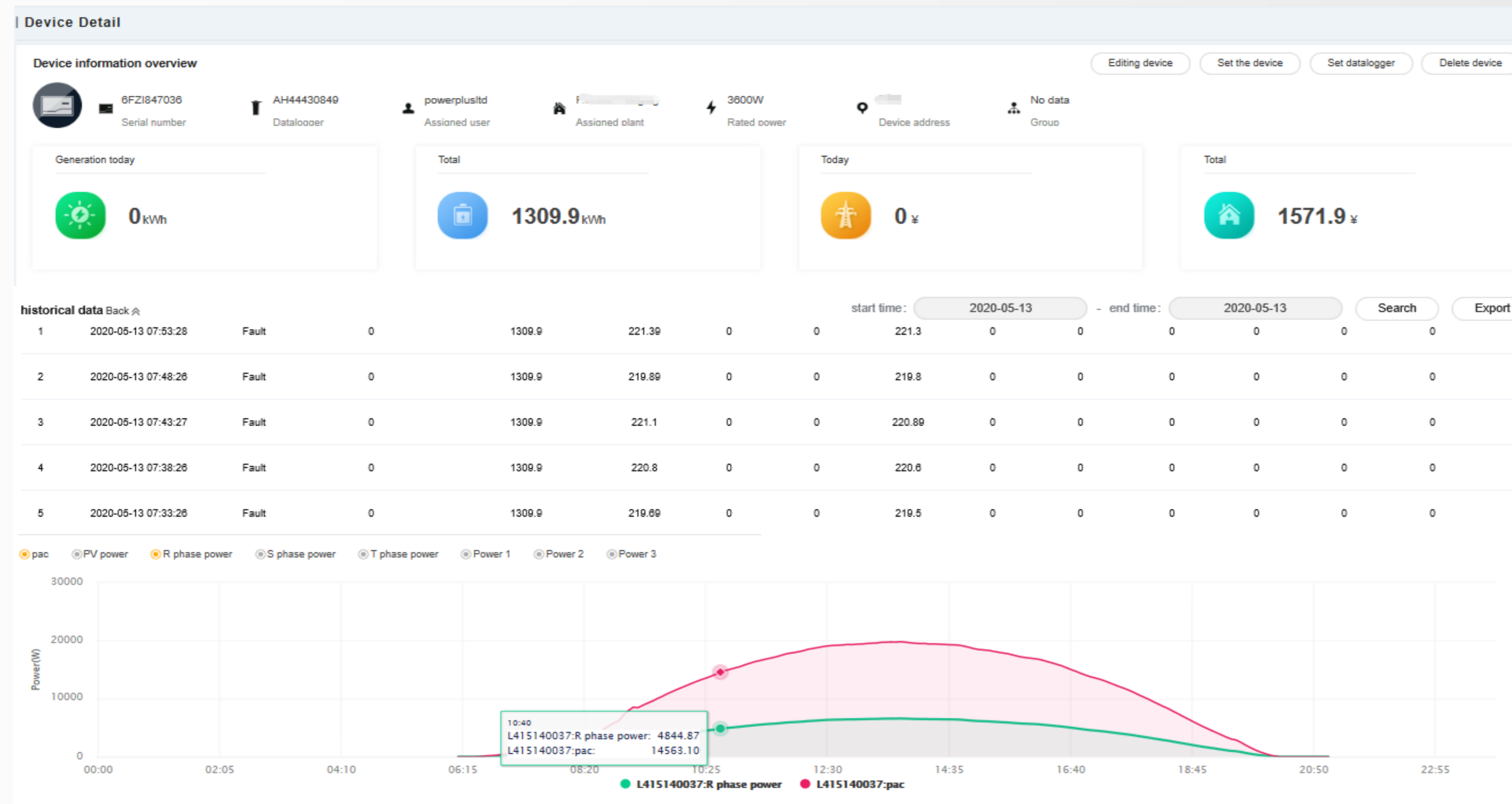
➤ Statistics for Single Plant

💡 Plant generation graph & devices information



➤ Statistics for Single Device

💡 Device basic information, generation, revenue, historical data(every 5 mins) and generation graph



➤ Statistics for Single User

💡 User information, included plants, browsing user

User information overview

Real name

Alias

Phone number

E-mail

2015-10-21 22:32:30

Registration time

Add plant

Existing plant (15) Select or search for power plant:

