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Anti-reflux Box User Manual

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1.1 Copyright Statement

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1.2 About Manual

Distinguished users, thank you very much for your trust in our Anti reflux box product, which is developed and manufactured by our R&D department. We sincerely hope it can satisfy your need, also, we're glad to receive your suggestions on improving our product. The target of the manual is to provide the detailed product information, installation, operation and maintenance.

1.3 Target Group

The user manual is applied for technicians and common users to install, debug and maintain the Anti reflux box. The readers should be acquainted with some electrical knowledge, electrical schematic and characters of electrical components. The manual is not including the content of inverter, environment monitor, smart meter and anti-flux device. If needed, please refer to other user materials of our company.

1.4 Guideline

Before using the Anti reflux box, please read the manual carefully. In the meantime, please keep it well, lest maintenance staff may couldn't find it later. All the content, pictures, logos, symbols are reserved. No part of this document may be transmitted in any form without the prior written permission of our internal staff. The content of manual could be changed. Every attempt has been made to make this document complete, accurate and up-to-date. If there are any differences between the contents of the instruction and the product, please regard the actual one as the truth. You can download the newest version from our website www.growatt.com.

2.1 The product shape

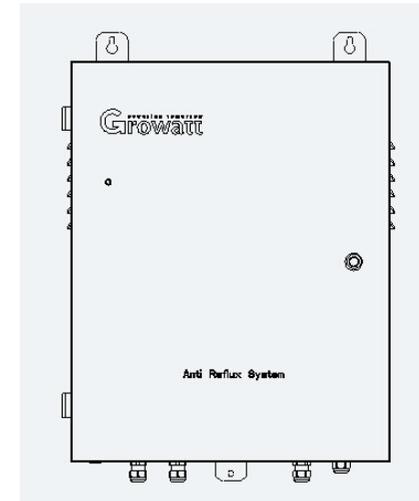


Figure 2-1 shape

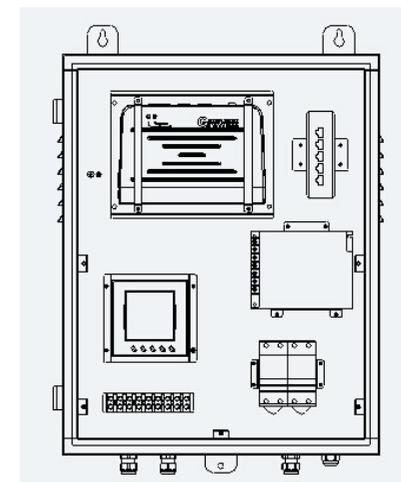
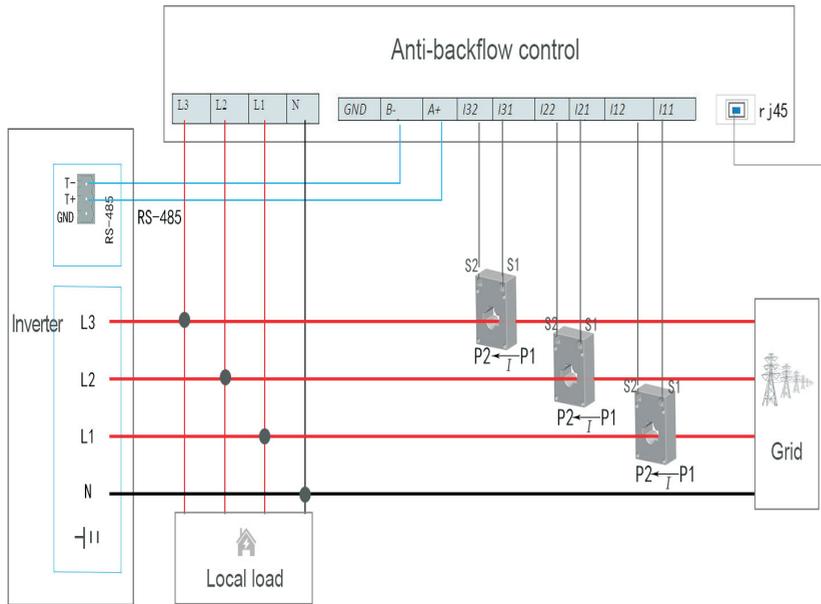


Figure 2-2 The internal structure

2.2 wiring instructions

With spiral knife turned on the anti reflux box panel, you can see two sets of wiring labels. Wiring according to Figure 2-1.



