

Smart Optimizer SUNGO iOPT 800W & Data Gateway SUNGO GT Quick Installation Guide

Document version:SUNGO-iOPT>[™]-V1-2024 EN Release Date:2024.5

1 Product Overview





Model Description

SUNGO iOPT 800W -Smart PV Optimizer -Maximum Input Power800W

Interface definition







SUNGO GT -Data Gateway

2 Install the Intelligent Optimizer iOPT

Step 1.

Before installing the optimizer, make sure the inverter is stopped (DC switch placed in OFF) and disconnect the inverter from the module array.



DC switch Placement in OFF position Schematic

Step 2.

Plan the optimizer installation location properly to ensure proper connection of cables between the optimizer, components, and neighboring optimizers. Optimizer IN+: 200mm exposed IN-: 1100mm exposed OUT+/OUT-: 750mm

Step 3.

After confirming the installation location of the optimizer and data gateway (Stay close to the strings and away from the inverter), start installing the optimizer and data gateway. At the same time remove the SN label and paste it to the physical layout template.

The optimizer must do the physical location layout, so that when the optimizer location fails, you can find the faulty optimizer location according to the physical location layout diagram to facilitate the replacement of the optimizer.



Note: If you need to mark information on the physical layout template, please



Step 4.

Mounting the optimizer to the PV panel bezel after removing the SN label - backside mounting.



Attach the optimizer to the outer frame on the back of the PV through the clips and snap the clips completely into the frame to complete the installation.

3 Smart Optimizer iOPT Cable Connections

Step 1.

- Install the optimizer cable as shown below, otherwise the optimizer or the PV module may be damaged.

1. Connect the IN+ and IN- of the optimizer to the positive and negative terminals of the PV panel junction box correspondingly.

2. Connect OUT+ of the first optimizer to OUT- of the next optimizer.

3. Connect the cables of the other optimizers sequentially according to steps 1 and 2.



Caution!

In installation

Input cables of PV optimizer MUST be connected first, output cables of PV optimizer should be connected second.

In disassembly

Output cables of PV optimizer MUST be disconnected first, input cables of PV optimizer should be disconnected second.

Step 2. Optimizer Detection

1. Connect the optimizer input (IN) to the pv junction box.

2. Use the positive pen of the multimeter to connect the positive output of the optimizer, and the negative to connect the negative output , and check the output voltage of a single optimizer.



Voltage	Reason	Solve suggestion
0.9V ≤ V1≤ 1.1V	Optimizer normal	
V1 >1.1 V	Optimizer fault	Replacement optimizer
V1 < 0.9V	•Weak light •optimizer input is not connected •The optimizer is wired incorrectly •Optimizer fault	 Voltage is measured when light is sufficient. Connect the optimizer input cable Adjust the optimizer cable connection and connect the optimizer input cable to the PV module output If the voltage is still abnormal, replace the optimizer
V]≈ -1V	The multimeter pen is reversed	Multimeter pen positive and negative exchange

3. After confirming that the optimizer and the input cable are properly connected, connect the optimizer output cable. When the light is sufficient, the voltage of the photovoltaic string is measured.



Voltage	Reason	Solve suggestion		
The string voltage is 0	·PV module strings have open circuit ·The cables are not in the same string	 Check whether the group string is open circuit faulty Connect the strings cables correctly 		
The string voltage is negative	•The multimeter pen is reversed •The label on the cable is incorrect	 Multimeter pen positive and negative exchange Make proper cable labels 		
The string voltage is less than the number of optimizers	·Some optimizer input missed connections ·Some optimizer outputs miss connections ·Some optimizer outputs are connected opposite	Check whether the PV modules and strings cables are correctly connected		
The string voltage is greater than the number of optimizers	•The actual number of optimizers in the group string is greater than the expected number •The photovoltaic panel is not connected to the optimizer, and is directly connected to the group string	 Check that the number of optimizers in the group string is correct Check whether the PV modules and series cables are correctly connected 		

4 Installing the GT and connecting the strings to the inverter

1. install the GT near the inverter.