Nunnikhoven

Generation today: 1.4kWh Total: 312710.4kWh Alias: Nunnikhoven

Number of device: 1station PV capacity: 5.88kWp City: Loosdrecht

Site time: 2015-10-21 Installer: No data Time zone: GMT+2

Weerdenburg

Generation today: 1kWh Total: 287545kWh Alias: Weerdenburg

Number of device: 1station PV capacity: 4.24kWp City: Wamel

Site time: 2015-11-04 Installer: No data Time zone: GMT+2

load more

Existing browsing users (14) [Back](#)

No.	Status	Username	Nickname	E-mail	Company name	Contact number	Registration time	Last login/update time
0	Normal		Nunnikhoven		--		2015-10-22 16:24:09	2016-12-01 16:51:04
1	Normal		Bart Weerdenburg		--	--	2015-11-04 19:40:42	2020-05-08 00:40:14
2	Normal		--		--	--	2015-11-24 15:26:29	2020-05-07 15:53:24

➤ Export Excel for Analysis

💡 In the plant list, device list and end user list you can export the total information in Excel which is more easier for you to do analysis. Also when you enter into the single plant, device or user page you can also download the data in Excel of it.

Never need to calculate by myself !



deviceSn	alias	model	plantName	userAccountName	city	datalogSn	nominalPower	TotalEquivalentGe
QNB28250A0	QNB28250A0	Growatt 1000-S				JPC283918D	1010	215.34653
3FZI910011	3FZI910011	5500MTL-S				JPC5947394	5000	149.7
QMB29030C1	QMB29030C1	Growatt 1500-S				NAC08484AD	1650	428.36365
LOD0922005	LOD0922005	Growatt 2000-S				JPC493745A	2000	70.8
8KZ8652025	8KZ8652025	Growatt 1500-S				4K26212099	1650	2652.9092
QJB3922188	QJB3922188	Growatt 2000-S				NAC5919769	2000	11.5
LPD09240C2	LPD09240C2	Growatt 1000-S				JPC492261C	1000	6.8
6FZG828058	6FZG828058	3600MTL-S				JPC282530C	3600	1190.6389
BV31412280	BV31412280	Growatt 2000	Undefined plant	CBstuij		AH34916212	2020	6438.366
CT31511281	CT31511281	Growatt 4200MTL	Undefined plant	vanNunen		AH55370931	4220	6678.9336
CU31015615	CU31015615	Growatt 5000MTL	San Gakbu Xghajra	parishpv		E8Z3837055	3620	121920.445
BV14130054	BV14130054	Growatt 2000	janelly	janvansantvoort		AH04042298	2020	5251.5347
CI34430057	Holland, diemen	Growatt 3000MTL	Solar Data	mmourik		AH44370002	3000	4237.2334
CI35020025	CI35020025	Growatt 3000MTL	Stroom Dijk	Mdebraber		AH44431224	3000	5661.1
ZV15140080	ZV15140080	Growatt 1500S	LisztSolar68	cstadhouders		AH45160374	1650	3043.0303
CH34430019	CH34430019	Growatt 2500MTL				AH55321829	2500	4723.44
CI04070169	CI04070169	Growatt 3000MTL	Jansen - Hoogeveen	Fam.Jansen		0123456789	3000	6225.067
CI103500056	CI103500056	Growatt 5000MTL	Jansen - Hoogeveen	Fam.Jansen		0123456789	5020	1610.936

➤ Scanning all Devices 24/7

💡 The system will keep scanning all devices 24/7, once there is a problem the alarm will automatically be sent to customer, installer and distributor.

💡 It is so smart that the system will not only show you what happened, but also show you some advices to help you solve it.

Abnormal list [Back](#) Select time: 2020-05-13 - 2020-05-13

No.	Device SN	Name	Device type	Abnormal time	Assigned user	Malfunction description	Solution
1	7F16170...	7F16170018	Inverter	2020-05-13 05:58:42	Pier Luigi	IGBT drive fault	1: Restart inverter 2: If error mes...