2-1 Wiring diagram of Anti-reflux system

1) Notice on current transformer wiring

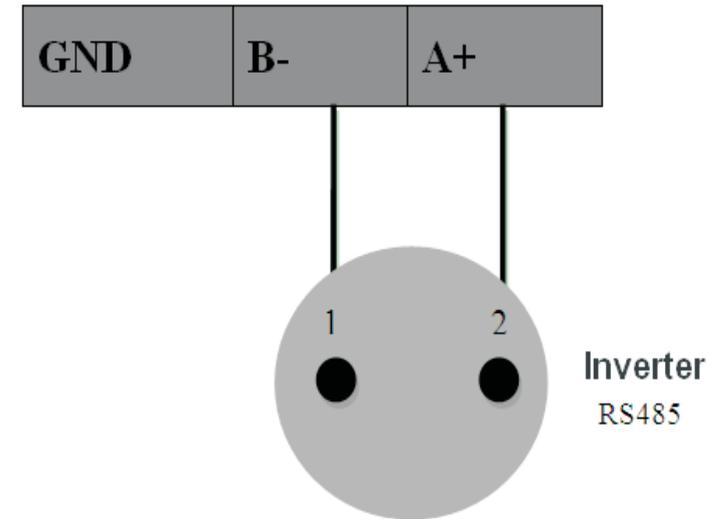
The wiring should be executed according to the picture above. On the Left is the grid, and in the following is local load, current flows in from P1 and out from P2

Wiring of the first current transformer S1 corresponding to power meter I11
S2 corresponding to power meter I12

Wiring of the second current transformer S1 corresponding to power meter I21
S2 corresponding to power meter I22

Wiring of the third current transformer S1 corresponding to power meter I31
S2 corresponding to power meter I32

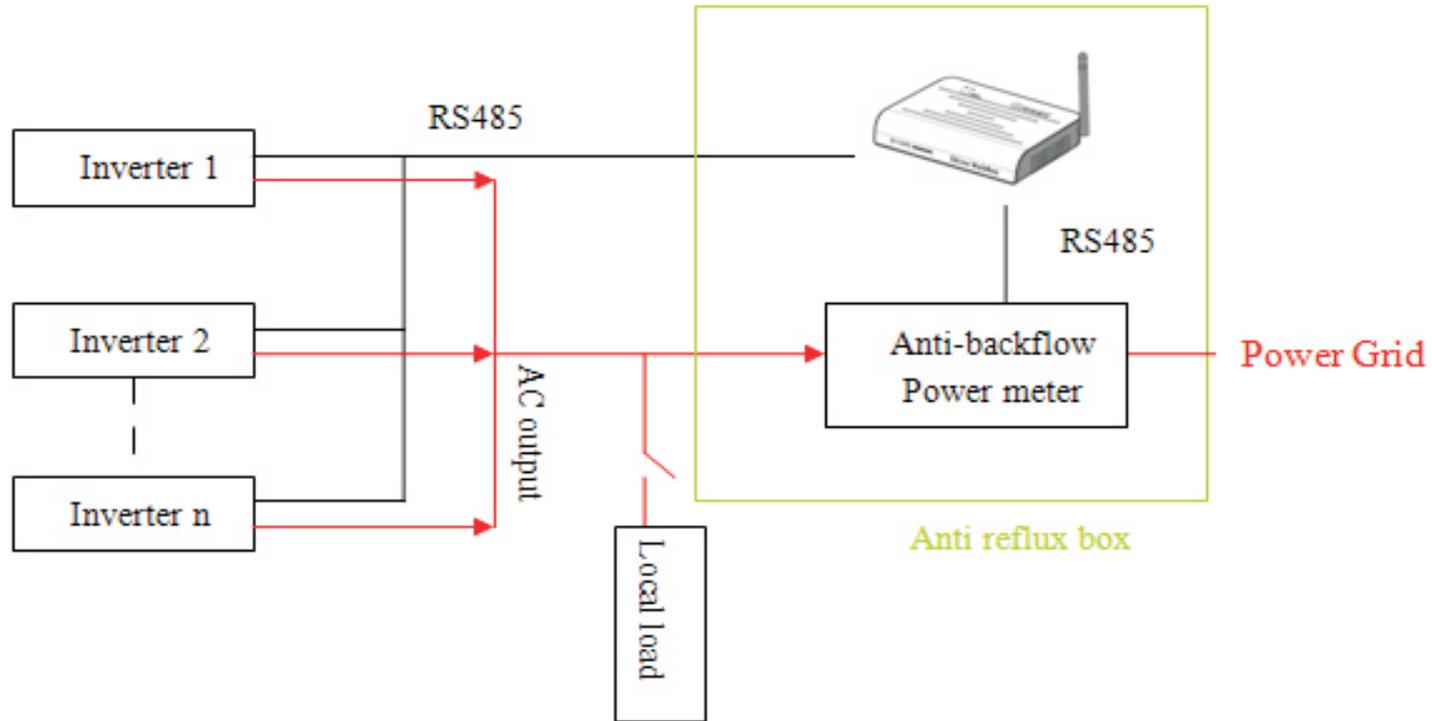
2) Note that the inverter also has the following interface. Connection are as follows:



3) The wire is directly inserted into the RJ45 port can be anti reflux box.

