Export Power Control

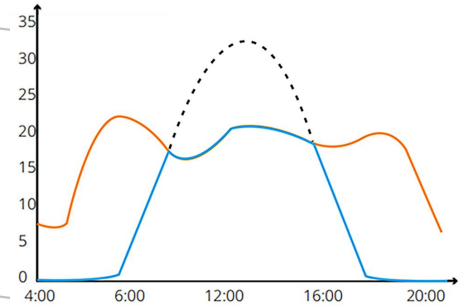
ECU-R with CHINT Meter Solution

Overview

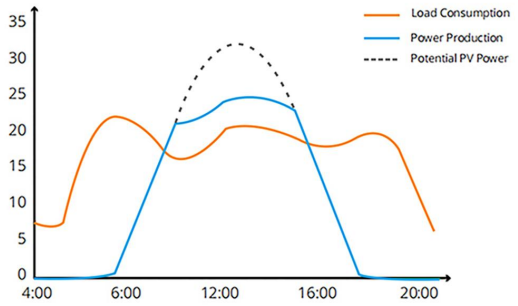
Export Power Control can intelligently control the output power of the photovoltaic system,also can accurately display the photovoltaic power generation,consumed power and export/import power. This solution can meet the requirements of prohibit or restrict the photovoltaic power generation transmit to the grid net and accuracy requirements of the photovoltaic monitoring data.

Export Power Control is composed of CHINT electric meter, APsystems energy communicator ECU-R and current transformer CT (Optional).

In the case of export limitation, the electric meter and current transformer CT (Optional)should be installed at the grid side. As shown below, the ECU-R will adjust the photovoltaic power production according to the export power that send from the electric meter via RS485, so that the export power does not exceed the preset limit.



0W export power control



2kW export power control

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System Composition

Energy Communication Unit ECU-R

ECU-R is the information gateway for our micro-inverters.ECU-R not only collects and transfers of inverter data,but also as the control center of export management solution,it receives data .from the meter and adjusts the output power of the micro-inverters.

Three phase electric meter CHINT DTSU666 and DSSU666

It suitable for three phase power grid, it can measure and display for the electric parameters in the circuit including voltage, current, power, frequency, power factor, active energy, etc. The network can be realized through RS485 communication.

Current Transformer

Current transformer is used for current and electric energy measurement or metering in AC circuit.

When the meter cannot be directly connected to the circuit or the system capacity is a little higher, a meter with the external current transformer is preferred.

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Meter Selection

Grid Type	Part No.	Meter Model	Reference voltage(V)	Access type	CT	Application
Three phase four wire(3P4W)	2270102003	DTSU666-5(80)A	3X277/480V customize	Direct connection	No need	Applicable for the circuit current is within 80A
	2270104003	DTSU666-100A/40mA	3X120/208V	Via CT	Standard configuration:3CTs of 100A,with package;	Applicable for the circuit current is within 100A
	2270106003	DTSU666-250A/50mA	3X120/208V	Via CT	Standard configuration:3CTs of 250A,with package;	Applicable for the current is within 250A
	2270108003	DTSU666-1.5(6)A	3X277/480V customize	Via CT	Customer purchase:3 CTs,Secondary side current must be less than 5A;	Applicable for the circuit current exceed 200A
Split phase(1P3W)	2270109003	DTSU666-100/40mA	120/240V	Via CT	Standard configuration:2 CTs of 100A,with package;	Applicable for the circuit current is within 100A
	2270110003	DTSU666-250/50mA	120/240V	Via CT	Standard configuration:2 CTs of 250A,with package;	Applicable for the circuit current is within 250A
Three phase three wire(3P3W)	2270202003	DSSU666-5(80)A	3X480V customize	Direct connection	No need	Applicable for the circuit current is within 80A
	2270204003	DSSU666-1.5(6)A	3X480V customize	Via CT	Customer purchase:2CTs,Secondary side current must be less than 5A;	Applicable for the circuit current exceed 80A

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Wiring of the Electric Meters with ECU-R

The electric meter and and current transformer CT (Optional) installed at the grid side are necessary for export limitation, if need an extra accurate photovoltaic power generation,the photovoltaic power side also need an electric meter and current transformer CT (Optional).