Fault alarm detail and solutions

Company name	SOLARNRGTRADINGB.	Code	AADUF							
DeviceAlias	Serial Number	DeviceType	Date	EventID	Description					
6FZG827032	6FZG827032	inverter	2020-05-13	30	Grid voltage fault.Please refer to the local grid standard for more details of the grid frequency.					
6FZG827032	6FZG827032	inverter	2020-05-13	30	Grid voltage fault.Please refer to the local grid standard for more details of the grid frequency.					
6FZG827032	6FZG827032	inverter	2020-05-13	30	Grid voltage fault.Please refer to the local grid standard for more details of the grid frequency.					
6FZG827032	6FZG827032	inverter	2020-05-13	30	Grid voltage fault.Please refer to the local grid standard for more details of the grid frequency.					
6FZG827032	6FZG827032	inverter	2020-05-13	30	Grid voltage fault.Please refer to the local grid standard for more details of the grid frequency.					
6FZG827032	6FZG827032	inverter	2020-05-13	30	Grid voltage fault.Please refer to the local grid standard for more details of the grid frequency.					
6FZG827032	6FZG827032	inverter	2020-05-13	30	Grid voltage fault.Please refer to the local grid standard for more details of the grid frequency.					

Fault Log

Setting Dashboard Energy Log **Setting**

Current Location: Setting>Email Set

Account Manage Browse Account **Email Set** Download

No.	Email	Receiving Alarms	Receive Weekly Reports	Receive Monthly Reports	Storage Daily Report	Operating Tools
1	[Redacted]	✓	✓	×	×	🗑️

Setting email to receive alarm

Warning (40) 🔊

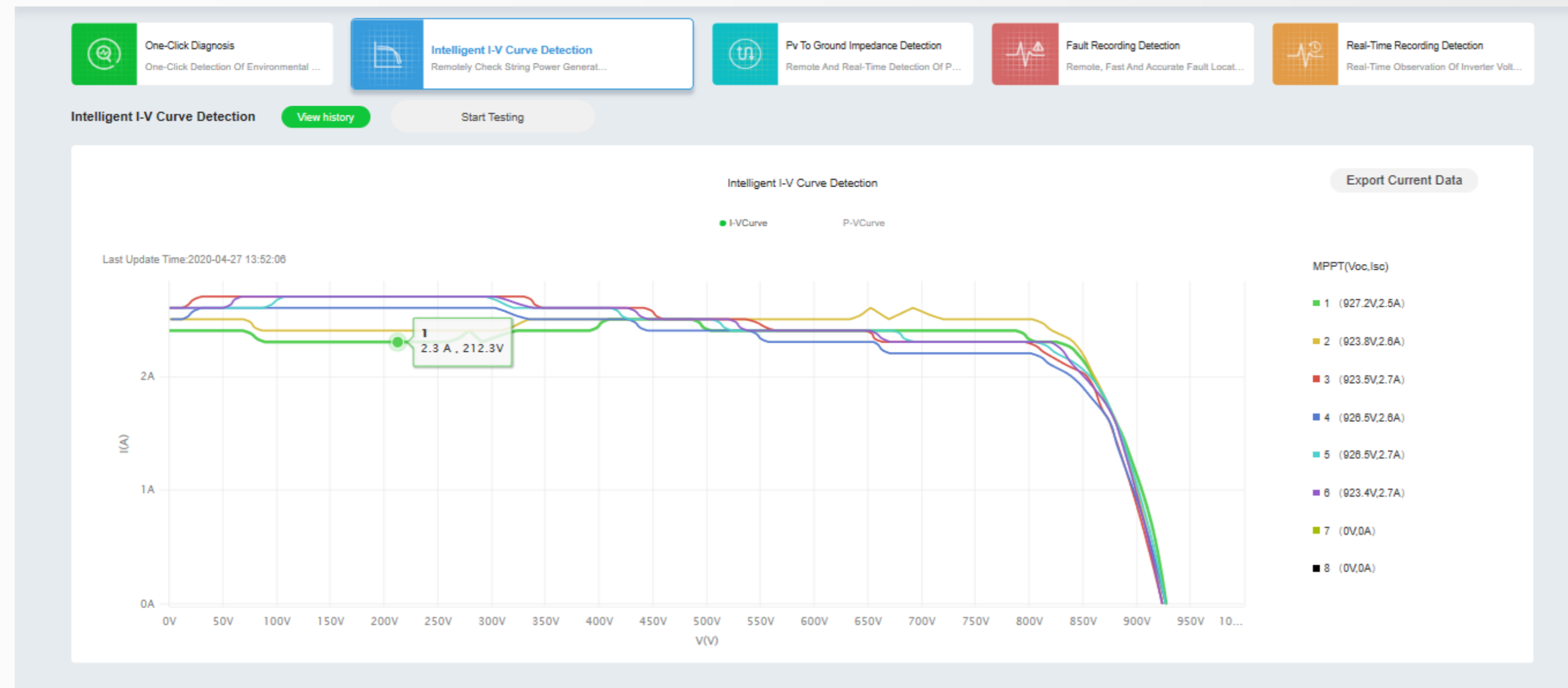
NDB581304B	2020-05-13 07:36:00	No utility.
1VZG82605F	2020-05-13 05:49:54	No utility.
1VZI849039	2020-05-13 09:57:45	No utility.
3F06110001	2020-05-13 05:47:44	No utility.