2. connect the OUT+ of the last optimizer to the PV+ of the inverter.

3. Connect the OUT- of the first optimizer to the PV- of the inverter through the magnetic ring of the GT.

4. After confirming that the connection is correct GT connects the MCB and then connects it to the AC.



System Wiring Diagram

The GT itself is IP67 waterproof and can be used without a distribution cabinet. The AC input line is connected to the AC power using the L16-2 waterproof connector. -Check that the structural mounts are secure and that all screws are tightened. -Check that all cables are connected with the correct polarity and that the connections

are firm and reliable to ensure that there are no short circuits.

5 System power-up and product management

Step 1. Turn on the inverter

Confirm that the system is connected correctly, the inverter DC switch is ON, and the inverter is turned on.

Step 2. Connecting the data gateway to a power source

Connect the data gateway to 90~264V AC power supply. Ensure that the power indicator green light is always on, and the running indicator green light is also always on. Check whether the inverter is working normally.

Step 3. GT status indication

Search Optimizer self-test and indicator status

Press the center button to allow the Running light to illuminate normally. Let the Rapid Shutdown (RSD) go out for an extended period. After 5 seconds, press and hold the button. After a few seconds, the GT enters the self-test mode, and when the 2, 3,4, indicator light flashes back and forth, release the button. Wait for about 10 minutes until the Running indicator light flashes, indicating a successful self-test. Press the button again to make the Running indicator light continuously on, confirming that the optimizer is operating normally. If the 3 indicator lights are blinking, it signifies a test failure. In such a case, please check the connections and rerun the test. If the test fails three times, kindly contact the relevant technical personnel.

• • • •



Four permanently illuminated status indicators from left to right (1, 2, 3, 4)

Note: Indicator status indicates

1, 2, 4 Indicator status schematic: Indicates normall 3 Indicator status schematic: Indicates normall 	y lit Indicates extinguished Indicates blinking y lit Indicates extinguished Indicates blinking
None of the four indicator lights are lit Wrong or faulty circuit connection	 I on 2 off 3 on 4 on Turn off the optimizer, the network is connected normally
1, 2 on 3, 4 off Start optimizer, network not connected	1 on 2 blinking 3 blinking 4 blinking Search Optimizer self-test
1, 2 on 3 off 4 on Start the optimizer, the network is connected normally	1 on 2Blinking 3on 4 on or off Search Optimizer self-test successful
1 on 2 off 3 on 4 off Optimizer off, network not connected	1 on 2 off 3 blinking 4 on or off Search Optimizer self-test failed

Step 4. GT entry whitelisting

I. Process

Recommended application process:

1. First power up the GT/GTC.

2. Use the USB to RS485 cable to connect GT/GTC and the computer

3. Select the corresponding serial port

4. Read MAC Addr and Version, if normal display, represents the current connection is normal, otherwise check whether the cable is properly connected.

5. Enter the iOPT code into the List list, and then click Write to write it to GT/GTC; there are two ways to enter the code as follows

(1)Through Import button, recognize the selected picture to import.

2 Enter the number manually through the keyboard, and note that each number is separated by a comma.

6. Monitor the current status of the optimizer through To Monitor.

II. Wiring

Use USB to RS485 to connect the GT/GTC to the computer, the connection is shown below:



III. Description

1. Select the corresponding serial port



After success, the green circle is displayed as follows

		COM4 +		DFF PA
T/GTC IOPT Mo	hitor			
Base				
MAC Addr :	N/A		Write	Read
Version :	N/A			Read
DateTime :	N/A		Write	Read
Number :	2	Import Read	Write Clear	To Monitor
List :	230727000001,2	30727000002		

2. Description of GT/GTC functions

	GT/GTC	Config Tools	
	0	comig rooto	
		COM4 🗸 🥑 ON OFF P	AS
T/GTC IOPT Mor	itor		
Base		\frown	
MAC Addr :	112233445566	Write Read	
Version :	00010073,125,V1.	2.5,Jul 10 2024_18:47:56 Read	
DateTime :	2024-07-15_15:27	09 Write Read	V
IOPT Config			
Number :	2	Import Read Write Clear To Monitor	
List :	230727000001,230	727000002	

1)MAC Addr:

Click Read to read the address of GT/GTC, and click Write to write the address in the left input box to GT/GTC.

