SolarMAN OPEN API

(V1.1.6)

User Manual

Version	Updated	Note
1.0.0	2019-11-29	First Draft
1.0.1	2019-12-30	Regular Update
1.0.2	2019-12-30	Regular Update
1.0.3	2020-1-9	10 - Dictionary (Phone Number Prefix)
1.1.0	2020-03-10	1 Modify all interface incoming parameters 2 Delete interface incoming parameters userId, companId (V1.0) 3 Add new interfaces (below) 2.4 Account registration 2.5 Obtain account info 2.6 Modify account info 2.7 Modify binding info 2.8 Reset password 2.9 Modify password 4.8 Create a plant 4.9 Modify a plant 4.10 Delete a plant 4.11 Calculation of accumulated production 4.12 Set offset 4.13 Add gateway (Logger/ DTU) 4.14 Delete a device 5.1 Generate verification code
1.1.1	2020-06-01	Added a quick guide to help users quickly understand how to use
1.1.2	2020-8-4	Remove the guide of obtaining weather station
1.1.3	2020-11-12	Added device control capability through

		OpenApi, see 3.7
1.1.4	2020-12-17	Added an interface for querying device communication relations, see 3.8
1.1.5	2021-03-19	Added 3.7 callback response parameter description of device control interface
1.1.6	2021-03-31	Added 3.9 customized command interface

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1 Open Platform

1. SolarMAN OpenAPI platform provides standard RESTful data calling service for authenticated users.
2. The platform interface is based on http/ https protocol, which uses OAuth2 . 0 authentication mechanism.
3. GET/ POST: Parameter: utf- 8 code, Processing Code: urlencode
4. Data: utf-8 code
5. Support json format for return
6. Structure of return data: main body, code: error code, msg: error content.
7. It is required to add *Authorization*at *http header*under the circumstance of calling other interfaces (Obtain/ Extend ACCESS_ TOKEN interface is excluded) . Value: ACCESS_ TOKEN

1.1 Terminology

Application	Basic element to call API
APP_ ID	Unique ID
APP_ SECRET	Authentication key (Confidential)
ACCESS_ TOKEN	Request for server data
REFRESH_ TOKEN	Extend the term of validity of ACCESS_ TOKEN

1.2 Access Process

1. Register at SolarMAN 3 . 0 and SolarMAN Business
2. Register as SOLARMAN developer (Contact our sales)

Create APP, generate APP_ ID and APP_ SECRET, then submit

3. Develop and test according to documents
4. Join with interface with formal settings

1.3 Call Restriction

- Default all general interface call restrictions

The maximum number of requests per 10 seconds for a single OpenApi account to call the interface: **300**

- Restrictions on device control interface calls (3.7 interface, 3.9 interface)

The maximum number of requests per minute for a single OpenApi account to call the interface: **50**

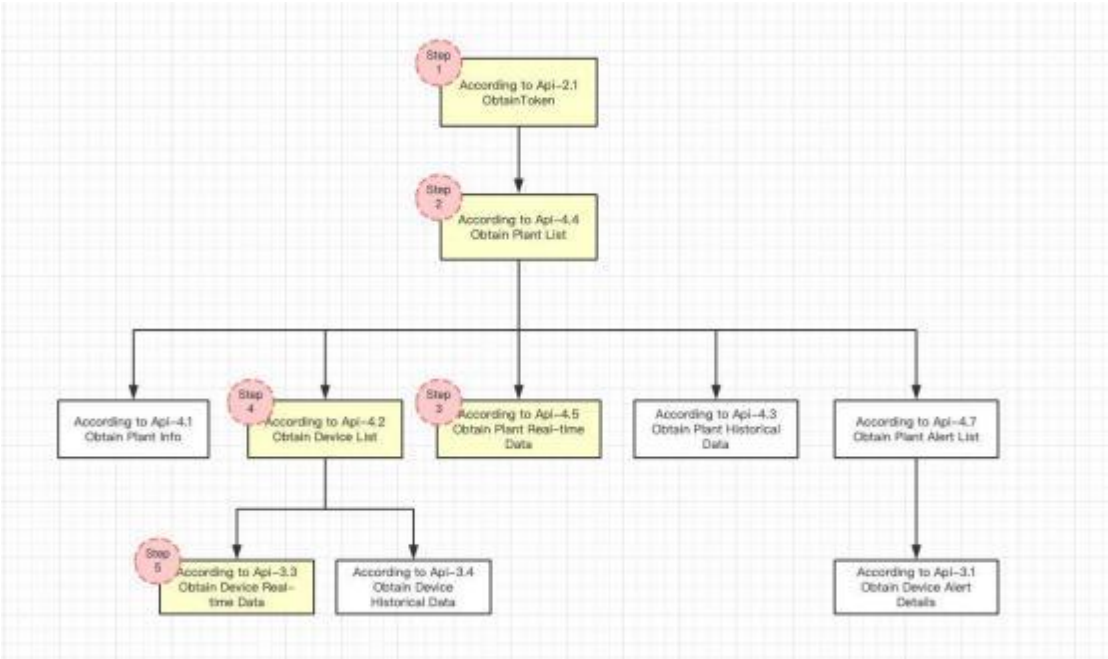
1.4 Calling Address

Environment	Requested Address
Formal Setting	https://globalapi.solarmanpv.com

1.5 Quick Guide

1.5.1 Process data from SOLARMAN Smart via OpenAPI

1.5.1.1 Obtain plant/device data



Precondition (Meet any of the preconditions below)

(1) Account has been created on SOLARMAN Smart Web/App or via OpenAPI, logger has been added, and data can be checked normally.

(2) Authorized plant has been received via SOLARMAN Smart Web/App, and data can be checked normally.

Calling Guide

This calling guide only demonstrates some marked scenes in the flowchart. If you wish to know other calling methods of other interfaces, please check the detailed documents.

Step 1: Obtain Token

Developer information and account on SOLARMAN Smart are required to get the Token to call OpenAPI.

Token will be the unique voucher and necessary condition to call OpenAPI .

(1) Interface Code: **2.1**

(2) Notice:

- APPID parameter is query parameter , which is put on URL .
- Password field will use SHA256 for encryption and transmit parameter later .
- Multiple token calling will not cause original token invalid . Term of validity of token is two month . And token will expire if the password is reset or the role is modified .
- APPID in testing environment cannot call API in production environment .
- It is necessary to have an account on SOLARMAN Smart yo obtain Token . Please input one of mobile / email / username parameter according to actual situation along with password .

Step 2 : Obtain plant list

You can obtain plant list and Plant ID via this interface .

(1) Interface Code: **4.4**

(2) Notice:

- Header field authorization must be transmitted . Please put bearer as a prefix when transmitting token_type .
- Default : Inquiry the first page when paging parameter will not be transmitted .

Step 3 : Obtain plant real-time data

Based on knowing Plant ID , you can check plant real-time data via this interface , e .g . plant production power , plant feed-in power .

(1) Interface Code: **4.5**

(2) Notice:

- stationId is necessary , only matched plant ID will be transmitted .

Step 4 : Obtain device list

Based on knowing Plant ID , you can check device list via this interface to know device SN and Device ID .

(1) Interface Code: **4.2**

(2) Notice:

- Default : Inquiry all device data if deviceType field will not be transmitted , assigned device type will be obtained during the transmission .
- Please refer to API document **7 . Enumeration Type Declaration** for device type .

Step 5 : Obtain device real-time data

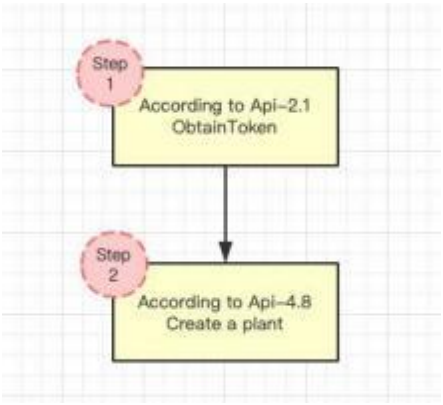
Based on knowing SN and Device ID , you can check device real-time data via this interface , e .g . inverter AC total output power , module production power , battery charging power .

(1) Interface Code: **3 .3**

(2) Notice:

- Field deviceSn is necessary .

1.5.1.2 Create a P lant



Precondition

Account has been created on SOLARMAN Smart Web/App or via OpenAPI .

Calling Guide

This calling guide only demonstrates some marked scenes in the flowchart . If you wish to know other calling methods of other interfaces , please check the detailed documents .

Step 1 : Obtain Token

Developer information and account on SOLARMAN Smart are required to get the Token to call OpenAPI.

Token will be the unique voucher and necessary condition to call OpenAPI.

(1) Interface Code: **2.1**

(2) Notice:

- APPID parameter is query parameter, which is put on URL.
- Password field will use SHA256 for encryption and transmit parameter later.
- Multiple token calling will not cause original token invalid. Term of validity of token is two month. And token will expire if the password is reset or the role is modified.
- APPID in testing environment cannot call API in production environment.
- It is necessary to have an account on SOLARMAN Smart yo obtain Token. Please input one of mobile / email / username parameter according to actual situation along with password.

Step 2: Create a Plant

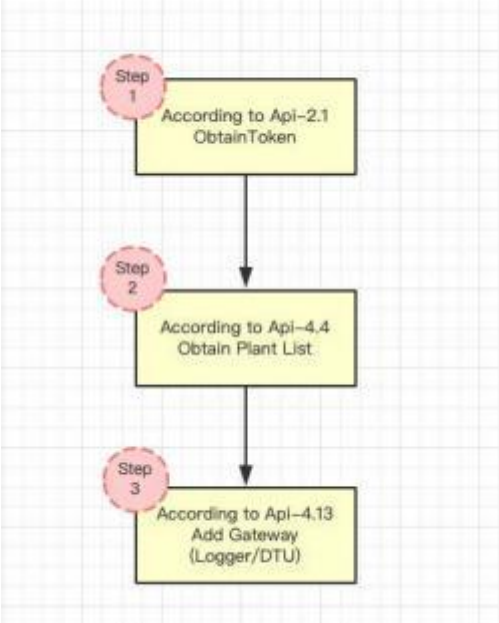
You can create a plant via this interface.

(1) Interface Code: **4.8**

(2) Notice:

- All required fields must be transmitted.
- gridInterconnectionType, please check API document **6. Enumeration Type Declaration** for type.
- Please check API document **9.Dictionary-Currency** for currency.

1.5.1.3 Add a Device



Precondition (Meet any of the preconditions below)

(1) Account has been created on SOLARMAN Smart Web/App or via OpenAPI .

(2) Authorized plant has been received via SOLARMAN Smart Web/App , and device can be added normally .

Calling Guide

This calling guide only demonstrates some marked scenes in the flowchart . If you wish to know other calling methods of other interfaces , please check the detailed documents .

Step 1 : Obtain Token

Developer information and account on SOLARMAN Smart are required to get the Token to call OpenAPI .
Token will be the unique voucher and necessary condition to call OpenAPI .

(1) Interface Code: **2.1**

(2) Notice:

- APPID parameter is query parameter , which is put on URL .
- Password field will use SHA256 for encryption and transmit parameter later .
- Multiple token calling will not cause original token invalid . Term of validity of token is two month . And token will expire if the password is reset or the role is modified .
- APPID in testing environment cannot call API in production environment .
- It is necessary to have an account on SOLARMAN Smart yo obtain Token . Please input one of mobile / email / username parameter according to actual situation along with password .

Step 2 : Obtain plant list

You can obtain plant list and Plant ID via this interface .

(1) Interface Code: **4.4**

(2) Notice:

- Header field authorization must be transmitted . Please put bearer as a prefix when transmitting token_type .
- Default : Inquiry the first page when paging parameter will not be transmitted .

Step 3 : Add a Device

Based on Plant ID , you can add a device under target plant via this interface .

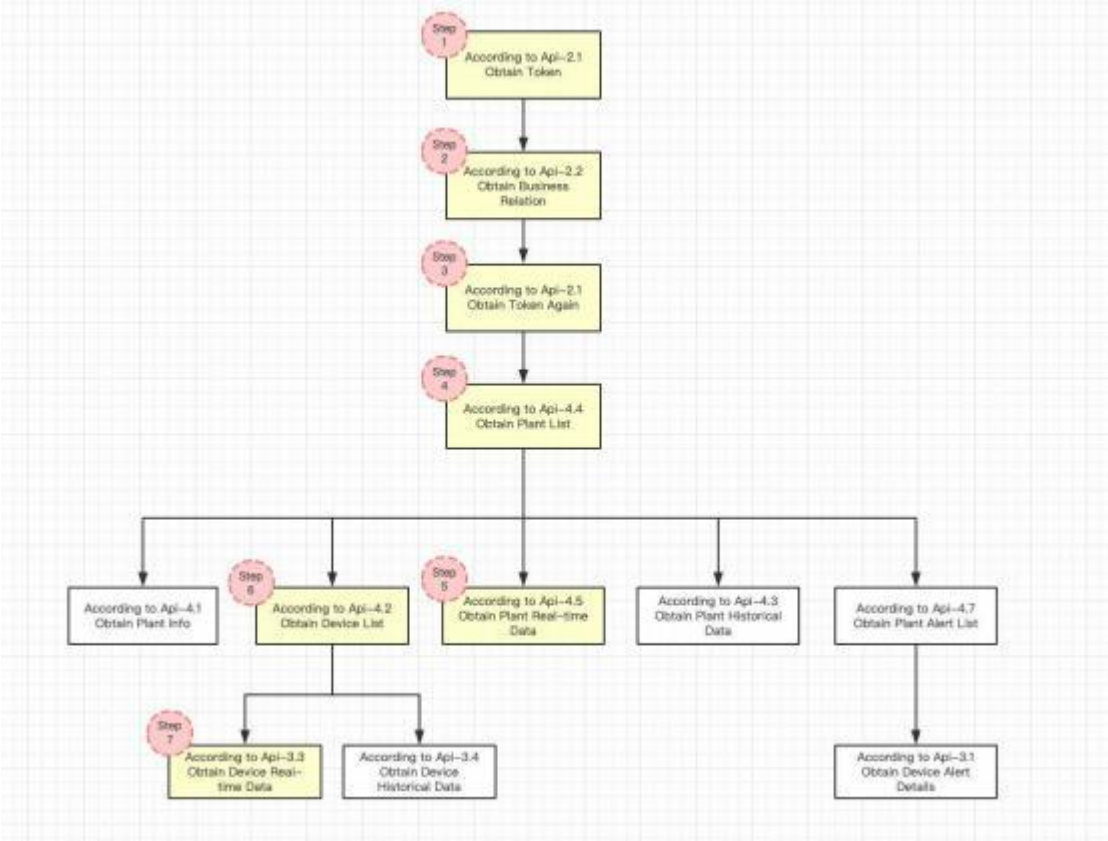
(1) Interface Code: **4.13**

(2) Notice:

- isAuto field must be transmitted . When isAuto =true and the data is transmitting , the relationship between sub-device of this gateway device and plant will be established automatically . When isAuto=false , only the relationship between gateway device and plant will be established , sub-device needs to be added manually .
  If calling sub-device is required , please contact the sales .