3 operation and application

3.1 System block diagram



- 1) Each Webbox 5S monitoring reflux power ,After adjusting inverterrequires 15s to check again , When inverter output is adjusted, there's a time delay of 15s till the next anti-reflux monitoring(inverter adjusting time).
- 2)In the Anti-reflux system, by setting the Anti-reflux power in the ShineWebBox interface (as shown below), to achieve different situations of Anti-reflux function.

Set Anti reflux power : kw

Case 1: When the Anti-reflux power is set to positive, this time only allows grid supply power to the load, does not allow the inverter to the grid transmission,the set power is equal to the power grid to allow power to the load.

Inverter output active power= Active power of the load- | the Anti-reflux power of webbox set |

For example, the Anti-reflux power is set to 5KW and the load power is 100KW. At this time, the total power of all the inverters is 95KW.

Case 2: When the Anti-reflux power is set to a negative value, this time allows the inverter to output power to the grid, allowing the power output to the grid is equal to the set power.

Inverter output active power= Active power of the load+ | the Anti-reflux power of webbox set |

For example, the Anti-reflux power is set to -5KW and the load power is 100KW. At this time, the total power of all the inverter is 105KW.

3.2 shine webbox Operating

After connecting the circuit according to 2-1, the next step is to set the Shine WebBox.

Shine WebBox default network settings are as follows:

IP address: 192.168.1.230

Subnet mask: 255.255.255.0

Default gateway: 192.168.1.1

Computer To access the ShineWebBox built-in server, you need to set the computer's IIP address to be on the same network segment as the ShineWebBox IP address.

3.2.1 shine webbox built-in server access

1) Enter the IP address of the ShineWebBox in the computer browser Open the Shine WebBox's built-in page. After entering the main interface, click the "Record" menu query the current online inverter data.

(2) Click "Back Home" to return to the main interface, then click "Parameter" to enter the ShineWebBox built-in parameter information page, as shown in Figure 3-1.

serial No.	W123456781
Check_code	4B914
Device_type	Shine WebBox_C
Hardware_version	V2.0
Software_version	SW3.8 Build:1611-22

Local_ip:	<input type="text" value="192.168.3.239"/>	
Mask:	<input type="text" value="255.255.255.0"/>	
Gateway:	<input type="text" value="192.168.3.1"/>	
DNS:	<input type="text" value="114.114.114.114"/>	
Server_ip:	<input type="text"/>	connect ok
Server_url:	<input type="text" value="server.growatts.com"/>	connect closed
Inverter Address_start:	<input type="text" value="1"/>	
Address_end:	<input type="text" value="32"/>	
Delay time(S):	<input type="text" value="2.0"/>	
System_time:	<input type="text" value="2016-12-06 07:08:46"/>	<input type="checkbox"/> Enable_write
Zigbee_ID:	<input type="text" value="6688"/>	
Zigbee_channel:	<input type="text" value="18"/>	
Environment: address:	<input type="text" value="36"/>	<input type="text" value="OFF"/>
Ammeter: address:	<input type="text" value="37"/>	<input type="text" value="Growatt"/> <input type="text" value="OFF"/>
Power Adjust:	<input type="text" value="OFF"/> <input type="text" value="Slave"/>	
Anti_reflux_device: address:	<input type="text" value="38"/>	<input type="text" value="ON"/> <input type="text" value="Ammeter_ON"/>
Set Anti reflux power :	<input type="text" value="0.2"/>	<input type="text" value="kw"/>
Combiner Box: address start:	<input type="text" value="41"/>	
address end:	<input type="text" value="50"/>	<input type="text" value="Growatt"/> <input type="text" value="OFF"/>
Inverter type:	<input type="text" value="Growatt"/>	
<input type="checkbox"/> Enable_Reboot	<input type="checkbox"/> Enable_Reset	<input type="checkbox"/> Enable_Clear_record

[Back Home](#)

Figure 3-1

3.2.2 ShineWebBox built-in server settings

1) Set the ShineWebBox IP address and gateway

Local_ip:	192.168.3.239
Mask:	255.255.255.0
Gateway:	192.168.3.1

2) Set the server IP address and URL.