🔊 Realtime alarm nce too low.Mainly the (

Real time alarm in OSS main page

➤ Various Remote Diagnosis Methods

💡 For MAC, MAX series, you can use the diagnosis tool to do some test, it has many functions that can help you easily find what exactly happened!



YES!!
No need to hire people to inspect on sites!



➤ Different Level Access of Remote Setting

- 💡 In OSS system, you can remotely and directly set many parameters of inverters
- 💡 In addition, for the safety reason, professional engineers can through inverter register to set advanced parameters
- 💡 More than 60% problems can be solved by remote setting

Set datalogger

Datalogger

Serial number: AEA3739049 Alias: AEA3739049
 Last update: 2020-05-13 11:58:06 Firmware version: 1.0.7.9

Command

Set IP

Set the domain name

Set register value
 register:
 Value:

Upgrade datalogger Upgrade datalogger

Restart datalogger Restart datalogger

Clear datalogger record Clear datalogger record

Set datalogger

Set inverter

Inverter

Serial number: GYD1902017 Alias: GYD1902017
 Port: AEA373907D Attributes: CF0.0/dkaa0101/A0B0D1T0PFU1M3S1

Command

Set PV on/off Turn on

 OFF

Set whether save PF commands

Set active power rate 27.0 %

Set reactive power rate 255.0 % Over

Set PF value 1.0 (-0.8 - -1/0.8 - 1)