1.5.2 Process data from SOLARMAN Business via OpenAPI

1.5.2.1 Obtain plant and device data in O&M version



Precondition (Meet any of the preconditions below)

(1) Account has been created on SOLARMAN Business Web/App or via OpenAPI , logger has been added , and data can be checked normally .

(2) Authorized plant has been received via SOLARMAN Business Web/App , and data can be checked normally .

Calling Guide

This calling guide only demonstrates some marked scenes in the flowchart . If you wish to know other calling methods of other interfaces , please check the detailed documents .

Step 1: Obtain Token for first time

Developer information and account on SOLARMAN Business are required to get the Token to call OpenAPI.

Token will be the unique voucher and necessary condition to call OpenAPI.

(1) Interface Code: **2.1**

(2) Notice:

- APPID parameter is query parameter, which is put on URL.
- Password field will use SHA256 for encryption and transmit parameter later.
- Multiple token calling will not cause original token invalid. Term of validity of token is two month. And token will expire if the password is reset or the role is modified.
- APPID in testing environment cannot call API in production environment.
- It is necessary to have an account on SOLARMAN Business yo obtain Token. Please input one of mobile / email / username parameter according to actual situation along with password.

Step 2: Obtain business relation

Based on obtaining Token, you can obtain the business relation here, please note business OrgID.

(1) Interface Code: **2.2**

(2) Notice:

- Return value: companyId means orgId
- One account can belong to multiple companies. Please select orgId according to actual situation.

Step 3: Obtain Token for second time

For obtaining Token for second time, you need to get OrgID first and submit to interface, then you will get the business Token. When you use this Token to call other interface in OpenAPI, then the data of this business will be returned.

(1) Interface Code: **2.1**

(2) Notice:

- When obtaining business Token, orgId field must be transmitted. Or user Token will be obtained.

Step 4 : Obtain plant list

You can obtain plant list and Plant ID via this interface .

(1) Interface Code: **4.4**

(2) Notice:

- Header field authorization must be transmitted . Please put bearer as a prefix when transmitting token_type .
- Default : Inquiry the first page when paging parameter will not be transmitted .

Step 5 : Obtain plant real-time data

Based on knowing Plant ID , you can check plant real-time data via this interface , e .g . plant production power , plant feed-in power .

(1) Interface Code: **4.5**

(2) Notice:

- stationId is necessary , only matched plant ID will be transmitted .

Step 6 : Obtain device list

Based on knowing Plant ID , you can check device list via this interface to know device SN and Device ID .

(1) Interface Code: **4.2**

(2) Notice:

- Default : Inquiry all device data if deviceType field will not be transmitted , assigned device type will be obtained during the transmission .
- Please refer to API document **6 . Enumeration Type Declaration** for device type .

Step 7 : Obtain device real-time data

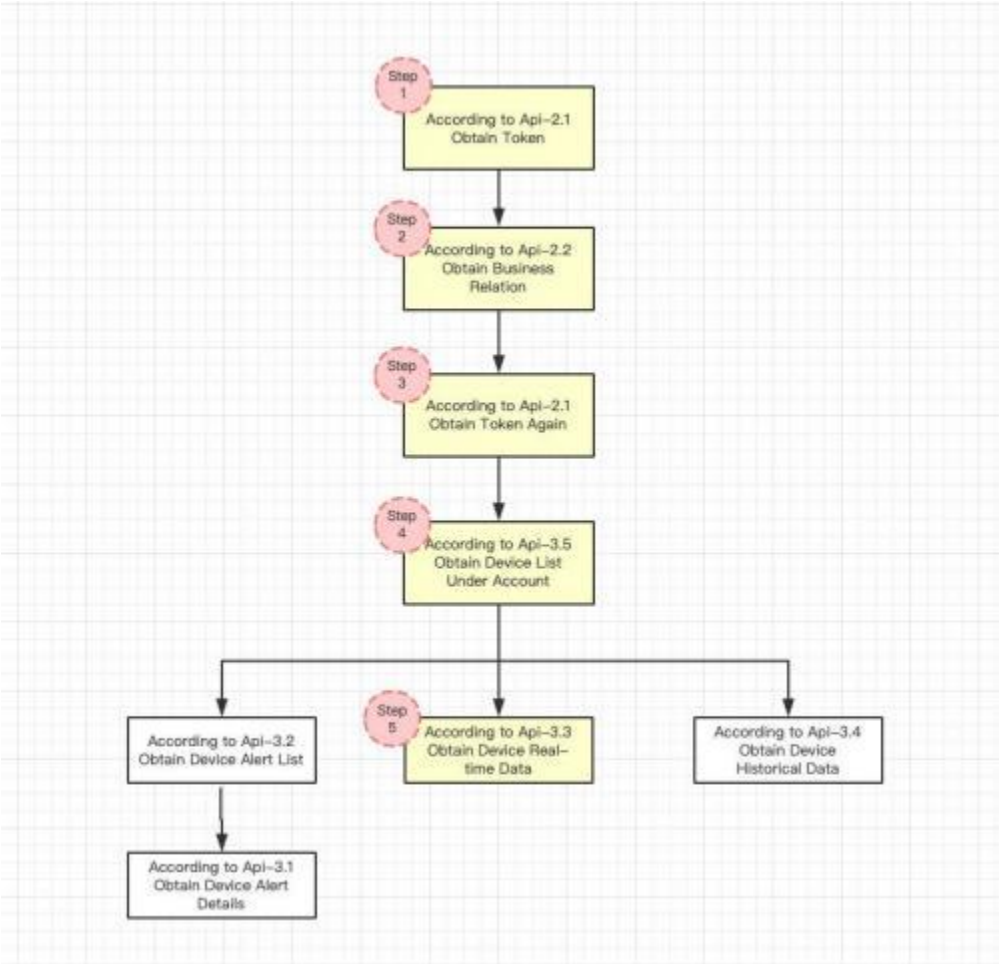
Based on knowing SN and Device ID , you can check device real-time data via this interface , e .g . inverter AC total output power , module production power , battery charging power .

(1) Interface Code: **3.3**

(2) Notice:

- Field deviceSn is necessary .

1.5.2.2 Obtain device data in device library



Precondition

Account has been created on SOLARMAN Business Web and logger has been imported in device library and data can be checked normally .

Calling Guide

This calling guide only demonstrates some marked scenes in the flowchart . If you wish to know other calling methods of other interfaces , please check the detailed documents .

Step 1 : Obtain Token for first time

Developer information and account on SOLARMAN Business are required to get the Token to call OpenAPI .

Token will be the unique voucher and necessary condition to call OpenAPI .

(1) Interface Code: **2.1**

(2) Notice:

- APPID parameter is query parameter , which is put on URL .
- Password field will use SHA256 for encryption and transmit parameter later .
- Multiple token calling will not cause original token invalid . Term of validity of token is two month . And token will expire if the password is reset or the role is modified .
- APPID in testing environment cannot call API in production environment .
- It is necessary to have an account on SOLARMAN Business yo obtain Token . Please input one of mobile / email / username parameter according to actual situation along with password .

Step 2: Obtain business relation

Based on obtaining Token , you can obtain the business relation here , please note business OrgID .

(1) Interface Code: **2.2**

(2) Notice:

- Return value : companyId means orgId
- One account can belong to multiple companies . Please select orgId according to actual situation .

Step 3: Obtain Token for second time

For obtaining Token for second time , you need to get OrgID first and submit to interface , then you will get the business Token . When you use this Token to call other interface in OpenAPI , then the data of this business will be returned .

(1) Interface Code: **2.1**

(2) Notice:

- When obtaining business Token , orgId field must be transmitted . Or user Token will be obtained .

Step 4: Obtain device list

Based on knowing Plant ID , you can check device list via this interface to know device SN and Device ID .

(1) Interface Code: **3.5**

(2) Notice:

- Header field authorization must be transmitted . Please put bearer as a prefix when transmitting token_type .
- Default : Inquiry the first page when paging parameter will not be transmitted .

Step 5 : Obtain device real-time data

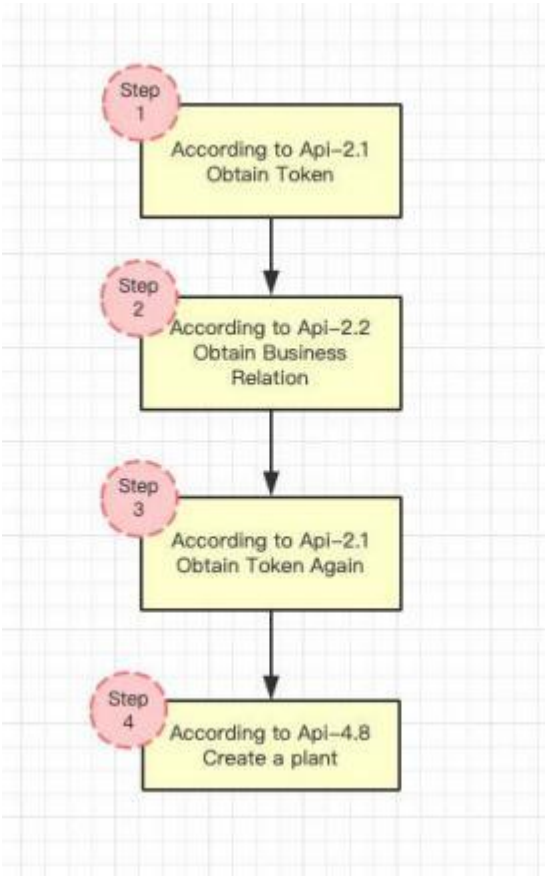
Based on knowing SN and Device ID , you can check device real-time data via this interface , e .g . inverter AC total output power , module production power , battery charging power .

(1) Interface Code: **3.3**

(2) Notice:

- Field deviceSn is necessary .

1.5.2.3 Create a Plant



Precondition

Account has been created on SOLARMAN Business Web/App or via OpenAPI .

Calling Guide

This calling guide only demonstrates some marked scenes in the flowchart . If you wish to know other calling methods of other interfaces , please check the detailed documents .

Step 1 : Obtain Token for first time

Developer information and account on SOLARMAN Smart are required to get the Token to call OpenAPI .
Token will be the unique voucher and necessary condition to call OpenAPI .

(1) Interface Code: **2.1**

(2) Notice:

- APPID parameter is query parameter , which is put on URL .
- Password field will use SHA256 for encryption and transmit parameter later .
- Multiple token calling will not cause original token invalid . Term of validity of token is two month . And token will expire if the password is reset or the role is modified .
- APPID in testing environment cannot call API in production environment .
- It is necessary to have an account on SOLARMAN Business yo obtain Token . Please input one of mobile / email / username parameter according to actual situation along with password .

Step 2 : Obtain business relation

Based on obtaining Token , you can obtain the business relation here , please note business OrgID .

(1) Interface Code: **2.2**

(2) Notice:

- Return value : companyId means orgId
- One account can belong to multiple companies . Please select orgId according to actual situation .

Step 3 : Obtain Token for second time

For obtaining Token for second time , you need to get OrgID first and submit to interface , then you will get the business Token . When you use this Token to call other interface in OpenAPI , then the data of this business will be returned .

(1) Interface Code: **2 . 1**

(2) Notice:

- When obtaining business Token , orgId field must be transmitted . Or user Token will be obtained .

Step 4 : Create a Plant

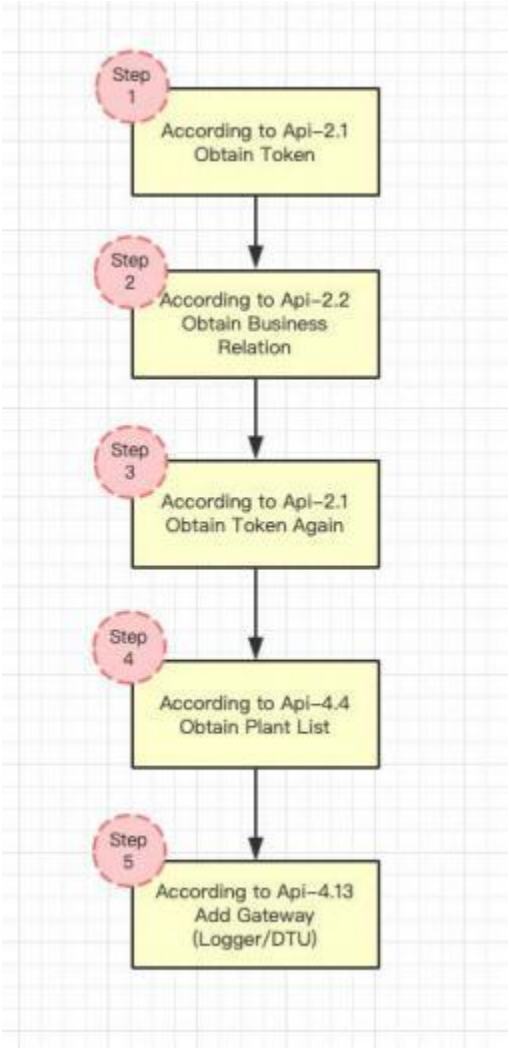
You can create a plant via this interface .

(1) Interface Code: **4 .8**

(2) Notice:

- All required fields must be transmitted .
- gridInterconnectionType , please check API document **6 . Enumeration Type Declaration** for type .
- Please check API document **8 .Dictionary-Currency** for currency .

1.5.2.4 Add a Device



Precondition (Meet any of the preconditions below)

(1) Account has been created on SOLARMAN Business Web/App or via OpenAPI .

(2) Authorized plant has been received via SOLARMAN Business Web/App , and device can be added normally .

Calling Guide

This calling guide only demonstrates some marked scenes in the flowchart . If you wish to know other calling methods of other interfaces , please check the detailed documents .