Server IP do not fill out, just set the server URL can be.

URL for Chinese user: server-cn.growatt.com

URL for Global users: server.growatt.com

Server_ip:		connect closed
Server_url:	server.growatt.com	connect ok

3) Set the listening range of the inverter

Note: This address range start address must be less than the end address and contains the actual address of each inverter. Please refer to the inverter manual for the communication address setting of each inverter.

Inverter Address_start:	1
Address_end:	32

4) Fill in the meter address, the default value is 38. Front switch for the anti-reflux switch, the back of the switch for the meter switch, open the Anti-reflux switch and meter switch can open ShineWebBox anti-reflux function.

Anti_reflux_device: address	38	ON	Ammeter_ON
-----------------------------	----	----	------------

5) Set the anti-reflux power

Note: positive number ---that can be taken from the power grid, totally can not appear countercurrent.

Negative --- that can be transmitted to the grid, that is, to allow a part of the current countercurrent. For example: set to 0.2KW, to allow the grid supply to the load power of 0.2KW.

Set Anti reflux power :	0.2	kw
-------------------------	-----	----

6) When you are finished, click Save to complete the setup.

3.3 Anti-reflux meter operation



Figure 3-2 Power display
P is active power, negative number represents reflux power.

3.3.1 Module Address and Baud Rate Setting

The first page of setting menu is address and baud rate settings as shown in Figure 3.3. 001 indicates the address and can be set between 1 and 247; 06 indicates the baud rate (The default is not set). Key functions of this page is: ESC key to go back to electrical parameter acquisition display interface, ▲ key will minus 1 for flashing digits, ▼ key will plus 1 for flashing digits, ► keys to move the flashing digits right, ENT key to save the current settings and go to the next setup page.

Modbus-RTU protocol does not allow identical module address on the same line. The address is set to 38.



Figure 3.3 address and baud rate setting interface

3.3.2 Module Voltage Ratio and Current Ratio Settings

Press ENT key on the previous page will take you to this voltage ratio and current ratio setting page as shown in figure 3.4.

The first 0001 indicates the voltage change ratio which can be set between 1 and 1000, the 0001 below indicates current change ratio which can be set between 0001 and 2000. key function on this page is: ESC to go back to electrical parameter acquisition display interface. ▲ key will minus 1 for flashing digits, ▼ key will plus 1 for flashing digits, ► keys to move the flashing digits right, ENT key to save the current settings and go to the next setup page.

Current transformer marked on the specifications and through the heart of the number of turns, according to the actual winding turns the corresponding specifications to set the current ratio. By the maximum allowable current transformer current through the impact of the number of heart through the best number of 1, that is, the wiring leading to the grid directly through the current transformer center hole, the current ratio is set to when the number of heart through the number of 1 when the corresponding value. Note: ① the number of passing heart * single current = the total current through the current transformer

② After passing the number of turns through the current transformer current must be less than the maximum allowable current through the current transformer.

③ According to the total installed power of the corresponding current transformer, see the following table:

Transformer model	Current ratio	Accuracy	Installed total power
BH-0.66 30i	100/5	0.5 level accuracy	0-60kw
Bi	500/5	0.5 level accuracy	61-200kw
BH-0.66 100i	1200/5	0.5 level accuracy	201-600kw
BH-0.66 3120i	2000/5	0.5 level accuracy	601-1000kw

For example: anti-reflux box (home version) current transformer marked on the following table

Specification (A)	200/5	100/5	50/5	40/5	25/5	20/5
Passing heart turns	1	2	4	5	8	10

If the actual number of turns is 1 turn, the current ratio should be set to $200/5 = 40$



Figure 3.4 voltage and current change ratio setting interface

As long as the general setting current ratio current transformer, according to the actual use to set

3.3.3 Meter current through the heart direction

(the default does not have to set the current transformer reverse direction can use this method)

Pressing the ENT key on the previous page will enter the current through direction setting interface, as shown in Figure 3-5. The left side of the A, B, C phase, the right side 0 that the current normal incoming, 1 that the corresponding phase of the current reverse. (Default A, B, C phase are 0)

When A, B, C phase are set to 0, the current direction of the meter is defined as $P1 \rightarrow P2$, the current from the grid to the load (no counter current) meter P is displayed as a positive number;

When A, B, C phase are set to 1, the meter current direction is defined as $P2 \rightarrow P1$, the current from the grid to the load (no counter current) meter P is displayed as negative.

The key function of this page is: ECS key to exit the electrical parameter acquisition display interface, ▲ key to set the flashing digital 0, ▼ key to set the flashing digital tube 1, ► key to flash the digital tube down, ENT key will Save the current settings and go to the next settings page.