Set inverter time

Set gird voltage high 455.5

set gird voltege low 320.4

Set inverter

Register Value

Set Pv On/Off Read

Start Address

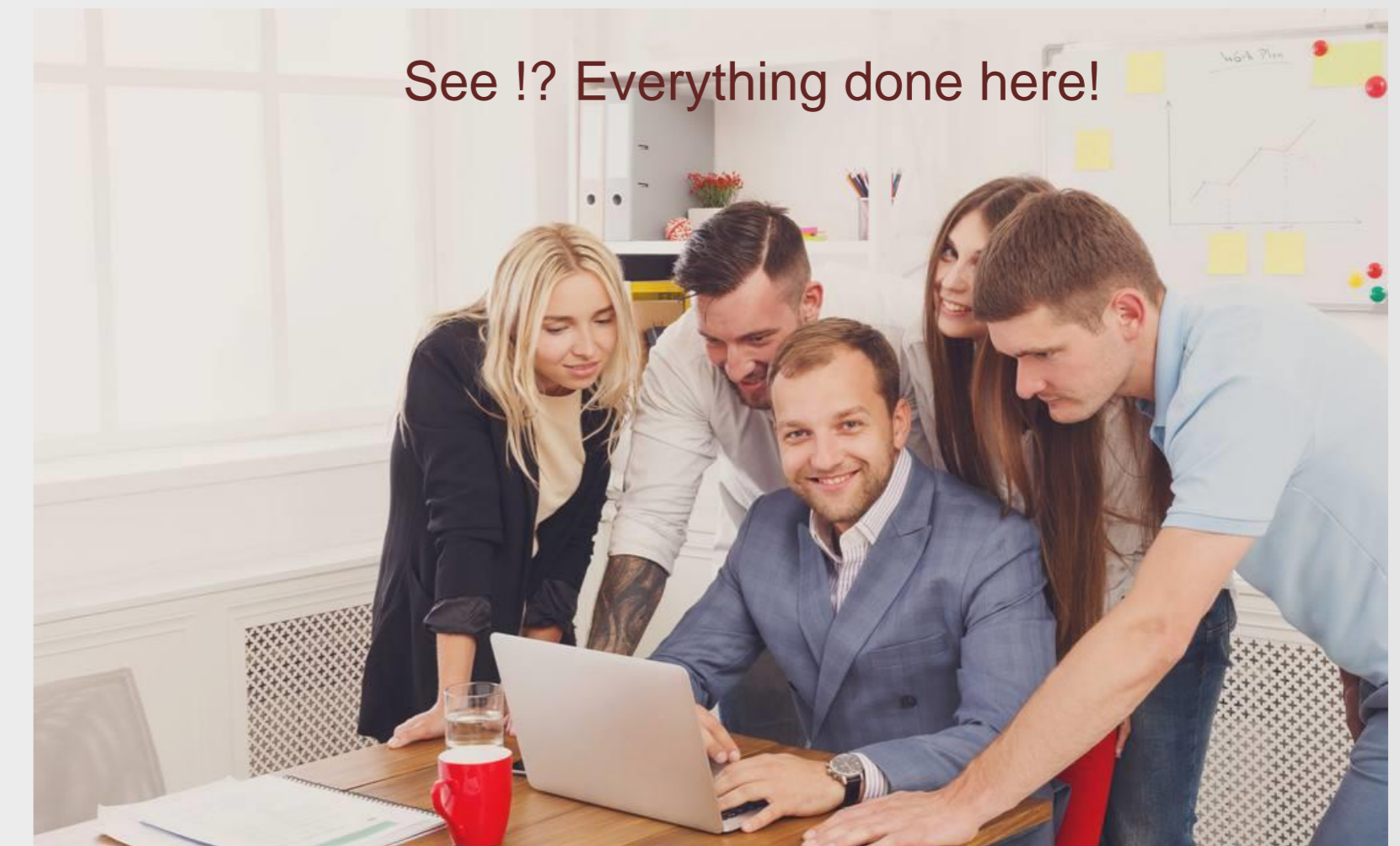
End Address Advanced Read

Please Enter Key To Save

Advanced setting

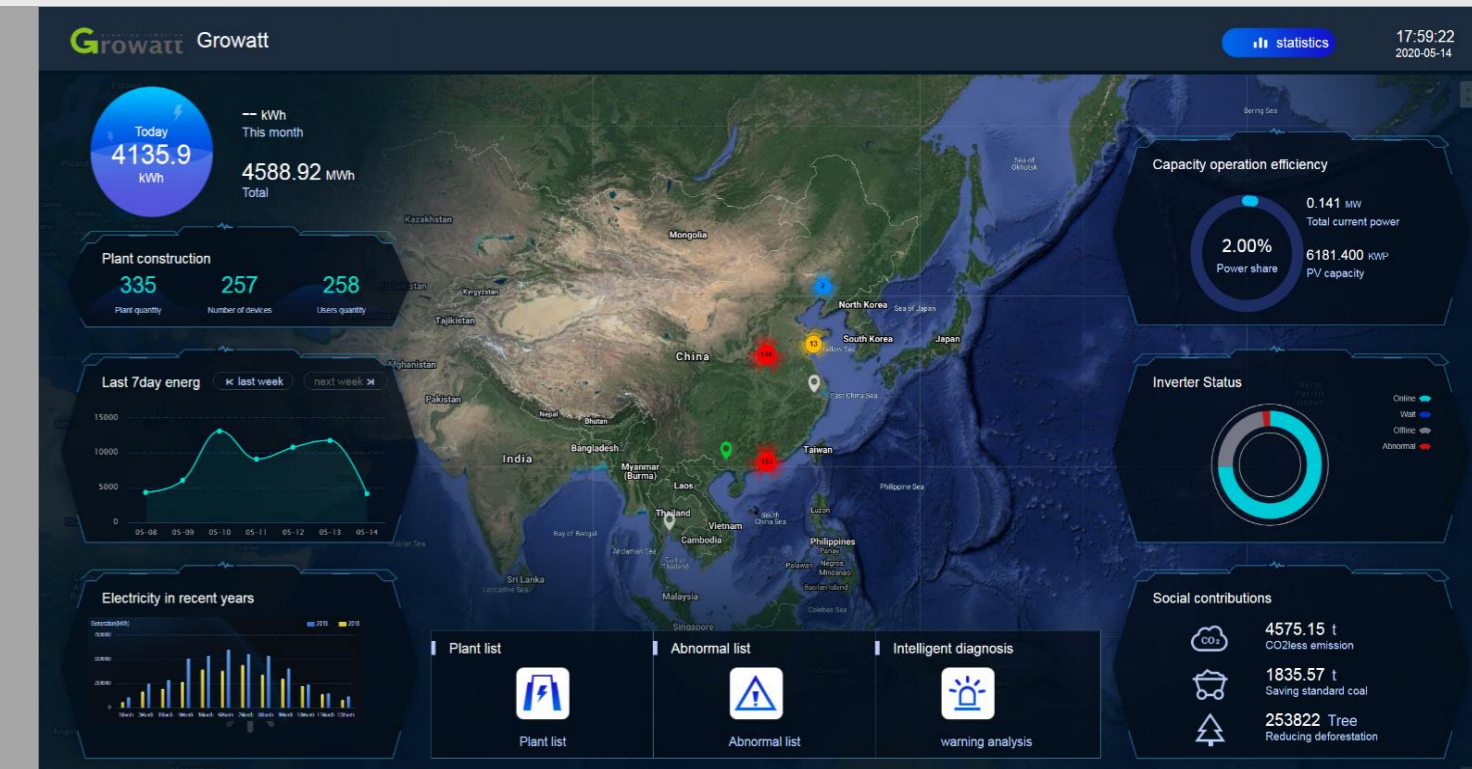
➤ All Series Quick and Remote Upgrade

💡 All Growatt inverters can be remotely upgraded in OSS, only 3 mins you can finish the upgrade
 Keep your inverter in the latest version and the best running state



06

Smart Service



➤ 24/7 Online Service

200+ service engineers, 14 countries, 4 continents

- 💡 Professional team with sufficient staff makes sure 24/7 online service
- 💡 With the help of our powerful system, our professional engineers all over the world can even find problems earlier than customers

Hello? I have problem!



Problem details Service hall > Question list > Problem details

Transfer
Set to resolved
Return

Error message	Bmswarning:08
Detailed description	I'm sorry but the inverter don't charge the batteri. Bms warning 08 and the red light in the battery is bright. What can i do? Ny mail is:
Report picture	Attachment:question/15874740135855890.jpg

Problem record Expand reply

高阳(GRT03586)

2020-04-24 18:36:27

dear

it is battery voltage low , need to charge , dont worry it .

i have checked your monitoning data , now system running without warning .

Attachment:

Reply to customer

🔗 🌐

Problem information

Status: Processed

add a person: Astolfi

Contact number:

add time: 2020-04-21 21:00:14

Numbering: 10699