Step 1 : Obtain Token for first time

Developer information and account on SOLARMAN Smart are required to get the Token to call OpenAPI.

Token will be the unique voucher and necessary condition to call OpenAPI.

(1) Interface Code: **2.1**

(2) Notice:

- APPID parameter is query parameter, which is put on URL.
- Password field will use SHA256 for encryption and transmit parameter later.
- Multiple token calling will not cause original token invalid. Term of validity of token is two month. And token will expire if the password is reset or the role is modified.
- APPID in testing environment cannot call API in production environment.
- It is necessary to have an account on SOLARMAN Business yo obtain Token. Please input one of mobile / email / username parameter according to actual situation along with password.

Step 2: Obtain business relation

Based on obtaining Token, you can obtain the business relation here, please note business OrgID.

(1) Interface Code: **2.2**

(2) Notice:

- Return value: companyId means orgId
- One account can belong to multiple companies. Please select orgId according to actual situation.

Step 3: Obtain Token for second time

For obtaining Token for second time, you need to get OrgID first and submit to interface, then you will get the business Token. When you use this Token to call other interface in OpenAPI, then the data of this business will be returned.

(1) Interface Code: **2.1**

(2) Notice:

- When obtaining business Token, orgId field must be transmitted. Or user Token will be obtained.

Step 4 : Obtain plant list

You can obtain plant list and Plant ID via this interface .

(1) Interface Code: **4.4**

(2) Notice:

- Header field authorization must be transmitted . Please put bearer as a prefix when transmitting token_type .
- Default : Inquiry the first page when paging parameter will not be transmitted .

Step 5 : Add a Device

Based on Plant ID , you can add a device under target plant via this interface .

(1) Interface Code: **4.13**

(2) Notice:

- isAuto field must be transmitted . When isAuto =true and the data is transmitting , the relationship between sub-device of this gateway device and plant will be established automatically . When isAuto=false , only the relationship between gateway device and plant will be established , sub-device needs to be added manually .
  If calling sub-device is required , please contact the sales .

2 Account Interface

2.1 Obtain Token

Obtain token	
Interface Description	Token is a credential to call resources. System supports registration via mobile, E- mail, username. (Field of mobile, email, username: one of three must be passed. Pass mobile field: countryCode must be passed.

	Passing orgId field will obtain business Token. Otherwise, C-end user Token will be obtained.)
Request URL	https://globalapi.solarmanpv.com/account/v1.0/token
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
appId	string	query	Y	APPID (Example): 201911067156002
appSecret	string	body	Y	appSecret (Example): 1q3e2ee5w5w20ww
countryCode	string	body	N	Country Code(Example): 86
email	string	body	N	Email (Example): 13255@qq.com
mobile	string	body	N	Mobile (Example): 13255200000
orgId	integer	body	N	Business ID (Example): 12
password	string	body	Y	Password (Example): 13255208128 (sha256 encrypted)
username	string	body	N	Username (Example) : sunsun

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
access_ token	string	body	N	access_ token (Example): eyJhbGciOiJSUzI1 NiIsInR5 cC
code	string	body	N	Code (Example): 10000
expires_ in	string	body	N	expires_in (Example) : 5183999 (Unit:s)
refresh_ token	string	body	N	refresh_ token (Example): eyJhbGciOiJSUzI1 NiIsInR5 cC

scope	string	body	N	Scope (Example) : all
token_ type	string	body	N	token_type (Example) : bearer
uid	integer	body	N	User ID (Example) : all
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				

Request Parameters	/account/v1.0/token?appId=201911067232002&language=en
	{
	"appSecret": "3a8791f012acc13226ca60e63ac6c1aff3",
	"username": "cvwwb",
	"orgId": 860,
	"password": "472bbe83616e93d3c09a79103ae47d8f71e3d35a966d6e8b22f743218d04171d"
	}			

Return Value	{ "code": null, "msg": null, "success": true, "requestId": "9d8cfe698b344d2780478006462899de", "access_token": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VyX25hbWUiOiI4NjBfY3ZiXzMiLCJzY29wZSI6WyJhuu9IH6DXL_ZOx5RHvts8K9a_k1eEA7wadIB32we9o0zTJgbzC1oGyB1FqbQ", "token_type": "bearer", "refresh_token": "eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VyX25hbWUiOiI4NjBfY3ZiXzMiLCJzY29wZSI6WyJhbGwiXSwiYXRpIjoiZGYxYjlmODQtMzhiNC00ZTEzLWIxYTktZjE3ZWZhMjMjJ7FW59UavQ4uw-6515xNcox			

	pj7 5 4 eMrPP3 SVO9 _ HI4 aufGsIP1 P7 PPWzJ3 VZsckTLHas6 cWWEvdengunK2 BLLsokdz4 klxsT3 oX0 BmewfcWEZ9 qjGenF0 Ht0 eRLZdaRwr2skqHhUQ", "expires_in": "5183999", "scope": null, "uid": 6681 }

2.2 Business Relation

Business Relation				
Interface Description	Query corresponding company and role			
Request URL	https://globalapi.solarmanpv.com/account/v1.0/info			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
orgInfoList	array	body	N	Business List

companyId	integer	body	N	Company ID (Example): 123
companyName	string	body	N	Company Name (Example): IGEN- Tech
roleName	string	body	N	Role Name (Example): Admin
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	/account/v1.0/info?language=en			

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "c1cf72f30f4f483da94e81f458fd3f4a",
	"orgInfoList": [
	{
	"companyId": 12,
	"companyName": "business-zcg01",
	"roleName": "超级管理员"
	},
	{
	"companyId": 129,
	"companyName": "OpenAPI",
	"roleName": "超级管理员"
	}
	]
	}			

2.3 Permission

Permission				
Interface Description	Login to SolarMAN Business and obtain the permission under the account.			
Request URL	https://globalapi.solarmanpv.com/account/v1.0/role			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
viewDeviceAlertData	integer	body	N	View Device Alert Data (Example) : 0 : Denied; 1 : Pass
viewDeviceAlertList	integer	body	N	View Device Alert List (Example) : 0 : Denied; 1 : Pass
viewDeviceData	integer	body	N	View Device Data(Example) : 0: Denied; 1: Pass
viewDeviceList	integer	body	N	View Device List(Example) : 0: Denied; 1: Pass
viewStationAlertList	integer	body	N	View Station Alert List (Example) : 0 : Denied; 1 : Pass
viewStationData	integer	body	N	View Station Data(Example) : 0: Denied; 1: Pass

viewStationDeviceList	integer	body	N	View Sub- device/ Device (Example): 0: Denied; 1: Pass
viewStationInfo	integer	body	N	View Station Info (Example): 0: Denied; 1: Pass
viewStationList	integer	body	N	View Station List (Example): 0: Denied; 1: Pass
msg	string	body	N	Message (Example): success
success	boolean	body	N	Success or not (Example): true
requestId	string	body	N	Request ID (Example): 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	/account/v1.0/role?language=en			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "a5a7c7a7e8f8459f9ed04ebb3faaaa13", "viewStationList": 1, "viewStationInfo": 1, "viewStationDeviceList": 1, "viewStationData": 1, "viewStationAlertList": 1, "viewDeviceList": 1, "viewDeviceData": 1, "viewDeviceAlertList": 1, "viewDeviceAlertData": 1 }			

2.4 Account Registration

Account Registration				
Interface Description	Register a new account			
Request URL	https://globalapi.solarmanpv.com/account/v1.0/user			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
appId	string	query	Y	APPID (Example) 201911067156002
appSecret	string	query	Y	appSecret Key
captcha	string	body	N	Verification Code (Example) 323488
email	string	body	N	E-mail
nickname	string	body	N	Nick name Default:User+{10bits Time stamp}
oldUserId	string	body	N	Customer Uid, Rule: {APP_ID}_{OldUid}
originalPhotoUrl	string	body	N	Original Avatar Url
password	string	body	N	Password (sha256 Encrypted)
phoneNumber	string	body	N	Phone Number
phoneNumberPrefix	string	body	N	Phone Number Prefix (Example) 86
photoUrl	string	body	N	Avatar compress picture Url
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**

code	string	body	N	Info Code (Example) 10000
userId	integer	body	N	User ID
msg	string	body	N	Info Description (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request Id (Example) 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "phoneNumber":"17625013458 4", "phoneNumberPrefix":"86", "captcha":"306051", "password":"8d969eef6ecad3c29a3a629280e6866cf0c3f5d5a86aff3ca12020c923adc6c92", "originalPhotoUrl":"https://pic4.zhimg.com/6e667816f90ed16cb346566e0ea982f76b_xll.jpg", "photoUrl":"https://pic4.zhimg.com/6e667816f90ed16cb346566e0ea982f76b_xll.jpg" }			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "47ad0d1931d2426999afad57223caf32c", "userId": 620 }			

2.5 Obtain Account Info

Obtain Account Info

Interface Description	Obtain Account Info
Request URL	https://globalapi.solarmanpv.com/ account/ v1 . 0 / user- info
Request Mode	post
Request Type	application/ json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code(Example) 10000
email	string	body	N	E- mail
lastLoginTime	string	body	N	Last Login Time
nickname	string	body	N	Nickname
oldUserId	string	body	N	Customer Platform Uid
originalPhotoUrl	string	body	N	Original Photo Url
phoneNumber	string	body	N	Phone Number
phoneNumberPrefix	string	body	N	Phone Number Prefix
photoUrl	string	body	N	Avatar Url
regTime	string	body	N	Registration Time
userId	integer	body	N	User ID
username	string	body	N	User name
msg	string	body	N	Message (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request ID (Example)

				1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	/account/v1.0/user-info			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "b19522c0cda74b90992cd0cf1aa17d68", "userId": 14, "phoneNumberPrefix": "86", "phoneNumber": "1301110006", "email": "chenggong.zhang@igen-tech.com", "username": "zcg", "regTime": null, "lastLoginTime": 1583803446.000000000, "nickname": "张成功", "photoUrl": "http://img1.igen-tech.com/temp/79d4091821834ae9b3d35c69793f5a131583200093224b", "originalPhotoUrl": "" http://img1.igen-tech.com/temp/880861e2f1614733932eefaa13f3d1531583200091488.gif", "oldUserId": null }			

2.6 Modify Account Info

Modify Account Info	
Interface Description	Modify Account Info, e.g. Nickname, avatar
Request URL	https://globalapi.solarmanpv.com/account/v1.0/user-info-update

Request Mode	post
Request Type	application/ json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 IkpXVCJ9
newNickname	string	body	N	Nickname
originalPhotoUrl	string	body	N	Original Avatar Url
photoUrl	string	body	N	Avatar compress picture Url

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code (Example) 1 0 0 0 0
msg	string	body	N	Message (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request ID (Example) 1 d6 f6 eca9 bee4 b6 4 8 3 d4 af0 6 4 b6 5 9 eec

Example

Request Parameters	{ " newNickname" : " ggg" }
Return Value	{ "code": null, "msg": null, "success": true, " requestId": "b4 6 c6 5 eee2 0 6 4 e2 7 8 f9 d2 9 9 0 c4 a9 a8 2 6" }

2.7 Modify Binding Info

Modify Binding Info	
Interface Description	Modify phone number, E-mail, username
Request URL	https://globalapi.solarmanpv.com/account/v1.0/bind-info
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9
captcha	string	body	N	Verification Code (Example) 323488
newEmail	string	body	N	New Email
newPhoneNumber	string	body	N	New Phone Number
newUsername	string	body	N	New Username
phoneNumberPrefix	string	body	N	Phone Number Prefix (Example) 86

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code (Example) 10000
msg	string	body	N	Message (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request ID (Example) 1d6f6eca9bee4b6483d4af064b659eec

Example

Request Parameters	{
	"captcha": "153354",
	"newPhoneNumber": "126250134584",
	"phoneNumberPrefix": "86"
	}

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "bf05126704f14a44a51dd5513817ec26"
	}

2.8 Reset Password

Reset Password				
Interface Description	Reset Password			
Request URL	https://globalapi.solarmanpv.com/ account/ v1 . 0 / password- reset			
Request Mode	post			
Request Type	application/ json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
appId	string	query	Y	APPID (Example) 201911067156002
appSecret	string	query	Y	appSecret Key
captcha	string	body	N	Verification Code (Example) 323488
email	string	body	N	E- mail
newPassword	string	body	N	Password sha2 5 6 Encrypted

phoneNumber	string	body	N	Phone Number
phoneNumberPrefix	string	body	N	Phone Number Prefix (Example) 86
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Info Code (Example) 10000
msg	string	body	N	Message (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request ID (Example) 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "captcha":"035230", "phoneNumber":"126250134584", "phoneNumberPrefix":"86", "newPassword":"8d969eef6ecad3c29a3a629280e6866cf0c3f5d5a86aff3ca12020c923adc6c92" }			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "6cef74d133814757b381489697220b21" }			

2.9 Modify Password

Modify Password

Interface Description	Modify Password
Request URL	https://globalapi.solarmanpv.com/ account/ v1 . 0 / password- update
Request Mode	post
Request Type	application/ json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9
newPassword	string	body	N	New Password sha2 5 6 Encrypted
oldPassword	string	body	N	Old Password sha2 5 6 Encrypted

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code (Example) 1 0 0 0 0
msg	string	body	N	Message (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request ID (Example) 1 d6 f6 eca9 bee4 b6 4 8 3 d4 af0 6 4 b 6 5 9 eec

Example

Request Parameters	{ " newPassword" : " 8 d9 6 9 eef6 ecad3 c2 9 a3 a6 2 9 2 8 0 e6 8 6 cf0 c3 f5 d5 a8 6 aff3 ca1 2 0 2 0 c9 2 3 adc6 c9 2 1 ", " oldPassword" : " 8 d9 6 9 eef6 ecad3 c2 9 a3 a6 2 9 2 8 0 e6 8 6 cf0 c3 f5 d5 a8 6 aff3 ca1 2 0 2 0 c9 2 3 adc6

	c92" }

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "6cef74d133814757b381489697220b21"
	}