2 Version

Click Read to read the software version number of GT/GTC.

3 DateTime

Click Read to read the time of GT/GTC, and click Write to write the system time into GT/GTC.

④iOPT Config - Import

Click Import to import the iOPT code through the image, as follows

Click Import to import the recognized codes into the List box.

◊ 打开		×	- 6	Path: D	\wangl\Do	cuments\20	240711134	121.jpg	_	_	_	_	_	_
← → ∨ ↑ □→ 此电脑 → Data (D:) → wangl → 文档 ∨ C 在文档中授素	t	P												
组织- 新建文件夹	• •	0	- 1											
			- 1			B	C	D	E	F	G	н		J
□ 文相 ■ Download 2024071109564 ■ 1500				1 88										
RDBallastinfo				2 ^{6送} 引名										
 ■ 此地論 > ■ Windows (C) 				3 _{标签} 初名										
> _ Data (D)				4 _{65姓} 别名										
x(++etus), 20200/10/35000.jpg 打开(0)	取消													
Find 35 241903002215 12.41903002285 241903002295 241903002395 241903002395 241903002395 241903002395 241903002395 241903002295 241903002295 241903002195 241903002395 24190300							19030023 19030023 19030022							
MAC Addr : NA Read Time : NA Cmd Result : NA	Version	n 2.1.1	L			c	Cancel					Import		

5iOPT Config - Read

Click Read to read the iOPT list of the current GT/GTC configuration.

6 iOPT Config - Write

Click Write to write the iOPT list to GT/GTC.

⑦iOPT Config - Clear

Click Clear to delete all the iOPTs in GT/GTC.

- ⑧iOPT Config To Monitor
- Click Monitor to display the iOPTs in List on the Monitor page.

3. Read single iOPT working parameters function description

		COM4 - ON OFF PAS
T/GTC IOPT M	fonitor	
Base		
MAC Addr :	230727000001	Read
Comm :	N/A	IN Voltage : N/A
State :	N/A	Out Voltage : N/A
Temp :	N/A	Out Current : N/A
Error :	N/A	Out Power : N/A
Statistics		
SKU :	N/A	Version : N/A
Run Time :	N/A	Recv Cnt : N/A
On Time :	N/A	Offline Time : N/A
Engery :	N/A	Offline Cnt: N/A
Recv Time :	N/A	

Input the iOPT number you need to read, click Read to read its current status.

Comm: communication status, Online stands for online, Offline stands for offline.

State: current state, ON working, OFF closed.

Temp: current temperature, Celsius degrees

Error: current fault, Normal stands for normal.

IN Voltage: input voltage

Out Voltage: Output Voltage

Out Current: Output Current

Out Power: Output Power

SKU: Product Model

Run Time: Run Time

On Time: Working Time

Engery: Power Generation

Recv Time: Receive Time

4. Monitor Function Description



Click Start to start monitoring, the software will refresh the status of iOPT in List regularly.

6 GT distribution network

Step 1. Download APP and register account



iSungo-Android



can the OR cod

Scan the QR code to download APP



Open the APP to register an account

Step 3. Fill in the power station information

下午3:04 36.9K/s 🛇 🐔	\$ 111 II 🗟 💶
← Plant	Information Finish
Business Type	photovoltaic system >
Plant type	Household use >
Plant name	Please type the plant name
Grid connection type	Full access to the Int $>$
Power plant location	>
Plant photos	0 >
Build Date	Optional >
kWh income	Optional
Total cost (ten thousa	and) Optional
Currency	CNY >
PV Capacity (kWp)	Please enter the installatio
Plant owner	王二毛 >
Plant visitor	Optional >
Contact	Optional
Contact number	Optional