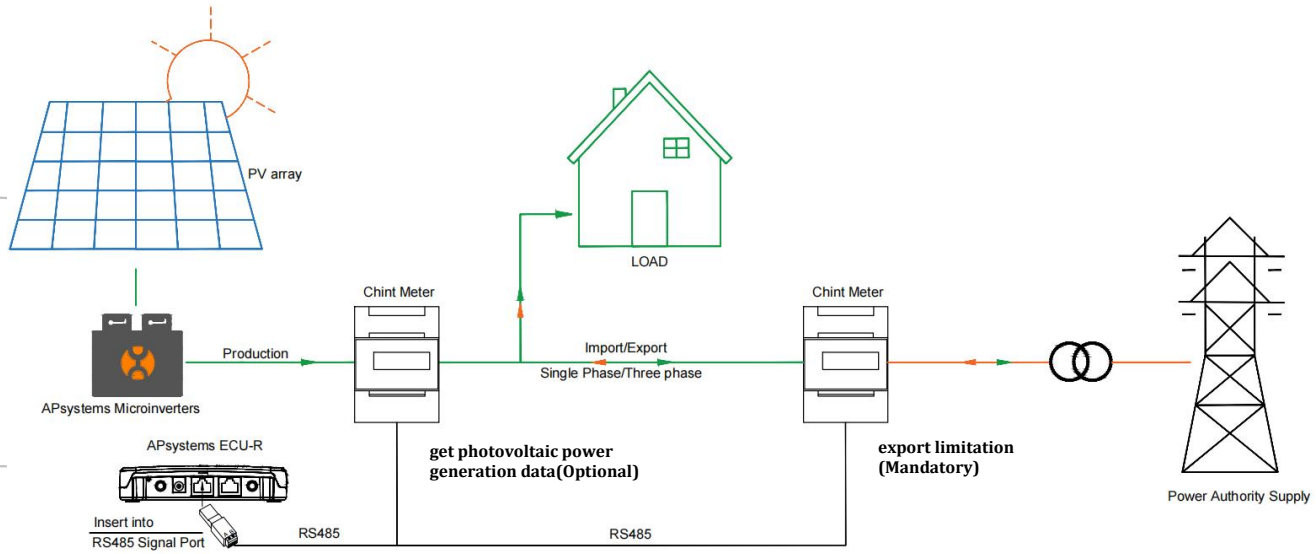
Export Power Control Solution support all of APsystem micro-inverter,for three-phase micro inverter is completely balanced, therefore power generation of the three phase will be uniformly reduced if any phase flows to the grid.

The following are the detailed drawings of different types of electric meters with ECU-R application solutions

NO CT Connection

The electric meter should be installed at the grid side,but dose' t need to install extra CT, and this solution only for the circuit less than 80A.

This drawing applicable for CHINT Meter DTSU666-5(80)A-3X277/480V and DSSU666-5(80)A-3X480V.



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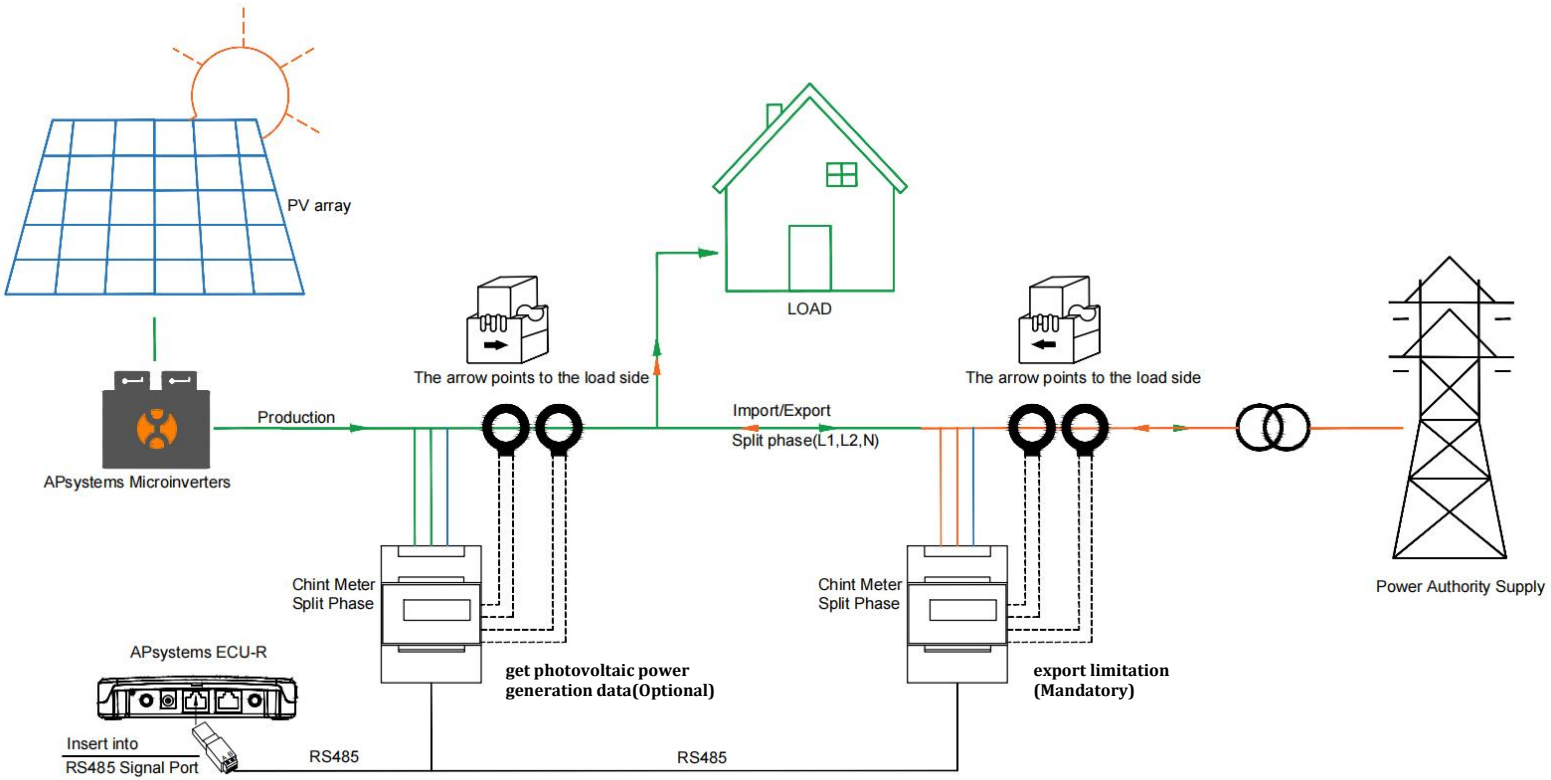
Equip with CT Connection