3 Device Interface

3.1 Alert Details- Device

Alert Details- Device				
Interface Description	Alert Details- Device			
Request URL	https://globalapi.solarmanpv.com/device/v1.0/alertDetail			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
alertId	integer	body	Y	Alert ID (Example) : 252525
deviceId	integer	body	N	Device ID (Example) : 252525

deviceSn	string	body	Y	Device SN (Example): 12583SS
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
addr	string	body	N	Alert Name(Example): ERR1
alertCode	string	body	N	Alert Code (Example): 10
alertId	integer	body	N	Alert ID (Example) : 343
alertName	string	body	N	Alert Name in PAAS platform (Example) : 343
alertTime	integer	body	N	Alert Time (Example): 1574133203
code	string	body	N	Code (Example): 10000
description	string	body	N	Description (Example) : aaa
deviceSn	string	body	N	Device SN (Example): 12583SS
deviceType	string	body	N	Device Type (Example): C0 LLECTOR
influence	integer	body	N	Influence (0: No Influence, 1: Influence Production , 2: Influence Safety , 3: Influence Production&Safety) (Example): 10
level	integer	body	N	Alert Level (0: Prompt, 1 : Warning,2: Failure) ,(Example): 10
reason	string	body	N	Alert Reason (Example) : aaa
solution	string	body	N	Solution (Example) : aaa
msg	string	body	N	Message (Example): success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec

Example	

Request Parameters	{
	"deviceId": 200203179,
	"deviceSn": "dev1800078101",
	"alertId": 4
	}

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "85aff69bfabe4872846c5e9db11e4220",
	"alertId": 4,
	"deviceSn": "dev1800078101",
	"deviceType": "INVERTER",
	"alertName": "Error: 99+x",
	"addr": "ERR1",
	"alertCode": "3",
	"level": 2,
	"influence": 2,
	"alertTime": 1580621358,
	"description": "",
	"reason": null,
	"solution": null
	}

3.2 Alert List-Device

Alert List-Device	
Interface Description	Alert List-Device

Request URL	https://globalapi.solarmanpv.com/device/v1.0/alertList
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
deviceId	integer	body	N	Device ID (Example) : 252525
deviceSn	string	body	Y	Device SN (Example): 12583SS
endTimestamp	integer	body	Y	End Time Stamp (Example): 1574132094
page	integer	body	N	Page
size	integer	body	N	View
startTimestamp	integer	body	Y	Start Time Stamp(Example): 574132075

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
alertList	array	body	N	Alert List (Example) : deviceList
addr	string	body	N	Alert Name(Example): ERR1
alertId	integer	body	N	Alert ID (Example): 111
alertName	string	body	N	Alert Name in PAAS platform (Example) : 343
alertTime	integer	body	N	Alert Time (Example): 1574133203
code	string	body	N	Code (Example): 10000
influence	integer	body	N	Influence (0: No Influence, 1:

				Influence Production，2：Influence Safety，3：Influence Production&Safety)（Example)：2
level	integer	body	N	Alert Level（0：Prompt，1：Warning,2：Failure），(Example)：1
code	string	body	N	Code（Example)：10000
deviceId	integer	body	N	Device ID(Example)：252525
deviceSn	string	body	N	Device SN（Example)：12583SS
deviceType	string	body	N	Device Type（Example)：C0 LLECTOR
total	integer	body	N	Total(Example)：322
msg	string	body	N	Message（Example)：success
success	boolean	body	N	Success or not（Example)：true
requestId	string	body	N	Request ID（Example)：1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "deviceId": 200203179, "deviceSn": "dev1800078101", "endTimestamp": 1580886244, "page": 1, "size": 10, "startTimestamp": 1580540643, }			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "99bcad02b13241349dd89936793414a2",			

```
    "deviceSn": "dev1800078101",
    "deviceId": 200203179,
    "deviceType": "INVERTER",
    "total": 5,
    "alertList": [
        {
            "alertId": 2,
            "alertName": "Error: 99+x",
            "addr": "ERR1",
            "code": "1",
            "level": 0,
            "influence": 0,
            "alertTime": 1580621658
        }
    ]
}
```


3.3 Real-time Data-Device

Real-time Data-Device	
Interface Description	Real-time Data-Device
Request URL	https://globalapi.solarmanpv.com/device/v1.0/currentData
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6

				IkpXVCJ9
deviceId	integer	body	N	Device ID (Example) : 252525
deviceSn	string	body	Y	Device SN (Example) : 12583SS
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example) : 10000
dataList	array	body	N	Data List (Example) : dataList
key	string	body	N	Parameter key (Example) : PG_Pt1
name	string	body	N	Parameter Name (Example) : Total Grid Power
unit	string	body	N	Parameter Unit (Example) : W
value	string	body	N	Parameter Value(Example) : 55
deviceId	integer	body	N	Device ID (Example): 252525
deviceSn	string	body	N	Device SN (Example) : 12583SS
deviceState	integer	body	N	Device State Value : 1. Online 2. Alerting 3. Offline (Example) : 1
deviceType	string	body	N	Device Type (Example) : C0 LLECTOR
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "deviceId": 200203179, "deviceSn": "dev1800078101" }			

Return Value	{
	"timeType": 4,
	"startTime": "2019",
	"endTime": "2020",
	"deviceSn": "dev1800078101",
	"deviceId": 200203179
	}{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "d35ced8da68d4fa1868c540afb7166bc",
	"deviceSn": "dev1800078101",
	"deviceId": 200203179,
	"deviceType": "INVERTER",
	"deviceState": 3,
	"dataList": [
	{
	"key": "SN1",
	"value": "dev1800078101",
	"unit": null,
	"name": "SN"
	},
	{
	"key": "DV1",
	"value": "4980.60",
	"unit": "V",
	"name": "DC Voltage PV1"
	},
	{
	"key": "DV2",
	"value": "5803.20",
	"unit": "V",

```
            "name": "DC Voltage PV2"
        },
        {
            "key": "DC1",
            "value": "5056.50",
            "unit": "A",
            "name": "DC Current PV1"
        },
        {
            "key": "DC2",
            "value": "3089.50",
            "unit": "A",
            "name": "DC Current PV2"
        },
        {
            "key": "DP1",
            "value": "4004365166",
            "unit": "W",
            "name": "DC Power PV1"
        },
        {
            "key": "DP2",
            "value": "447735664",
            "unit": "W",
            "name": "DC Power PV2"
        },
        {
            "key": "DPi_t1",
            "value": "3495584498",
            "unit": "W",
            "name": "Total DC Input Power"
        },
```

```
        {
            "key": "AV1",
            "value": "5803.10",
            "unit": "V",
            "name": "AC Voltage R/U/A"
        },
        {
            "key": "AV2",
            "value": "6298.00",
            "unit": "V",
            "name": "AC Voltage S/V/B"
        },
        {
            "key": "AV3",
            "value": "3996.80",
            "unit": "V",
            "name": "AC Voltage T/W/C"
        },
        {
            "key": "AC1",
            "value": "4072.60",
            "unit": "A",
            "name": "AC Current R/U/A"
        },
        {
            "key": "AC2",
            "value": "3526.90",
            "unit": "A",
            "name": "AC Current S/V/B"
        },
        {
            "key": "AC3",
```

```
            "value": "996.60",
            "unit": "A",
            "name": "AC Current T/W/C"
        },
        {
            "key": "APo_t1",
            "value": "0",
            "unit": "W",
            "name": "Total AC Output Power (Active)"
        },
        {
            "key": "A_Fo 1",
            "value": "493.07",
            "unit": "Hz",
            "name": "AC Output Frequency R"
        },
        {
            "key": "PF0",
            "value": "5.97",
            "unit": null,
            "name": "Power Factor"
        },
        {
            "key": "Et_ge0",
            "value": "29110.00",
            "unit": "kWh",
            "name": "Cumulative Production (Active)"
        },
        {
            "key": "Etdy_ge1",
            "value": "800",
            "unit": "kWh",
```

```
            "name": "Daily Production (Active)"
        },
        {
            "key": "INV_T0",
            "value": "6519.00",
            "unit": "℃ ",
            "name": "Temperature- Inverter"
        },
        {
            "key": "t_w_hou1",
            "value": "1575738915",
            "unit": "h",
            "name": "Total Running Hour"
        },
        {
            "key": "INV_ST1",
            "value": "56462",
            "unit": null,
            "name": "Inverter status"
        },
        {
            "key": "PG_V_ERR0",
            "value": "6026.00",
            "unit": null,
            "name": "Grid Voltage Error Value"
        },
        {
            "key": "PG_F_ERR0",
            "value": "436.80",
            "unit": null,
            "name": "Grid Frequency Error Value"
        },
```

```
        {
            "key": "MAC_T_ERRin1",
            "value": "2777.80",
            "unit": null,
            "name": "Inner Temperature Error Value "
        },
        {
            "key": "N_I_ERR1",
            "value": "521.35",
            "unit": null,
            "name": "Isolation Impedance Error Value "
        },
        {
            "key": "D_ERRcp1",
            "value": "2206.50",
            "unit": null,
            "name": "DC Component Error Value"
        },
        {
            "key": "V_ERRi1",
            "value": "4121.10",
            "unit": null,
            "name": "Input Voltage 1  Error Value"
        },
        {
            "key": "ELC_ERR1",
            "value": "559.12",
            "unit": null,
            "name": "Leak Current Error Value"
        }
    ]
}
```

3.4 Historical Data-Device

Historical Data-Device				
Interface Description	Historical Data-Device			
Request URL	https://globalapi.solarmanpv.com/device/v1.0/historical			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
deviceId	integer	body	N	Device ID(Example) : 252525
deviceSn	string	body	Y	Device SN(Example): 12583SS
endTime	string	body	Y	End Time yyyy-MM-dd or yyyy-MM or yyyy , (Example): 2019-11-18
startTime	string	body	Y	Start Time yyyy-MM-dd or yyyy-MM or yyyy , (Example): 2019-11-18
timeType	integer	body	Y	Value Type 1. Frame: Frame data someday 2. Day: Daily statistics (Less than 30 days) 3. Month: Monthly statistics (Less than 12 months) 4. Year: Yearly statistics,

				(Example): 1
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
deviceId	integer	body	N	Device ID (Example) : 252525
deviceSn	string	body	N	Device SN (Example): 12583SS
deviceType	string	body	N	Device Type (Example): C0 LLECTOR
paramDataList	array	body	N	Data List (Example): paramDataList
collectTime	string	body	N	timeType is different , the format is different 1: Time Stamp 2: yyyy-MM-dd 3: yyyy-MM 4: yyyy ,(Example): 123456
dataList	array	body	N	Data (Example) : dataList
key	string	body	N	Parameter key (Example) : PG_Pt1
name	string	body	N	Parameter Name (Example) : Total Grid Power
unit	string	body	N	Parameter Unit (Example) : W
value	string	body	N	Parameter Value(Example) : 55
timeType	integer	body	N	Value Type 1. Frame: Frame data someday 2. Day: Daily statistics (Less than 30 days) 3. Month: Monthly statistics (Less than 12 months) 4. Year: Yearly statistics, (Example): 1
msg	string	body	N	Message (Example): success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example): 1d6f6eca9bee4b6483d4af064b65

				9 eec

Example	

Request Parameters	{
	"timeType": 4,
	"startTime": "2019",
	"endTime": "2020",
	"deviceSn": "dev1800078101",
	"deviceId": 200203179
	}

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "150657ef285d414894870310d03b448e",
	"deviceSn": "dev1800078101",
	"deviceId": 200203179,
	"deviceType": "INVERTER",
	"timeType": 4,
	"paramDataList": [
	{
	"collectTime": "2019",
	"dataList": [
	{
	"key": "generation",
	"value": "9292.00",
	"unit": "kWh",
	"name": "Production"
	}
	]
	},
	{
	"collectTime": "2020",

	"dataList": [
	{
	"key": "generation",
	"value": "16935.00",
	"unit": "kWh",
	"name": "Production"
	}
	]
	}
	]
	}

3.5 Device List

Device List				
Interface Description	Device List			
Request URL	https://globalapi.solarmanpv.com/device/v1.0/list			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 IkpXV CJ9
page	integer	body	N	Page

size	integer	body	N	View
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
deviceList	array	body	N	Device List (Example) : deviceList
deviceId	integer	body	N	Device ID (Example) : 252525
deviceSn	string	body	N	Device SN (Example): 12583SS
deviceState	integer	body	N	Device State Value: 1. Online 2. Alerting 3. Offline (Example): 1
deviceType	string	body	N	Device Type (Example): COLLECTOR
updateTime	integer	body	N	Update Time(Example): 2332d22
total	integer	body	N	Total (Example) : 322
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "page":1, "size":2 }			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "9300c3b735c6470bb583a0bf58d4daa5", "total": 27, "deviceList": [{			

```
            "deviceSn": "1800072201",
            "deviceId": 200197997,
            "deviceType": "COLLECTOR",
            "deviceState": 3,
            "updateTime": 1582772840
        },
        {
            "deviceSn": "1800072201-Igen",
            "deviceId": 200206455,
            "deviceType": "INVERTER",
            "deviceState": 3,
            "updateTime": 1582772840
        }
    ]
}
```


3.6 Obtain SIM Card Info of Gateway Device

Obtain SIM Card Info of Gateway Device				
Interface Description	Obtain SIM Card Info of Gateway Device			
Request URL	https://globalapi.solarmanpv.com/device/v1.0/simInfo			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp

				XVCJ9
deviceId	integer	body	N	Device ID (Example) : 252525
deviceSn	string	body	Y	Device SN (Example): 12583SS
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
limitTime	string	body	N	Valid Date: yyyy-MM-dd (Example): 2019-12-31
status	integer	body	N	COM Status 1: Unactivated, 2: Normal, 3: In Arrears, 4: Recharged, 5 : Write Off, 6 : About to expire, (Example) : 343
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "deviceId": 200203179, "deviceSn": "dev1800078101" }			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "c6ffed3a4dae44d59dc30f3af19ea062", "status": 2, "limitTime": “2020-12-11 ” }			

3.7 Issued Device Control Command

Note:

1. This interface is a general description of the interface for issuing device control commands. If your device has implemented device control functions on the platform, you need to obtain a further command configuration table before operating this interface.