Question type: Storage problem

Belongs to the area: Europe

Problem device:

Problem Notes:

Processing progress

- 21:00

2020/04/21

User submits the question
- 10:36

2020/04/22

Processing

➤ Warranty Claim

Online warranty claim

💡 Make application of warranty online, our engineer will arrange it within 3 days (3 days in the areas with local office, one week for other areas)

Warranty claim Service hall >Warranty claim

select country Coutry/Region start time - end time Search for order numb Search

Questions List ➤ ✔ Apply: 2 ❌ Send: 3 ♻️ Recycle: 4 ❌ Fault machines returned: 0 🕒 Complete: 0 Turn Down: 2 ✔ All: 0 + Add a warranty application

No.	Ticket number	Status	Problem area	Customer name	Contact details (Phone&Email)	Email	Fault machines returned	add a person	Application time	Processing time	Remarks	Operating tools
1	2005131553711	Apply	Netherlands				AADUF001		2020-05-13 15:53:02	2020-05-13 15:53:02	Error 120 HCT Fa...	
2	2005131537935	Apply	Netherlands				AADUF001		2020-05-13 15:37:24	2020-05-13 15:37:24	Bus overvoltage er...	
3	2005121649980	Send	Netherlands				AADUF001		2020-05-12 16:49:34	2020-05-13 01:22:13	No display No disp...	
4	2005121628304	Send	Netherlands				AADUF001		2020-05-12 16:28:35	2020-05-13 01:03:44	No display No disp...	

Add a warranty application Customer service system >Warranty claim >Add a warranty application

Basic information

*Customer type: Distributor
 *Contact name: Bart
 Contact number: 1234567890
 Installer company name:
 Contact email:
 *Country: Netherlands