Step 2. Creation of PV power plants

下午3:03	12.1K/s 🕲 🕈		* 34 34	
		PVS		
Q Searc	h	2	Business 1	Гуре
All(3)	Onlin	e(1)	∩ Create Pla	nt
新 山 La 20:	昌电站 Primavera, Vici 23-12-11	nada, 992008, 0	Colombia	×
晟 」 201	高电站 ngsu, People's 23-08-10	Republic of Ch	ina	~
SL 名語 202	INGO Plant 虔百盛 Ming Jur 23-11-02	n Auto Service	Center, 星…	~
	The list ha	s reached bott	om, 3 in all.	
	e=۱	п П	ß	\bigcirc
Plants	Tickets	Overview	Events	My
	_		_	

Click on the top right corner to create a power station

Step 4. Sweeping Code Collection Data Gateway



WIFI Serial Number:



Example of QR code on the left side of GT

Click the arrow on the right side of the power station, scroll down, and click 'Add Collector.' Then, scan the WIFI serial number on the left side of the Data Gateway GT by using the QR Code.



Step 5. GT WIFI Distribution Network

Just follow the instructed process to show the successful distribution of the network.

Step 6. Optimizer Status View

下午3:51 10.9K/	/s 🎯 🖇 📽 🕷	31 ()	下午3:10 0.0K/s 🞯	* 31 3	1 😤 🎟	下午3:10	18.1K/s 🎯	* 34 3	4 🤋 🎯
	PVS	•••	← Opt	timizer Details	•••	\leftarrow	Optimiz	er Details	
Q Search			Basic Information			Basic	Information		
All(3) 新昌电站	Online(1) Warning(0)	Offline(2)	Controller MAC Add	Iress: Quick Switch: Close		Contro R07E7	iller Sn: A08790A044B-CTI	Optimizer Mac Ado 240403000099	iress:
La Primave 2023-12-11	era, Vichada, 992008, Colombia 1	~	Number Of Optimize 99	ers: Real-Time Power: 2.50 w		Currer 99	it Serial Number:	Input Voltage: 49.8 v	
晟高电站 Jiangsu, Pe 2023-08-10	a eople's Republic of China 0	~	Cumulative Total Electricity:			Outpu 49.8 v	t Voltage:	Output Current: 0.0 A	
SUNGO F 合 名駿百盛 M 2023-11-02	Plant Aing Jun Auto Service Center, 星… 2	^	118.00 wh			Outpu 2.5 w	Power:	Product Temperatu 25.9 °C	ire:
K Logger R07E7A08	3790A044B	^	240403000002		>	Total I 17.11	tunning Time: h	Normal Working H	ours:
Opti R07E	imization Controller 7A08790A044B-CTL	>	240403000003		>	118.0	D wh	Open	
GT Colle R07E781D	ect 004071584	~	240403000004		>	3		112	
	占采集器 EFA070397	~	240403000005		> >	Histo 2024-0	rical data 1-31 Preferences	Day Month Yea	ar Tot
N Logger R07E6700	00240001	~	240403000007		>				
	Add Logger		240403000008		>	40 -			
Plants Tic	kets Overview Events	(D) My	240403000009			20 -			
Plants Tic	kets Overview Events	Му	_	2		20		3	

After successful grid distribution, click on the arrow to the right of the power station project until the optimizer controller appears, then click on the optimizer controller, then click on the Optimizer Code to view the optimizer details.

Step 7. Check the status of the power station

下午3:11 12.7K/s 🗇		\$ 311 311 🕿 🌚
	Overview	
Total Power	SUNGO P 88 Today 2	Layout Edit
2.40 w	Wh 🕅	Favorite Delete
Monthly 44.37 kWh	yearly 44.37 kWh	Force refresh
Power Energy 2024-01-31	Day Mo	nth Year Total
	No results found	
<u>ن</u>	ы	₽ D

Click on APP OVERVIEW, then open the drop-down menu in the upper right corner of the page. Click on the layout to see the status.