2. The maximum number of requests per minute for a single OpenApi account to call the interface: 50

Issued Device Control Command				
Interface Description	Issued Device Control Command			
Request URL	https://globalapi.solarmanpv.com/device/v1.0/remoteControl			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example): zh
authorization	string	header	Y	accessToken (Example): eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
deviceSn	string	body	Y	Device SN (Example): 12583SS
controlCode	string	body	Y	Device Control code (Example): 1100,s_kgjsn
content	string	body	Y	Control content (Example): {"inputParam":[{value:190}]}
callBackUrl	string	body	Y	Command result callback address, (Example): https://www.solarman.cn/

				For the definition of response parameters in the callback result, see below Callback address request type: POST After sending the command, the command result is requested every 3 seconds for the first 60 seconds, and every 30 seconds after 60 seconds. After the command result is available, a callback is initiated. The callback party needs to return a "SUCCESS" response, otherwise the callback will be initiated again. If the callback fails after more than 600s, it will be discarded. No more callback

Response Parameters

Parameter Name	Data Type	Description
code	string	Info Code(Example) 10000
msg	string	Message (Example) success
success	boolean	Success or not (Example) true
requestId	string	Request ID (Example) 1d6f6eca9bee4b6483d4af0646b6596eec
collectionTime	string	The latest data receiving timestamp, (Example) 1615900034
connectStatus	INT	Network status 0: offline 1: online
orderId	string	ID of the command task

Example

Request Parameters	{ "controlCode":"1107,r_kgjsn",

	"deviceSN":"1800800121-Igen", "callBackUrl":"http://localhost:8019/device/v1.0/callback", "content":"{\"inputParam\":[{\"value\":\"190\",\"ext\":\"\",\"oValue\":\"190\"}]}" }

Return Value	{
	"code" : **null**,
	"msg" : **null**,
	"success" : **true**,
	" requestId" : "311d34904f1841999f2f58b9b43f8719" ,
	“collectionTime” :” 1615900034” ,
	“connectStatus” :1 ,
	“orderId” :” 19928812”
	}

Callback result-response parameter description

Response Parameters		
Parameter Name	**Data Type**	**Description**
ack	string	The original value of the device feedback, example value: 010302000A3843
analysisResult	string	Result analyzed by the platform, example value: 10
content	string	The content of the command issued by the platform, example value: 01030BFB0001F7DF
createTime	string	The creation time of the command task, example value: 1615342904000
deviceId	string	Device ID (Example) : 252525
deviceSn	string	Device SN (Example): 12583SS
orderId	string	ID of the command task
success	boolean	The feedback result of the command task, success: true failure: false

updateTime	string	The feedback time of the command task, example value: 1615342904000
Example		

Request Parameters	{
	"ack":"010302000A3843",
	"analysisResult":"10",
	"content":"01030BFB0001F7DF",
	"createTime":1615342904000,
	"deviceId":205546783,
	"deviceSn":"120D70206040057",
	"orderId":1011830,
	"success":true,
	"updateTime":1615343254000
	}	

Return Value	{
	"success" : **true**
	}	

3.8 Device communication relationship

Issued Device Control Command				
Interface Description	Device communication relationship			
Request URL	https://globalapi.solarmanpv.com/ device/ v1 . 0 / communication			
Request Mode	post			
Request Type	application/ json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**

language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
deviceSn	string	body	Y	Device SN (Example) : 12583SS
deviceId	integer	body	N	Device ID (Example) : 252525
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	信息码 ,示例值: 10000
communicatio n	Object	body	N	communication relationship
childList	array	body	N	childList
deviceId	integer	body	N	Device ID (Example) : 252525
deviceSn	string	body	Y	Device SN (Example) : 12583SS
deviceState	integer	body	N	The current state of the device. Value: 1. Online 2. Alarm 3. Offline, sample value: 1
deviceType	string	body	N	Device Type(Example) : C0 LLECTOR
parentSn	string	body	N	Unique identification of parent device (Example) : 12583SS
timeZone	string	body	N	Device time zone (Example) : Asia/ Shanghai
updateTime	integer	body	N	Last Updated Time
msg	string	body	N	Message (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request ID (Example) 1d6f6eca9bee4b6483d4af064b6 59eec
Example				

Request Parameters	{
	"deviceId": 288888888,
	"deviceSn": "dev180000"
	}

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "2a3544de2f624a18869c0c8f12a1078e",
	"communication": {
	"deviceSn": "180000",
	"deviceId": 299999999,
	"parentSn": "180000",
	"deviceType": "COLLECTOR",
	"deviceState": 1,
	"updateTime": 1608181709,
	"timeZone": "America/Los_Angeles",
	"childList": [
	{
	"deviceSn": "dev180000",
	"deviceId": 288888888,
	"parentSn": "180000",
	"deviceType": "INVERTER",
	"deviceState": 1,
	"updateTime": 1608181709,
	"timeZone": "America/Los_Angeles",
	"childList": null
	}
	]
	}
	}

3.9 Customized Command

Note:

1. After your device has implemented the customized command function on the SOLARMAN Business platform or the SOLARMAN Smart platform, you can perform Api layer operations through this interface.

2. The maximum number of requests per minute for a single OpenApi account to call the interface: 50

Customized Command				
Interface Description	Supports the issuance of custom transparent transmission commands through OpenApi. Through this interface, developers can encapsulate instruction services on their own to meet the needs of a wealth of personalized instruction scenarios.			
Request URL	https://globalapi.solarmanpv.com/device/v1.0/customControl			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example): zh
authorization	string	header	Y	accessToken (Example): eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
deviceSn	string	body	Y	Device SN (Example): 12583SS
content	string	body	Y	The content of the custom transparent transmission command (usually a string composed of hexadecimal digits, for example: 0103001B0001F40D

callBackUrl	string	body	Y	Command result callback address , (Example) : https://www.solarman.cn/ For the definition of response parameters in the callback result, see below Callback address request type: POST After sending the command, the command result is requested every 3 seconds for the first 60 seconds, and every 30 seconds after 60 seconds. After the command result is available, a callback is initiated. The callback party needs to return a " SUCCESS" response, otherwise the callback will be initiated again. If the callback fails after more than 600s, it will be discarded. No more callback

Response Parameters

Parameter Name	Data Type	Description
code	string	Info Code(Example) 10000
msg	string	Message (Example) success
success	boolean	Success or not (Example) true
requestId	string	Request ID (Example) 1d6f6eca9bee4b6483d4af064b659eec
collectionTime	string	The latest data receiving timestamp, (Example) 1615900034
connectStatus	INT	Network status 0: offline 1: online
orderId	string	ID of the command task

Example	

Request Parameters	{
	"deviceSN":"1800800121-Igen",
	"callBackUrl":"http://localhost:8019/device/v1.0/callback",
	"content":"0103001B0001F40D"
	}

Return Value	{
	"code" : **null**,
	"msg" : **null**,
	" success" : **true**,
	" requestId" : "311d34904f1841999f2f58b9b43f8719" ,
	“collectionTime” :” 1615900034” ,
	“connectStatus” :1 ,
	“orderId” :” 19928812”
	}

Callback result-response parameter description

Response Parameters		
Parameter Name	**Data Type**	**Description**
ack	string	The original value of the device feedback, example value: 010302000A3843
content	string	The content of the command issued by the platform, example value: 01030BFB0001F7DF
createTime	string	The creation time of the command task, example value: 1615342904000
deviceId	string	Device ID (Example) : 252525
deviceSn	string	Device SN (Example): 12583SS
orderId	string	ID of the command task
success	boolean	The feedback result of the command task, success: true failure: false

updateTime	string	The feedback time of the command task, example value: 1615342904000
Example		

Request Parameters	{
	"ack":"010302000A3843",
	"content":"01030BFB0001F7DF",
	"createTime":1615342904000,
	"deviceId":205546783,
	"deviceSn":"120D70206040057",
	"orderId":1011830,
	"success":true,
	"updateTime":1615343254000
	}	

Return Value	{
	"success": **true**
	}	

4 Plant Interface

4.1 Query Plant Info

Query Plant Info				
Interface Description	Query Plant Info			
Request URL	https://globalapi.solarmanpv.com/station/v1.0/base			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9
stationId	integer	body	Y	Plant ID (Example) : 322
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
constructionCost	number	body	N	Total Cost (RMB)
contactPhone	string	body	N	Contact Number (Example): 13101969190
createdDate	string	body	N	Created Date
currency	string	body	N	Currency
gridInterconnectionType	string	body	N	System Type (Example): DISTRIBUTED_ FULLY

id	integer	body	N	Plant ID (Example): 1234
installationAzimuthAngle	number	body	N	Azimuth
installationTiltAngle	number	body	N	Tilt Angle
installedCapacity	number	body	N	Capacity
locationAddress	string	body	N	Address
locationLat	number	body	N	Latitude
locationLng	number	body	N	Longitude
mergeElectricPrice	number	body	N	Electric Price (RMB/kWh)
name	string	body	N	Plant Name (Example) : Plant: A
ownerCompany	string	body	N	Owner Work Place
ownerName	string	body	N	Owner Name
region	Object	body	N	Region
level1	integer	body	N	Administrative Area 1
level2	integer	body	N	Administrative Area 2
level3	integer	body	N	Administrative Area 3
level4	integer	body	N	Administrative Area 4
level5	integer	body	N	Administrative Area 5
nationId	integer	body	N	Nation ID
timezone	string	body	N	Time Zone
startOperatingTime	string	body	N	Commissioning Time
stationImage	string	body	N	Plant Cover
stationImages	array	body	N	Image List
description	string	body	N	Description
id	integer	body	N	Photo ID
name	string	body	N	Photo Name
url	string	body	N	Photo url
type	string	body	N	Plant Type (Example): HOUSE_ ROOF
msg	string	body	N	Message (Example): success

success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				

Request Parameters	/station/v1.0/base?language=en
	{
	"stationId": 895
	}			

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "ceb09fee2d184064a8e7cc38aad3e5d0",
	"id": 895,
	"name": "001_OPENAPI_报警",
	"locationLat": 32.025278437978635,
	"locationLng": 120.4771381250024,
	"locationAddress": "苏州张家港市",
	"region": {
	"nationId": 44,
	"level1": 156922,
	"level2": 158778,
	"level3": 158861,
	"level4": null,
	"level5": null,
	"timezone": "PRC"
	},
	"type": "HOUSE_ROOF",
	"gridInterconnectionType": "BATTERY_BACKUP",
	"installedCapacity": 6754.0,
	"installationAzimuthAngle": 183.0,			

```
    "installationTiltAngle": 32.0,
    "startOperatingTime": 1577030400.000000000,
    "currency": "CNY",
    "ownerName": "张成功",
    "ownerCompany": "无锡英臻科技",
    "contactPhone": "13011110001",
    "mergeElectricPrice": 0.98,
    "constructionCost": 6666.0,
    "stationImage": null,
    "stationImages": [
        {
            "id": 85,
            "name": "OPENAPI001",
            "description": "jpg 格式",
              "url": "http://img1.igen-tech.com/temp/fff4520a38ea44e2a378185
0aea55fc41577074336462.jpg"
        }
    ],
    "createdDate": 1577069449.000000000
}
```


4.2 Obtain Device List

Obtain Device List	
Interface Description	Obtain Device List, support paged query
Request URL	https://globalapi.solarmanpv.com/station/v1.0/device
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
deviceType	string	body	N	Device Type, Default: All device types) (Example) : Check device type
page	integer	body	N	Page
size	integer	body	N	View
stationId	integer	body	Y	Plant ID (Example): 322

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Code (Example): 10000
deviceListItems	array	body	N	Device List
collectionTime	integer	body	N	Updated Time
connectStatus	integer	body	N	Device State (Example): 1. Offline 2. Online 3. Alerting
deviceId	integer	body	N	Device ID (Example): 123212123
deviceSn	string	body	N	Device SN (Example): 123
deviceType	string	body	N	Device Type (Example): INVERTER
total	integer	body	N	Device Number (Example): 322
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec

Example

Request Parameters	/ station/ v1 . 0 / device? language= en
	{
	"deviceType": "INVERTER",
	"page": 1,
	"size": 10,
	"stationId": 895
	}

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "b9bba24b99e045d981f5040411b08246",
	"total": 2,
	"deviceListItems": [
	{
	"deviceSn": "1800078009-Igen",
	"deviceId": 200203165,
	"deviceType": "INVERTER",
	"connectStatus": 0,
	"collectionTime": 1580621692
	}
	]
	}

4.3 Obtain Historical Data

Obtain Historical Data	
Interface Description	Obtain Historical Data , support query via frame , day , month , year .
Request URL	https://globalapi.solarmanpv.com/ station/ v1 . 0 / history

Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
endTime	string	body	N	End Time (Example): 2019-10-01
startTime	string	body	Y	Start Time (Example): 2019-10-01
stationId	integer	body	Y	Plant ID (Example): 322
timeType	integer	body	Y	Time Type 1. Frame: Frame data someday 2. Day: Daily statistics (Less than 30 days) 3. Month: Monthly statistics (Less than 12 months) 4. Year: Yearly statistics,

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Code (Example): 10000
stationDataItems	array	body	N	Result List
batteryPower	number	body	N	Battery Power
batterySoc	number	body	N	Battery Capacity
buyRatio	number	body	N	Consumption/ Purchased Ratio
buyValue	number	body	N	Energy Purchased
chargePower	number	body	N	Charging Power
chargeRatio	number	body	N	Self- used Ratio
chargeValue	number	body	N	Charge Volume
cpr	number	body	N	cpr

dateTime	string	body	N	Date Time
day	integer	body	N	Day of Treatment
dischargePower	number	body	N	Discharging Power
dischargeValue	number	body	N	Discharge Volume
fullPowerHours	number	body	N	Peak Hours
generationPower	number	body	N	Production Power
generationRatio	number	body	N	Self-used Ratio
generationValue	number	body	N	Production
gridPower	number	body	N	Grid Power
gridRatio	number	body	N	Production, Feed-in Ratio
gridValue	number	body	N	Grid Feed-in
irradiate	number	body	N	Irradiate
irradiateIntensity	number	body	N	Irradiate Intensity
month	integer	body	N	Month of Treatment
pr	number	body	N	PR
purchasePower	number	body	N	Purchased Power
theoreticalGeneration	number	body	N	Theoretical Production
useDischargeRatio	number	body	N	Consumption Discharge Ratio
usePower	number	body	N	Consumption Power
useRatio	number	body	N	Consumption Ration From Production
useValue	number	body	N	Consumption
wirePower	number	body	N	Grid Power
year	integer	body	N	Year of Treatment
total	integer	body	N	Total (Example) : 322
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b6

				59eec
Example				

Request Parameters	{
	"stationId": 895,
	"timeType": 2,
	"startTime":"2019-12-10",
	"endTime":"2019-12-30"
	}			