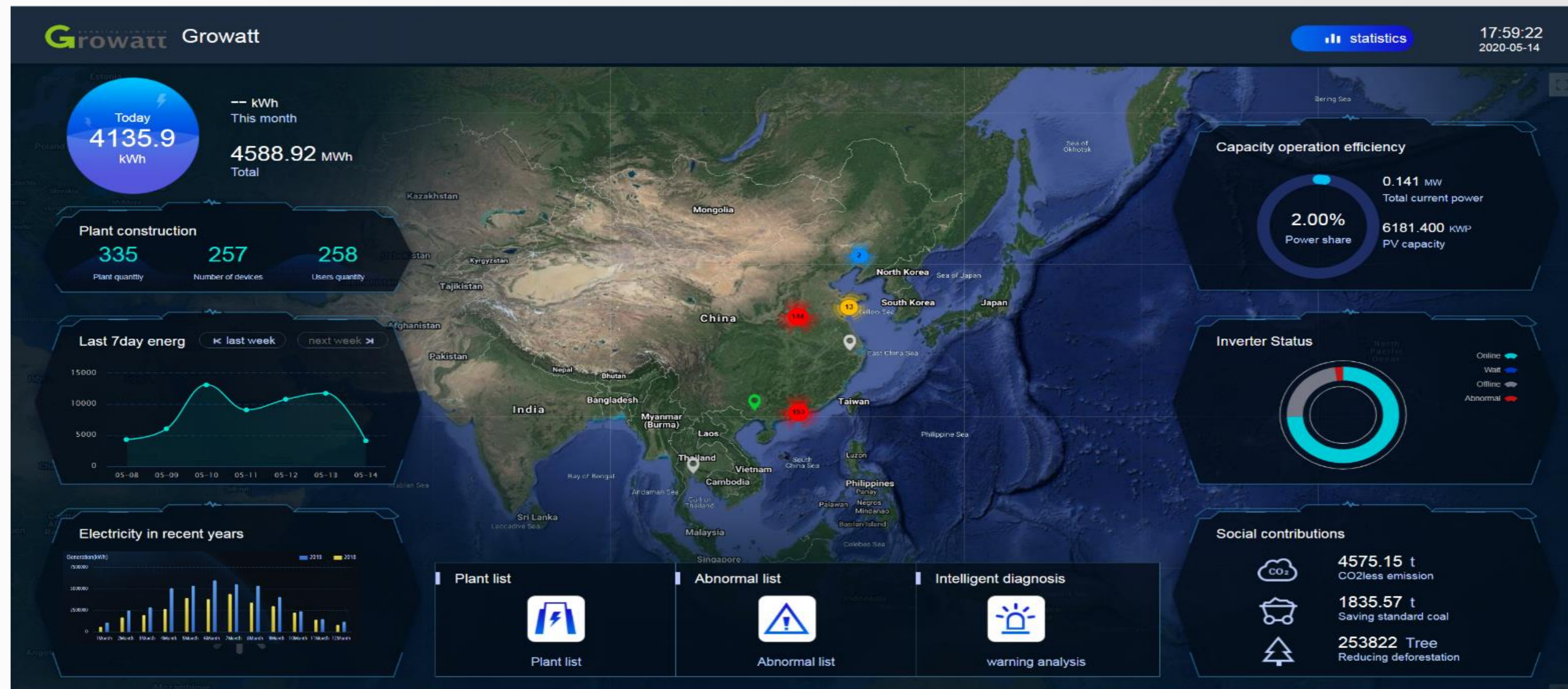
Inverter information

*Installation date:
 *Installation address: select country, Address
 *Postal code: *City:
 *Device: Device SN(S/N Barcode Number), Model name



➤ Big Screen Monitoring

- 💡 One page for easy monitoring and shows what you accomplish
- 💡 Diversified information display allows professionals to quickly analyze
- 💡 An elegant and intuitive platform can show your strength to customer



➤ Create a link to embed on your webpage

Show your achievements in your own website in different languages

<p>Dagelijkse productie</p> <p>7.90 kWh</p>	<p>Dagelijkse opbrengst</p> <p>€0.00</p>	<p>CO2 gereduceerd</p> <p>154.20T</p>	<p>create_single_page X</p> <p>Select what to show <input type="radio"/> One data</p> <p><input type="radio"/> Two data</p> <p><input type="radio"/> Three data</p> <p><input type="radio"/> Four data</p> <p><input checked="" type="radio"/> Five data</p> <p>View of ShineServer plant <input checked="" type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="button" value="Confirm"/> <input type="button" value="Cancel"/></p>
<p>Totale productie</p> <p>588.79 MWh</p>	<p>Totale opbrengst</p> <p>€60995.24</p>		

➤ Simplify Operations

Simplify the O&M process,
Relax in your office!

**Growatt OSS will help you guard all
the plants!**



Thanks!



www.ginverter.com



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