After clicking Layout, the status of the power plant is displayed in several states as shown below.

上午11:43 7.8K/s 🗇	*21 21 @ 00	上午11:43 7.8K/s 🗇	* 21 21 31 3 10	上午11:43 7.8K/s ⁽)	* 311 311 😤 🚥
← SUNGO	Plant	← su	NGO Plant	← SUN	GO Plant
< 2023-11-07		< 2023-11-07		< 2023-11-07	
470.4. 465.7. 471. W W W (1,1) (1,2) (1,3	9 465.4 465.7 W (1.4) (1.5)	470.4 465.7 W W (1,1) (1.2)	• • • • • • • • • • • • • • • • • • •	470.4 465.7 4 W W (1,1) (1,2) (71.9. 465.4 465.7 W W W 1,3). (1,4). (1,5)
467.6 466.2 470. W W W (2,1) (2,2) (2,3	8 486.2 470.5 W W) (2.4) (2.5)	• 467.6 466.2 W W (2,1) (2,2)	• • • • • • • • • • • • • • • • • • •	467.6 466.2 4 W W (2,1) (2,2) (70.8 486.2 470.5 W W 2,3) (2,4) (2,5)
465.7 473.3 466. W W W (3,1) (3,2) (3,3	5 484.7 492.8 W W) (3.4) (3.5)	• 465.7 W (3,1) (3,2)	• • • • • • • • • • • • • • • • • • •	465.7 473.3 4 W W (3,1) (3,2) (66.5 484.7 482.8 W W W 3,3) (3,4) (3,5)
482.2 487.2 465. W W W (4.1) (4.2) (4.3)	3 465.7 W (4,5) (4,4)	• 482.2 487.2 W (4,1) (4,2)	• 465.3 W (4.3) (4.4) • • • • • • • • • • • • • • • • • • •	482.2 487.2 4 W W (4.1) (4.2) (65.3 465.7 469 W W W (4.5)
0 —	11:40	0 —	11:40	0 —	11:40
			2	_	3

State of affairs	Clarification
Figure 1 - Green circle in the upper right corner	Optimizer is running fine
Figure 2 - Gray circle in the upper right corner	Optimizer is offline, please check that the SN and location information is correct and then search the device again!
Figure 3 - Red circle in the upper right corner	Optimizer failure, need to replace optimizer

Global Headquarters

SUNGO Energy Technology (Jiangsu) Co., Ltd. Add: Unit 01, Floor 1, NO.179 Suhong West Road, Suzhou Industrial Park, Suzhou City, Jiangsu Province, China

Europe Headquarters

SUNGO Energy Technology B.V. Add: Hoofdweg-Noord 9T, 2913LB Nieuwerkerk aan den IJssel, The Netherlands

Optimizer&Energy Storage Production base

KONKA&SUNGO Smart Energy (Zhejiang) Co., Ltd. Add: Building 3#, Small and Micro Industrial Park, No. 69 Xingmei Avenue, Chengtan Street, Xinchang County, Shaoxing City, Zhejiang Province, China

Sungo Energy UK

Add: 60 Windsor Avenue, London SW19 2RR, United Kingdom

Sungo Energy Japan

SungoEnergy株式会社 Add: 4-16-5-206 Sekimae, Musashino City, Tokyo

Sungo Energy USA

SUNGO ENERGY TECHNOLOGY INC. Add: 5900 Balcones Drive,STE 100 Austin TX 78731

Web: www.sungoess.com E-mail: sales@sungoess.com Global Headquarters Tel:+86 (0)512 6512 2036 Europe Headquarters Tel:+31 (0)10 307 21 68 SUNGO Energy UK Tel:+44 (0) 330 122 6559 After-sales e-mail: after-sales@sungoess.com







© Sungo reserves all rights. All other trademarks mentioned in this document are trademarks of their respective owners. The information in this document is for reference only and does not constitute any offer or commitment. Sungo may modify the above information without prior notice.