Return Value	{ "code": null, "msg": null, "success": true, "requestId": "931f71e74fc64050b364c2e67bf33cad", "total": 8, "stationDataItems": [{ "generationPower": null, "usePower": null, "gridPower": null, "purchasePower": null, "wirePower": null, "chargePower": null, "dischargePower": null, "batteryPower": null, "batterySoc": null, "irradiateIntensity": null, "generationValue": 1788.0, "generationRatio": 89.93288590604027, "gridRatio": -2.7755575615628914E-15, "chargeRatio": 10.06711409395973, "useValue": 1608.0, "useRatio": 100.0,			

```
            "buyRatio": 0.0,
            "useDischargeRatio": 0.0,
            "gridValue": 0.0,
            "buyValue": 1608.0,
            "chargeValue": 1608.0,
            "dischargeValue": 0.0,
            "fullPowerHours": 0.2647320106603494,
            "irradiate": 0.72,
            "theoreticalGeneration": 0.0,
            "pr": 0.3676833481393742,
            "cpr": null,
            "dateTime": null,
            "year": 2019,
            "month": 12,
            "day": 23
        }
    ]
}
```


4.4 Obtain Plant List

Obtain Plant List				
Interface Description	Obtain Plant List			
Request URL	https://globalapi.solarmanpv.com/ station/ v1.0 / list			
Request Mode	post			
Request Type	application/ json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**

language	string	query	N	language
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
page	integer	body	N	Page
size	integer	body	N	View
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
stationList	array	body	N	Plant List
batterySoc	number	body	N	Battery Capacity
createdDate	string	body	N	Created Date
generationPower	number	body	N	Production Power
gridInterconnectionType	string	body	N	System Type (Example): DISTRIBUTED_ FULLY
id	integer	body	N	Plant ID
installedCapacity	number	body	N	Capacity
lastUpdateTime	string	body	N	Last Updated Time
locationAddress	string	body	N	Address
locationLat	number	body	N	Latitude
locationLng	number	body	N	Longitude
name	string	body	N	Plant Name
networkStatus	string	body	N	COM Status
regionLevel1	integer	body	N	Region Level 1
regionLevel2	integer	body	N	Region Level 2
regionLevel3	integer	body	N	Region Level 3
regionLevel4	integer	body	N	Region Level 4
regionLevel5	integer	body	N	Region Level 5
regionNationId	integer	body	N	Nation
regionTimezone	string	body	N	Time Zone

startOperatingTime	string	body	N	Commissioning Time
stationImage	string	body	N	Plant Cover
type	string	body	N	Plant Type (Example) : HOUSE_ ROOF
total	integer	body	N	Total (Example) : 322
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				

Request Parameters	/station/v1.0/list?language=en
	{
	"page": 1,
	"size": 50
	}			

Return Value	{ "code": null, "msg": null, "success": true, "requestId": "c6645d538e7b41b6b8f7b406783ec4ee", "total": 6, "stationList": [{ "id": 895, "name": "001_OPENAPI_报警", "locationLat": 32.025278437978635, "locationLng": 120.4771381250024, "locationAddress": "苏州张家港市", "regionNationId": 44, "regionLevel1": 156922,			

```
                "regionLevel2": 158778,
                "regionLevel3": 158861,
                "regionLevel4": null,
                "regionLevel5": null,
                "regionTimezone": "PRC",
                "type": "HOUSE_ROOF",
                "gridInterconnectionType": "BATTERY_BACKUP",
                "installedCapacity": 6754.0,
                "startOperatingTime": 1577030400.000000000,
                "stationImage": null,
                "createdDate": 1577069449.000000000,
                "batterySoc": 56.0,
                "networkStatus": "ALL_OFFLINE",
                "generationPower": 678.0,
                "lastUpdateTime": 1580621692.000000000
            }
        ]
}
```


4.5 Obtain Real-time Data

Obtain Real-time Data				
Interface Description	Obtain Real-time Data			
Request URL	https://globalapi.solarmanpv.com/ station/ v1 . 0 / realTime			
Request Mode	post			
Request Type	application/ json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**

language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
stationId	integer	body	Y	Plant ID (Example): 322
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
batteryPower	number	body	N	Battery Power
batterySoc	number	body	N	Battery Capacity
chargePower	number	body	N	Charging Power
code	string	body	N	Code (Example): 10000
dischargePower	number	body	N	Discharging Power
generationPower	number	body	N	Production Power
gridPower	number	body	N	Grid Power
irradiateIntensity	number	body	N	Irradiate Intensity
lastUpdateTime	string	body	N	Last Updated Time
purchasePower	number	body	N	Purchasing Power
usePower	number	body	N	Consumption Power
wirePower	number	body	N	Grid Power
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "stationId": 895 }			
Return Value	{ "code": null,			

```
"msg": null,
"success": true,
"requestId": "80682ee60ddc4c5f95c8ee0022bbf570",
"generationPower": 678.0,
"usePower": 678.0,
"gridPower": null,
"purchasePower": -678.0,
"wirePower": -678.0,
"chargePower": -678.0,
"dischargePower": null,
"batteryPower": -678.0,
"batterySoc": 56.0,
"irradiateIntensity": 236.18,
"lastUpdateTime": 1580621692.000000000
}
```


4.6 Obtain Operation Privilege

Obtain Operation Privilege	
Interface Description	Login to User Platform, then obtain plant operation privilege . If permission denied , system will display error .
Request URL	https://globalapi.solarmanpv.com/station/v1.0/role
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp

				XVCJ9
stationId	integer	body	Y	Plant ID (Example): 322
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
addStationDevice	integer	body	N	Permission: Add a device (Example) : 0: Denied; 1: Pass
code	string	body	N	Code (Example): 10000
deleteStation	integer	body	N	Permission: Delete a plant (Example) : 0: Denied; 1: Pass
deleteStationDevice	integer	body	N	Permission: Delete a device (Example) : 0: Denied; 1: Pass
editStation	integer	body	N	Permission: Edit a plant (Example) : 0: Denied; 1: Pass
setStation	integer	body	N	Permission: Set a plant (Example): 0: Denied; 1: Pass
viewStationAlert	integer	body	N	Permission: Check plant alerts (Example) : 0: Denied; 1: Pass
viewStationDevice	integer	body	N	Permission: Check plant device (Example) : 0: Denied; 1: Pass
viewStationInfo	integer	body	N	Permission: Check plant info (Example) : 0: Denied; 1: Pass
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				

Request Parameters	{
	"stationId": 895
	}			

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "6cf5668095a34224b5c078fc81bf014e",
	"viewStationAlert": 1,
	"viewStationInfo": 1,
	"viewStationDevice": 1,
	"editStation": 1,
	"deleteStation": 0,
	"setStation": 1,
	"addStationDevice": 1,
	"deleteStationDevice": 1
	}

4.7 Obtain Alert List

Obtain Alert List				
Interface Description	Obtain Alert List, support paged query			
Request URL	https://globalapi.solarmanpv.com/station/v1.0/alert			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language (Example) : zh
authorization	string	header	Y	accessToken (Example) : eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp

				XVCJ9
endTime	string	body	Y	End Time (Example): 2019-10-01 Format: yyyy-MM-dd
page	integer	body	N	Page
size	integer	body	N	View
startTime	string	body	Y	Start Time (Example): 2019-10-01 Format: yyyy-MM-dd
stationId	integer	body	Y	Plant ID (Example) : 322
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Code (Example): 10000
stationAlertItems	array	body	N	Alert List (Example): stationAlertItems
addr	string	body	N	Alert Name
alertTime	integer	body	N	Alert Time
code	string	body	N	Alert Code
deviceId	integer	body	N	Device ID(Example) : 23523
deviceSn	string	body	N	Device SN(Example): 2332d22
deviceType	string	body	N	Device Type, check *DeviceType*in appendix
influence	integer	body	N	Influence in PAAS platform (Example): Influence Production, Influence Safety, Influence Production&Safety.
level	integer	body	N	Alert level in PAAS platform (Example): Prompt, Warning, Failure
ruleId	integer	body	N	Alert ID (Example) : 343
showName	string	body	N	Alert Name in PAAS platform
total	integer	body	N	Total (Example) : 322

msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "stationId": 895, "startTime":"2020-02-01", "endTime":"2020-02-29", "page":1, "size":2 }			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "b1752aedc8a94169a14a0353fde524e4", "total": 5, "stationAlertItems": [{ "deviceSn": "dev1800078101", "deviceId": 200203179, "deviceType": "INVERTER", "ruleId": 2, "showName": "Error: 99+x", "addr": "ERR1", "code": "1", "level": 0, "influence": 0, "alertTime": 1580621658 }			

	] }

4.8 Create a plant

Create a plant				
Interface Description	Create a plant			
Request URL	https://globalapi.solarmanpv.com/station/v1.0/create			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language Type(Example) zh
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9
constructionCost	number	body	N	Construction Cost (CNY)
contactPhone	string	body	N	Contact Number(Example) 13101969190
currency	string	body	Y	Currency
gridInterconnectionType	string	body	Y	Grid-Tied (Example) DISTRIBUTED_ FULLY
installationAzimuthAngle	number	body	N	Azimuth Angle
installationTiltAngle	number	body	N	Tilt Angle
installedCapacity	number	body	Y	Installed Capacity
locationAddress	string	body	Y	Location Address

locationLat	number	body	Y	Longitude
locationLng	number	body	Y	Latitude
mergeElectricPrice	number	body	N	Unit Price (CNY/kWh)
name	string	body	Y	Plant Name
ownerCompany	string	body	N	Owner Company
ownerName	string	body	N	Owner Name
region	Object	body	Y	Region
level1	integer	body	N	Administration Area 1
level2	integer	body	N	Administration Area 2
level3	integer	body	N	Administration Area 3
level4	integer	body	N	Administration Area 4
level5	integer	body	N	Administration Area 5
nationId	integer	body	Y	Nation ID
timezone	string	body	Y	Time zone
startOperatingTime	string	body	N	Operating Time(Time Stamp)
stationImage	string	body	N	Plant Cover
type	string	body	Y	Plant Type(Example) HOUSE_ ROOF

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code(Example) 10000
id	integer	body	N	Plant ID (Example) 1234
msg	string	body	N	Message (Example) success
success	boolean	body	N	Success or not (Example) true
requestId	string	body	N	Request ID (Example) 1d6f6eca9bee4b6483d4af064b659eec

Example

Request	{

Parameters	"constructionCost": 55000,
	"region": {
	"nationId": 44,
	"level1": 156922,
	"level2": 158774,
	"level3": 158828,
	"level4": null,
	"level5": null,
	"timezone": "PRC"
	},
	"ownerName": "八零超管",
	"contactPhone": "15200000000",
	"gridInterconnectionType": "BATTERY_BACKUP",
	"ownerCompany": "八零超管有限公司",
	"installationTiltAngle": 60,
	"type": "GROUND",
	"mergeElectricPrice": 5.5,
	"locationLng": 120.36131,
	"currency": "CNY",
	"installationAzimuthAngle": 50,
	"name": 1,
	"startOperatingTime": 1580486400,
	"locationLat": 31.5064,
	"installedCapacity": 10,
	"stationImage": "有",
	"locationAddress": "天安智慧城"
	}

Return Value	{ "code": null, "msg": null, "success": true, "requestId": "7d0f65b40b4248ab88d2bb0603ab673e",

	"id": 2052 }

4.9 Modify a Plant

Modify a Plant				
Interface Description	Modify a Plant			
Request URL	https://globalapi.solarmanpv.com/station/v1.0/update			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language Type (Example) zh
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9
constructionCost	number	body	N	Construction Cost (CNY)
contactPhone	string	body	N	Contact Number (Example) 13101969190
currency	string	body	Y	Currency
gridInterconnectionType	string	body	Y	Grid-Tied Type (Example) DISTRIBUTED_ FULLY
installationAzimuthAngle	number	body	N	Azimuth Angle
installationTiltAngle	number	body	N	Tilt Angle
installedCapacity	number	body	Y	Installed Capacity
locationAddress	string	body	Y	Location Address
locationLat	number	body	Y	Longitude

locationLng	number	body	Y	Latitude
mergeElectricPrice	number	body	N	Unit Price (CNY/kWh)
name	string	body	Y	Plant Name
ownerCompany	string	body	N	Owner Company
ownerName	string	body	N	Owner Name
region	Object	body	Y	Region
level1	integer	body	N	Administration Area 1
level2	integer	body	N	Administration Area 2
level3	integer	body	N	Administration Area 3
level4	integer	body	N	Administration Area 4
level5	integer	body	N	Administration Area 5
nationId	integer	body	Y	Nation ID
timezone	string	body	Y	Time zone
startOperatingTime	string	body	N	Operating Time(Time Stamp)
stationId	integer	body	Y	Plant ID (Example) 1234
stationImage	string	body	N	Plant Cover
type	string	body	Y	Plant Type (Example) HOUSE_ ROOF

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code (Example): 10000
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec

Example

Request Parameters	{
	"constructionCost": 55000,
	"region": {

	"nationId": 44, "level1": 156922, "level2": 158774, "level3": 158828, "level4": null, "level5": null, "timezone": "PRC" }, "ownerName": "八零超管", "contactPhone": "15200000000", "gridInterconnectionType": "BATTERY_BACKUP", "ownerCompany": "八零超管有限公司", "installationTiltAngle": 60, "type": "GROUND", "mergeElectricPrice": 5.5, "locationLng": 120.36131, "currency": "CNY", "installationAzimuthAngle": 50, "name": 1, "startOperatingTime": 1580486400 "locationLat": 31.5064, "installedCapacity": 10, "stationImage": "有", "locationAddress": "天安智慧城", "stationId": 2052 }

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "fa396f22567344c5bc9c1f1307dfceda"
	}

4.10 Delete a Plant

Delete a Plant	
Interface Description	Delete a Plant
Request URL	https://globalapi.solarmanpv.com/station/v1.0/delete
Request Mode	delete
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
language	string	query	N	Language Type (Example) zh
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
stationId	integer	body	Y	Plant ID (Example) 1234

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code(Example): 10000
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b6 59eec

Example	
Request Parameters	{"stationId":2052}

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "a49a4923f3a249e0bc9df2f532596f87"
	}

4.11 Calculation of Accumulated Production

Calculation of accumulated production				
Interface Description	Calculation of accumulated production			
Request URL	https://globalapi.solarmanpv.com/station/v1.0/metering			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language Type (Example) zh
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ik pXVCJ9
stationId	integer	body	Y	Plant ID (Example) 322
totalProductionType	integer	body	Y	Calculation of accumulated production 1: Accumulated data uploaded by devices; 2: Daily data summation uploaded by devices (Example) 1
Response Parameters				