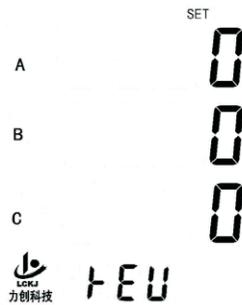


Figure3-5 current direction of the threading direction

Set the above three points, click the ECS key to return to the electrical parameter acquisition display interface. Meter set up. As shown in Figure 3-2, P is the active power, and the negative number represents the countercurrent.

3.4 verification of anti reflux function

The premise condition of anti reflux tank webbox to monitor the inverter has been 5 minutes.

Method 1 : Verification of the most intuitive is off load, inverter power decreased significantly in 60s. You can see the power inverter LCD screen display, it shows that anti-reflux function is normal

Method 2 : Set the anti-reflux power is 0KW, then no counter-current generated, anti-reflux meter LCD active power P is maintained at 0 up and down fluctuations, and then set the anti-reflux power of 15KW, if the inverter power significantly decreased. It shows that anti-reflux function is normal.

Note: After the WebBox commands, the inverter power is automatically adjusted after 5 seconds. After 1 minute, the value of the inverter power change can be observed.

Meter and inverter data can be viewed via the ShineWebBox built-in page or shine server.

4 Remote monitoring (optional)

In the ShineWebBox built-in server can only view the current data, but only view the data at that time and can not meet the demand. So you need to monitor the ShineWebBox to the data uploaded to the Growatt network server (Shine Server), through the domain name to ShineWebBox to monitor the data to access, including historical data, the current data and historical data.

1) enter the server domain name on the computer browser to enter the Shine Server login page, if you are the first login, please register the user name. Enter the domain name to access the page, as shown in Figure 4-1.

The Chinese user server domain name is: <http://server-cn.growatt.com>
The international user server domain name is: <http://server.growatt.com>



Figure 3-1 Shine Server login page

2) registered user name, according to the prompts to enter user information, fill in the information, click on "registration".

Note: "Collector Serial Number" and "Collector Check Code" See ShineWebBox Package Outbox, and "serial No." "Check_code" in the ShineWebBox built-in server "parameter", see Figure 3-1.

Register

country *

中国客户请点击(chinese user click) server-cn.growatt.com

username *

password *

password confirm *

E-Mail *

company name

telephone

Agent code

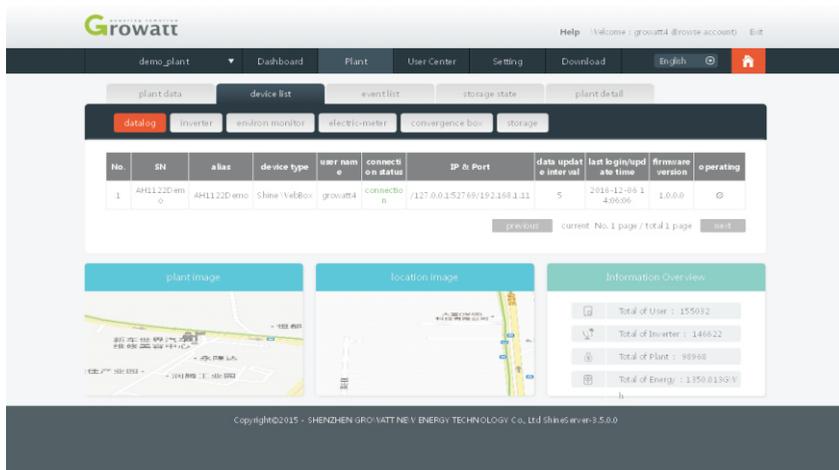
datalog sn

datalog valicode

timezone * Language *

valicode P6L agree 《Terms of Use》

3) After the registration is complete, jump to the main interface of Shine Server, click "Power Station" → "Device Management", you can view the "data collector" "inverter list" and "smart meter list" real-time data.



5 Common malfunctions

- 1) meter shows the power of each phase power abnormalities, pay attention to check the wiring is not.
- 2) here is no anti-counter-current effect, please check the communication address and so on.
- 3) shine server can not see the inverter and meter data. Please refer to the shine webbox User's Guide.

6 Specifications and parameters

General specification for

Length * width * height	560* 415 *150 (mm)
Net weight	11kg

The operating environment for

The ambient temperature	-20 ~ 70°C
Protection class	Ip44
Place	indoor
The communication mode	Rs485 / Ethernet

7 Contact

If you have technical problems concerning our products, please contact the Growatt serviceline.
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