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code (Example): 10000
msg	string	body	N	Message (Example): success
success	boolean	body	N	Success or not (Example): true
requestId	string	body	N	Request ID (Example): 1d6f6eca9bee4b6483d4af064b659eec
Example				
Request Parameters	{ "stationId" : 2053,"totalProductionType":1}			
Return Value	{ "code": null, "msg": null, "success": true, "requestId": "2c992d590c3d4194a44fd366903c1edd" }			

4.12 Set Offset

Set Offset				
Interface Description	Set Offset			
Request URL	https://globalapi.solarmanpv.com/station/v1.0/offset			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
language	string	query	N	Language Type (Example) zh

authorization	string	header	Y	accessToken （Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 IkpXVCJ9
date	string	body	N	Daily offset date When OffsetType=2 must be passed，then format: yyyy-MM-dd (Example) 2019-01-16
offsetType	integer	body	Y	Offset type 1 、Accumulated production offset 2 、Daily production offset (Example) 1
offsetValue	number	body	Y	Offset Value Positive number:Add Negative number: Reduce (Example) 3.0
stationId	integer	body	Y	Plant ID (Example) 322
Response Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**
code	string	body	N	Info Code (Example): 10000
msg	string	body	N	Message （Example）: success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example): 1d6f6eca9bee4b6483d4af064b659eec
Example				

Request Parameters	{
	"stationId" : 2053,
	"date":"2019-01-16",
	"offsetType":1,
	"offsetValue":110
	}			

Return Value	{ "code": null,			

	"msg": null, "success": true, "requestId": "7fc2640dcd194ab39831fcb8e7d673da" }

4.13 Add Gateway (Logger/DTU)

Add Gateway (Logger/DTU)	
Interface Description	Add Gateway (Logger/DTU)
Request URL	https://globalapi.solarmanpv.com/device/v1.0/register
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
language	string	query	N	Language Type (Example) zh
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 Ikp XVCJ9
deviceSn	string	body	Y	Device SN (Example) 4A2034A8
isAuto	boolean	body	Y	Auto or not (Example) true
stationId	integer	body	Y	Plant ID (Example) 322

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code (Example) 10000
gatewayId	integer	body	N	Gateway ID (Example): 200124803

msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true
requestId	string	body	N	Request ID (Example) : 1d6f6eca9bee4b6483d4af064b659eec
Example				

Request Parameters	{
	"stationId" : 2053,
	"deviceSn":"2323dddg",
	"isAuto":false
	}			

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "fb6e16fb5f49447d975688578d069a1b",
	"gatewayId": 200206594
	}			

4.14 Delete a Device

Delete a Device				
Interface Description	Delete a Device			
Request URL	https://globalapi.solarmanpv.com/device/v1.0/delete			
Request Mode	post			
Request Type	application/json			
Return Type	*/*			
Request Parameters				
Parameter Name	**Data Type**	**Parameter Type**	**Required or not**	**Description**

language	string	query	N	Language Type (Example) zh
authorization	string	header	Y	accessToken (Example) eyJhbGciOiJSUzI1 NiIsInR5 cCI6 IkpXVCJ9
deviceSn	string	body	Y	Device SN (Example) 4A2034A8
stationId	integer	body	Y	Plant ID (Example) 322

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
code	string	body	N	Info Code (Example): 10000
msg	string	body	N	Message (Example): success
success	boolean	body	N	Success or not (Example): true
requestId	string	body	N	Request ID (Example): 1d6f6eca9bee4b6483d4af064b659eec

Example

Request Parameters	{
	"stationId" : 2053,
	"deviceSn":"2323dddg"
	}

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "5f741dfaab634b4392ba49a0243e9e85"
	}

5 Common Interface

5.1 Generate Verification Code

Generate Verification Code	
Interface Description	Obtain Verification Code via phone number/E-mail
Request URL	https://globalapi.solarmanpv.com/account/v1.0/captcha
Request Mode	post
Request Type	application/json
Return Type	*/*

Request Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
appId	string	query	Y	APPID (Example) 201911067156002
appSecret	string	query	Y	appSecret Key
email	string	body	N	E-mail
phoneNumber	string	body	N	Phone Number
phoneNumberPrefix	string	body	N	Phone Number Prefix (Example) 86
purpose	string	body	Y	Verification Code Type (Registration: REG, Reset Password: RESET_PWD, Bind: BIND) (Example): ACCOUNT

Response Parameters

Parameter Name	Data Type	Parameter Type	Required or not	Description
captcha	string	body	N	Verification Code
code	string	body	N	Info Code (Example): 10000
validity	integer	body	N	Valid Until (Unit: s)
msg	string	body	N	Message (Example) : success
success	boolean	body	N	Success or not (Example) : true

requestId	string	body	N	Request ID (Example): 1d6f6eca9bee4b6483d4af064b659eec
Example				

Request Parameters	{
	"phoneNumber":"176250134584",
	"phoneNumberPrefix":"86",
	"purpose":"BIND"
	}			

Return Value	{
	"code": null,
	"msg": null,
	"success": true,
	"requestId": "0ea84ef086a546cd84b69e31121e6ac4",
	"captcha": "566380",
	"validity": 1800
	}			

6 Response State Value

Code	Description
1000000	success
3201001	Service Currently Unavailable
2101002	client execute Too Frequently
2101003	client is forbidden
3501004	remote rpc exception
2101005	param not exist
2101006	invalid param

2101007	list too long
2101008	invalid param type
2101009	appId or api is locked
2101010	appId insufficient allowance
2101011	number of users up to five
2101012	should be within 30 days
2101013	should be within 12 month
2101014	start time should be earlier than end time
2101015	time format error
2101016	device no upload records found
2101017	auth token not found
2101018	auth appId not found
2101019	auth invalid token
2101020	auth invalid orgId
2101021	auth invalid appId
2101022	bussiness error
2101023	access Denied
2101024	resource not found
2101025	auth failed
2101026	page too big
2101027	auth no out operation permission
2101028	auth invalid user
2101029	no out roleId
2101030	no out external station delete permission
2101031	station not found
2101032	device not found
2101033	email already registed
2101034	phone number already registed
2101035	email not registed
2101036	phone number not registed

2101037	username already registed
2101038	reset password not allowed
2101039	this date can only be before current date
2102001	captcha request too frequently
2102002	captcha was wrong
2102003	captcha was expire
2102004	email already registed
2102005	phone number already registed
2102006	username already registed
2102007	old user id already registed
2102008	old password wrong
2102009	username format error
2102010	email format error
2102011	phone number format error
2104001	gateway existed
2104002	auto discovery gateway existed
2104003	gateway can not be auto discovery

7 Enumerated Type

On- Grid Code	Description
DISTRIBUTED_ FULLY	Distributed All on Grid
EXCESS	Distributed Self- consumption
OFF_ GRID	Offline
BATTERY_ BACKUP	Energy Storage System
GROUND_ FULLY	Ground All on Gird

Plant Type Code	Description
HOUSE_ ROOF	Residential Rooftop

COMMERCIAL_ ROOF	Commercial Rooftop
INDUSTRIAL_ ROOF	Industrial Rooftop
GROUND	Ground- mounted Plant
POVERTY_ ALLEVIATION	Poverty Alleviation Plant

Device Type Code	Instruction
INVERTER	Inverter
WEATHER_ STATION	Weather Station
METER	Meter
DTU	DTU
FAN	Fan
COLLECTOR	Logger
PV_ MODULE	PV
MICRO_ INVERTER	Micro inverter
BATTERY	Battery
REPEATER	REPEATER

8 Dictionary-Time Zone

Time Zone CODE	Time Zone
Etc/GMT+12	(UTC-12:00) International Date Line West
Etc/GMT+11	(UTC-11:00) Coordinated Universal Time-11
Pacific/ Honolulu	(UTC-10:00) Hawaii
Pacific/ Marquesas	(UTC-09:30) Marquesas Islands
America/ Anchorage	(UTC-09:00) Alaska
America/ Los_ Angeles	(UTC-08:00) Pacific Time (US & Canada)
Mexico/ BajaNorte	(UTC-08:00) Baja California
America/ Chihuahua	(UTC-07:00) Chihuahua,La Paz,Mazatlan
America/ Denver	(UTC-07:00) Mountain Time (US & Canada)

US/ Arizona	(UTC-07:00) Arizona
America/ Mexico_ City	(UTC-06:00) Guadalajara, Mexico, City Monterrey
Canada/ Saskatchewan	(UTC-06:00) Saskatchewan
America/ Chicago	(UTC-06:00) Central Time (US & Canada)
US/ Central	(UTC-06:00) Central America
America/ Bogota	(UTC-05:00) Bogota, Lima, Quito, Rio Branco
America/ New _York	(UTC-05:00) Eastern Time (US & Canada)
US/ East- Indiana	(UTC-05:00) Indiana (East)
America/ Caracas	(UTC-04:30) Caracas
Canada/ Atlantic	(UTC-04:00) Atlantic Time (Canada)
America/ Cuiaba	(UTC-04:00) Cuiaba
America/ La _Paz	(UTC-04:00) Georgetown, La Paz, Manaus, San Juan
America/ Asuncion	(UTC-04:00) Asuncion
Canada/ Newfoundland	(UTC-03:30) Newfoundland
America/ Sao _Paulo	(UTC-03:00) Brasilia
America/ Argentina/ Buenos_Aires	(UTC-03:00) Buenos Aires
America/ Cayenne	(UTC-03:00) Cayenne, Fortaleza
America/ Montevideo	(UTC-03:00) Montevideo
America/ Santiago	(UTC-03:00) Santiago
Etc/ GMT+2	(UTC-02:00) Coordinated Universal Time-02-02
Atlantic/ Cape_ Verde	(UTC-01:00) Cape Verde Is.
Atlantic/ Azores	(UTC-01:00) Azores
Europe/ Dublin	(UTC) Dublin, Edinburgh, Lisbon, London
Africa/ Casablanca	(UTC) Casablanca
Africa/ Monrovia	(UTC) Monrovia, Reykjavik
UTC	(UTC) Coordinated Universal Time
Europe/ Amsterdam	(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
Europe/ Belgrade	(UTC+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague

Europe/Brussels	(UTC+01:00) Brussels,Copenhagen,Madrid,Paris
Europe/Sarajevo	(UTC+01:00) Sarajevo,Skopje,Warsaw,Zagreb
Africa/Windhoek	(UTC+01:00) Windhoek
Africa/Bangui	(UTC+01:00) West Central Africa
Asia/Beirut	(UTC+02:00) Beirut
Asia/ Damascus	(UTC+02:00) Damascus
EET	(UTC+02:00) Eastern Europe
Africa/Harare	(UTC+02:00) Harare,Pretoria
Europe/Helsinki	(UTC+02:00) Helsinki,Kyiv,Riga,Sofia,Tallinn,Vilnius
Africa/Cairo	(UTC+02:00) Cairo
Europe/Athens	(UTC+02:00) Athens,Bucharest
Asia/ Jerusalem	(UTC+02:00) Jerusalem
Europe/Istanbul	(UTC+02:00) Istanbul
Asia/Baghdad	(UTC+03:00) Baghdad
Asia/Kuwait	(UTC+03:00) Kuwait,Riyadh
Europe/Minsk	(UTC+03:00) Minsk
Europe/Moscow	(UTC+03:00) Moscow,St.Petersburg,Volgograd(RTZ 2)
Africa/Nairobi	(UTC+03:00) Nairobi
Asia/Tehran	(UTC+03:30) Tehran
Asia/Muscat	(UTC+04:00) Abu Dhabi,Muscat
Asia/Yerevan	(UTC+04:00) Yerevan
Asia/Baku	(UTC+04:00) Baku
Asia/Tbilisi	(UTC+04:00) Tbilisi
Indian/Mauritius	(UTC+04:00) Port Louis
Asia/Kabul	(UTC+04:30) Kabul
Asia/Ashgabat	(UTC+05:00) Ashgabat，Tashkent
Asia/Yekaterinburg	(UTC+05:00) Ekaterinburg(RTZ 4)
Asia/Karachi	(UTC+05:00) Islamabad Karachi
Asia/Calcutta	(UTC+05:30) Chennai,Kolkata,Mumbai,New Delhi

Asia/Kathmandu	(UTC+05:45) Kathmandu
Asia/ Dacca	(UTC+06:00) Dhaka
Asia/Novosibirsk	(UTC+06:00) Novosibirsk(RTZ 5)
Asia/Rangoon	(UTC+06:30) Yangon (Rangoon)
Asia/ Krasnoyarsk	(UTC+07:00) Krasnoyarsk(RTZ 6)
Asia/Bangkok	(UTC+07:00) Bangkok,Hanoi,Jakarta
PRC	(UTC+08:00) Beijing,Chongqing,Hong Kong,Urumqi
Asia/Singapore	(UTC+08:00) Kuala Lumpur,Singapore
Australia/Perth	(UTC+08:00) Perth
Asia/Taipei	(UTC+08:00) Taipei
Asia/Ulaanbaatar	(UTC+08:00) Ulaanbaatar
Asia/Irkutsk	(UTC+08:00) Irkutsk(RTZ 7)
Asia/Pyongyang	(UTC+08:00) Pyongyang
Australia/Eucla	(UTC+08:45) Australia (Eucla unofficial)
Asia/Tokyo	(UTC+09:00) Osaka,Sapporo,Tokyo
Asia/Seoul	(UTC+09:00) Seoul
Australia/Adelaide	(UTC+09:30) Adelaide
Australia/Darwin	(UTC+09:30) Darwin
Australia/Brisbane	(UTC+10:00) Brisbane
Asia/Vladivostok	(UTC+10:00) Vladivostok， Magadan(RTZ 9)
Pacific/Guam	(UTC+10:00) Guam,Port Moresby
Australia/Hobart	(UTC+10:00) Hobart
Australia/Canberra	(UTC+10:00) Canberra,Melbourne,Sydney
Australia/Lord_Howe	(UTC+10:30) Lord Howe Island
Asia/Magadan	(UTC+11:00) Magadan
Pacific/ Guadalcanal	(UTC+11:00) Solomon Is.,New Caledonia
Pacific/Norfolk	(UTC+11:30) Norfolk
Asia/Anadyr	(UTC+12:00) Anadyr,Petropavlovsk-Kamchatsky - Old(RTZ 11)
Pacific/Auckland	(UTC+12:00) Auckland,Wellington
Pacific/Fiji	(UTC+12:00) Fiji

Etc/ GMT-12	(UTC+12:00) Coordinated Universal Time+12
Pacific/ Chatham	(UTC+12:45) Chatham Standard Time
Pacific/ Apia	(UTC+13:00) Samoa
Pacific/ Kiritimati	(UTC+14:00) Christmas Island

9 Dictionary-Currency

Refer to IOS 4217.

Currency CODE	Description
KWD	Kuwaiti dinars
ZAR	South African rand
UAH	Ukraine's Hrifnia
AUD	Australian dollar
CLP	Chilean peso
CRC	Colon , Costa Rica
QAR	Qatari rials
DOP	Dominican peso
YER	Yemeni rials
SAR	Saudi riyals
KRW	Han Won
MAD	Moroccan dirham
HNL	Larenpira , Honduras
PAB	Panama Baboa
LBP	Lebanese pound
BAM	Bosnia-Herzegovina Exchange Voucher
PEN	New Sol , Peru
NZD	NEW ZEALAND DOLLAR
CNY	Renminbi
INR	Indian Rupee
SYP	Syrian pound

DKK	Danish krone
UYU	Uruguayan peso
TRY	New Turkish Lira
CHF	Swiss franc
VEF	Venezuela's Strong Bolivar
AED	UAE Dirram
DZD	Algerian dinar
ISK	Isk
EGP	Egyptian pound
TND	Tunisian dinar
HUF	Hungarian forint
CSD	Old Serbian dinar
JOD	Jordanian dinar
SVC	Salvadoran Colon
ILS	New Israeli shekel
TWD	Nt $
CZK	Czech kroner
ARS	Argentine peso
ALL	Albanian lek
NOK	Norwegian krone
COP	Colombian peso
JPY	Yen
BYR	Belarusian ruble
BHD	Bahrainn dinar
OMR	Omani rial
HRK	Kuna , Croatia
SDG	Sudanese pound
PYG	Guarani , Paraguay
RON	Romanian ley
GBP	Pounds
PLN	Polish zloty
MYR	Malaysian ringgit

IQD	Iraqi dinars
GTQ	Quetzal , Guatemala
LYD	Libyan dinar
MXN	Mexican peso
HKD	Hong kong dollar
RUB	Russian ruble
VND	Vietnamese dong
PHP	Philippine Peso
SEK	SEK
BGN	Bulgaria's New Lev
MKD	Didinar , Macedonia
NIO	Kincodoba , Nicaragua
RSD	Serbian dinar
CAD	Canadian dollar
THB	Baht
SGD	Singapore Dollar
BRL	Brazilian real
IDR	Indonesian rupiah
BOB	Boliviano
USD	Dollar
EUR	Euro
MUR	Mauritian Rupee
PKR	Pakistani Rupee
AFN	Afghanistan Afghani
AMD	Armenian Dram
ANG	Netherlands Antillean Shield / Florin
AOA	Kwanza , Angola
AWG	Aruba Florin/Kield
AZN	Manat , Azerbaijan
BBD	Barbados Dollar
BDT	Bangladesh Taka
BIF	Burundian franc

BMD	Bermudian Dollar
BND	Brunei Dollar
BOV	Bolivia mvdol
BSD	Bahamian Dollar
BTN	Nuzam , Bhutan (also in Indian Rupee (INR))
BWP	Pra , Botswana
BYN	Belarusian ruble
BZD	Belizean Dollar
CDF	Congolese franc of the Democratic Republic of the Congo
CHE	WIR Euros
CHW	Swiss franc
CLF	Chilean peso (convertible fund)
COU	Colombia unidad de valor real
CUC	Convertible pesos
CUP	Cuban peso
CVE	Escudo , Cape Verde
DJF	Djibouti franc
ERN	Nakfa , Eritrea
ETB	Ethiopian Birr
FJD	Fijian dollar
FKP	Falkland Pound
GEL	Georgia Larry
GHS	Ghana
GIP	Gibraltar Pound
GMD	Darasi , Gambia
GNF	Guinean franc
GYD	Guyana Dollar
HTG	Haiti Goode
IRR	Iranian rials
JMD	Jamaican dollar
KES	Kenyan shillings
KGS	Som

KHR	Rare
KMF	Comorian franc
KPW	Korean Dollar
KYD	Cayman Islands Dollar
KZT	Teng
LAK	Kip , Laos
LKR	Sri Lankan Rupee
LRD	Liberian dollar
LSL	Loti , Lesotho (plural : Malotti)
MDL	Ley/Molei , Moldova
MGA	Ariari , Madagascar
MMK	Myanmar Dollar (Kyeen)
MNT	Tuglirk , Mongolia
MOP	MACAU DOLLAR
MRU	Ogueia
MVR	Rafia , Maldives
MWK	Malawi Kwacha
MXV	Unidad de Inversion (UDI) (Funds)
MZN	Mozobikmetikar
NAD	Namibian dollar (also with South African rand (ZAR))
NGN	Naira , Nigeria
NPR	Nepali Rupee
PGK	Kina , Papua New Guinea
RWF	Rwandan francs
SBD	Solomon Islands Dollar
SCR	Seychelles Rupee
SHP	St . Helena Pound
SLL	Leon , Sierra Leone
SOS	Somali shillings
SRD	Surinames00
SSP	South Sudan Pound
STN	Dobra

SZL	Swazi Lirangini (plural : Emarangini emalangeni)
TJS	Somoni , Tajikistan
TMT	New Manat , Turkmenistan
TOP	Tonga Panga
TTD	Trinidad and Tobago Dollar
TZS	Tanzanian shillings
UGX	Ugandan shillings
USN	United States dollar (next day) (funds)
UYI	Uruguayan Peso Index (UI)
UYW	Uyu
UZS	Uzbekistan Sum
VES	Sobenano
VUV	Vatu , Vanuatu
WST	Samoa Tara
XAF	Cfa Financial Cooperation Franc (CFA Franc)
XAG	Silver
XAU	Gold
XBA	European Composite Unit (EURCO) / European Hybrid Unit (Bond Market Unit)
XBB	E .M .U .-6 (Bond Market Unit)
XBC	European units of Account 9 (Bond Market Unit)
XBD	European units (bond market units) of account 17
XCD	Eastern Caribbean Dollar
XDR	Special Drawing Rights
XOF	CFA francs (CFA francs)
XPD	Palladium
XPF	Pacific franc (CFP franc)
XPT	Platinum
XSU	Sucre
XUA	Asian Development Bank Account Unit
ZMW	Kwacha , Zambia
ZWL	Zimbabwean dollar

10 Dictionary-Region

Appendix: area. csv

11 Dictionary-Phone Number Prefix

Country CODE	Prefix	Country Name(EN)	Supported or Not
CN	86	China	Y
NL	31	Netherlands	Y
US	1	USA	Y
BR	55	Brazil	Y
AU	61	Australia	
DE	49	Germany	
ES	34	Spain	
FR	33	France	
GB	44	UK	
ID	62	Indonesia	
IN	91	India	
IT	39	Italy	
JP	81	Japan	
KR	82	South Korea	
MY	60	Malaysia	
PH	63	The Philippines	
PL	48	Poland	
PT	351	Portugal	
SG	65	Singapore	
TH	66	Thailand	

TW	886	Taiwan(Province of China)	
HK	852	Hong Kong	
MO	853	Macau	
AW	297	Aruba	
AF	93	Afghanistan	
AO	244	Angola	
AI	1264	Anguilla	
AX	358	Å aland Island	
AL	355	Albania	
AD	376	Andorra	
AE	971	United Arab Emirates	
AR	54	Argentina	
AM	374	Armenia	
AS	1684	American Samoa	
AQ	672	Antarctica	
TF	262	French Southern Territories	
AG	1268	Antigua and Barbuda	
AT	43	Austria	
AZ	994	Azerbaijan	
BI	257	Burundi	
BE	32	Belgium	
BJ	229	Benin	
BQ	599	Caribbean Netherlands	
BF	226	Burkina Faso	
BD	880	Bangladesh	
BG	359	Bulgaria	
BH	973	Bahrain	
BS	1242	Bahamas	
BA	387	Bosnia & Herzegovina	
BL	590	Saint Barthé lemy	
BY	375	Belarus	
BZ	501	Belize	

BM	1441	Bermuda	
BO	591	Bolivia	
BB	1246	Barbados	
BN	673	Brunei	
BT	975	Bhutan	
BV	47	Bouvet Island	
BW	267	Botswana	
CF	236	Central African Republic	
CA	1	Canada	
CC	61	Cocos (Keeling) Islands	
CH	41	Switzerland	
CL	56	Chile	
CI	225	Côte d'Ivoire	
CM	237	Cameroon	
CD	243	Democratic Republic of the Congo	
CG	242	Republic of the Congo	
CK	682	Cook Islands	
CO	57	Colombia	
KM	269	The Comoros	
CV	238	Cape Verde	
CR	506	Costa Rica	
CU	53	Cuba	
CW	599	Curaçao	
CX	61	Christmas Island	
KY	1345	Cayman Islands	
CY	357	Cyprus	
CZ	420	Czech Republic	
DJ	253	Djibouti	
DM	1767	Dominica	
DK	45	Denmark	
DO	1809	Dominican Republic	

DO	1829	Dominican Republic	
DO	1849	Dominican Republic	
DZ	213	Algeria	
EC	593	Ecuador	
EG	20	Egypt	
ER	291	Eritrea	
EH	212	Western Sahara	
EE	372	Estonia	
ET	251	Ethiopia	
FI	358	Finland	
FJ	679	Fiji	
FK	500	Falkland Islands	
FO	298	Faroe Islands	
FM	691	Micronesia	
GA	241	Gabon	
GE	995	Georgia	
GG	44	Guernsey	
GH	233	Ghana	
GI	350	Gibraltar	
GN	224	Guinea	
GP	590	Guadeloupe	
GM	220	Gambia	
GW	245	Guinea- Bissau	
GQ	240	Equatorial Guinea	
GR	30	Greece	
GD	1473	Grenada	
GL	299	Greenland	
GT	502	Guatemala	
GF	594	French Guiana	
GU	1671	Guam	
GY	592	Guyana	
HM	672	Heard Island and McDonald	

		Islands	
HN	504	Honduras	
HR	385	Croatia	
HT	509	Haiti	
HU	36	Hungary	
IM	44	Isle of Man	
IO	246	British Indian Ocean Territory	
IE	353	Ireland	
IR	98	Iran	
IQ	964	Iraq	
IS	354	Iceland	
IL	972	Israel	
JM	1658	Jamaica	
JM	1876	Jamaica	
JE	44	Jersey	
JO	962	Jordan	
KZ	7	Kazakhstan	
KE	254	Kenya	
KG	996	Kyrgyzstan	
KH	855	Cambodia	
KI	686	Kiribati	
KN	1869	St. Kitts & Nevis	
KW	965	Kuwait	
LA	856	Laos	
LB	961	Lebanon	
LR	231	Liberia	
LY	218	Libya	
LC	1758	St. Lucia	
LI	423	Liechtenstein	
LK	94	Sri Lanka	
LS	266	Lesotho	

LT	370	Lithuania	
LU	352	Luxembourg	
LV	371	Latvia	
MF	590	Saint Martin (France)	
MA	212	Morocco	
MC	377	Monaco	
MD	373	Moldova	
MG	261	Madagascar	
MV	960	Maldives	
MX	52	Mexico	
MH	692	Marshall Islands	
MK	389	Macedonia	
ML	223	Mali	
MT	356	Malta	
MM	95	Myanmar (Burma)	
ME	382	Montenegro	
MN	976	Mongolia	
MP	1670	Northern Mariana Islands	
MZ	258	Mozambique	
MR	222	Mauritania	
MS	1664	Montserrat	
MQ	596	Martinique	
MU	230	Mauritius	
MW	265	Malawi	
YT	262	Mayotte	
NA	264	Namibia	
NC	687	New Caledonia	
NE	227	Niger	
NF	672	Norfolk Island	
NG	234	Nigeria	
NI	505	Nicaragua	
NU	683	Niue	

NO	47	Norway	
NP	977	Nepal	
NR	674	Nauru	
NZ	64	New Zealand	
OM	968	Oman	
PK	92	Pakistan	
PA	507	Panama	
PN	64	Pitcairn Islands	
PE	51	Peru	
PW	680	Palau	
PG	675	Papua New Guinea	
PR	1787	Puerto Rico	
PR	1939	Puerto Rico	
KP	850	North Korea	
PY	595	Paraguay	
PS	970	Palestina	
PF	689	French Polynesia	
QA	974	Qatar	
RE	262	Reunion	
RO	40	Romania	
RU	7	Russian Federation	
RW	250	Rwanda	
SA	966	Saudi Arabia	
SD	249	Sudan	
SN	221	Senegal	
GS	500	South Georgia and the South Sandwich Islands	
SH	290	St. Helena & Dependencies	
SJ	47	Svalbard and Jan Mayen	
SB	677	Solomon Islands	
SL	232	Sierra Leone	
SV	503	El Salvador	

SM	378	San Marino	
SO	252	Somalia	
PM	508	Saint Pierre and Miquelon	
RS	381	Serbia	
SS	211	South Sudan	
ST	239	Sao Tome & Principe	
SR	597	Suriname	
SK	421	Slovakia	
SI	386	Slovenia	
SE	46	Sweden	
SZ	268	Swaziland	
SX	1721	Sint Maarten	
SC	248	Seychelles	
SY	963	Syria	
TC	1649	Turks & Caicos Islands	
TD	235	Chad	
TG	228	Togo	
TJ	992	Tajikistan	
TK	690	Tokelau	
TM	993	Turkmenistan	
TL	670	Timor-Leste (East Timor)	
TO	676	Tonga	
TT	1868	Trinidad & Tobago	
TN	216	Tunisia	
TR	90	Turkey	
TV	688	Tuvalu	
TZ	255	Tanzania	
UG	256	Uganda	
UA	380	Ukraine	
UM	1	United States Minor Outlying Islands	
UY	598	Uruguay	

UZ	998	Uzbekistan	
VA	379	Vatican City (The Holy See)	
VC	1784	St. Vincent & the Grenadines	
VE	58	Venezuela	
VG	1284	British Virgin Islands	
VI	1340	United States Virgin Islands	
VN	84	Vietnam	
VU	678	Vanuatu	
WF	681	Wallis and Futuna	
WS	685	Samoa	
YE	967	Yemen	
ZA	27	South Africa	
ZM	260	Zambia	
ZW	263	Zimbabwe	