◆ Split Phase System

This drawing applicable for CHINT Meter DTSU666-100/40mA-120/240V and DTSU666-250/50mA120/240V.



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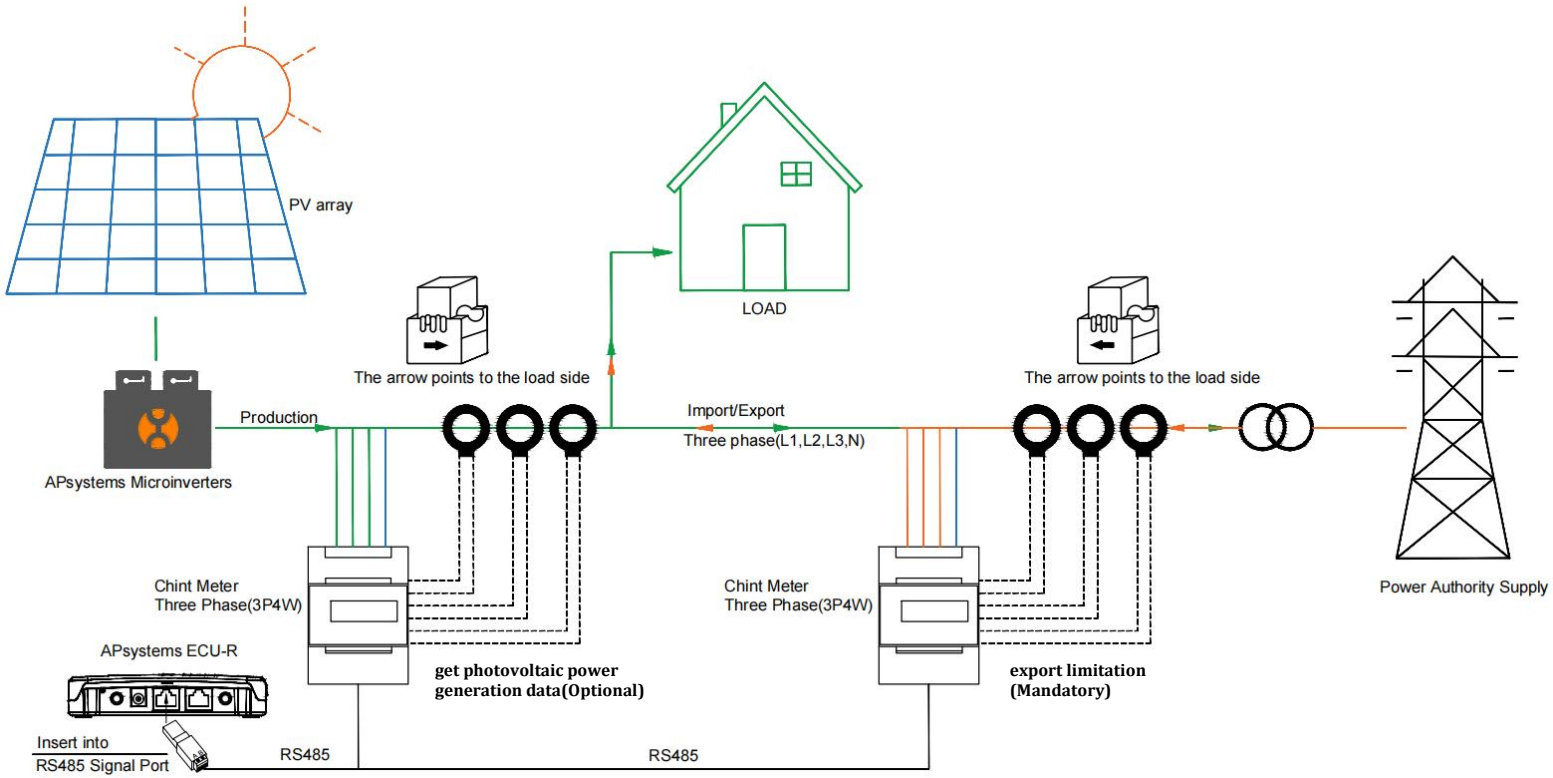
◆ Three Phase System 3P4W

This drawing applicable for CHINT Meter DTSU666-100A/40mA-3X120/208V,DTSU666-250A/50mA-3X120/208V and DTSU666-1.5(6)A-3X277/480V.



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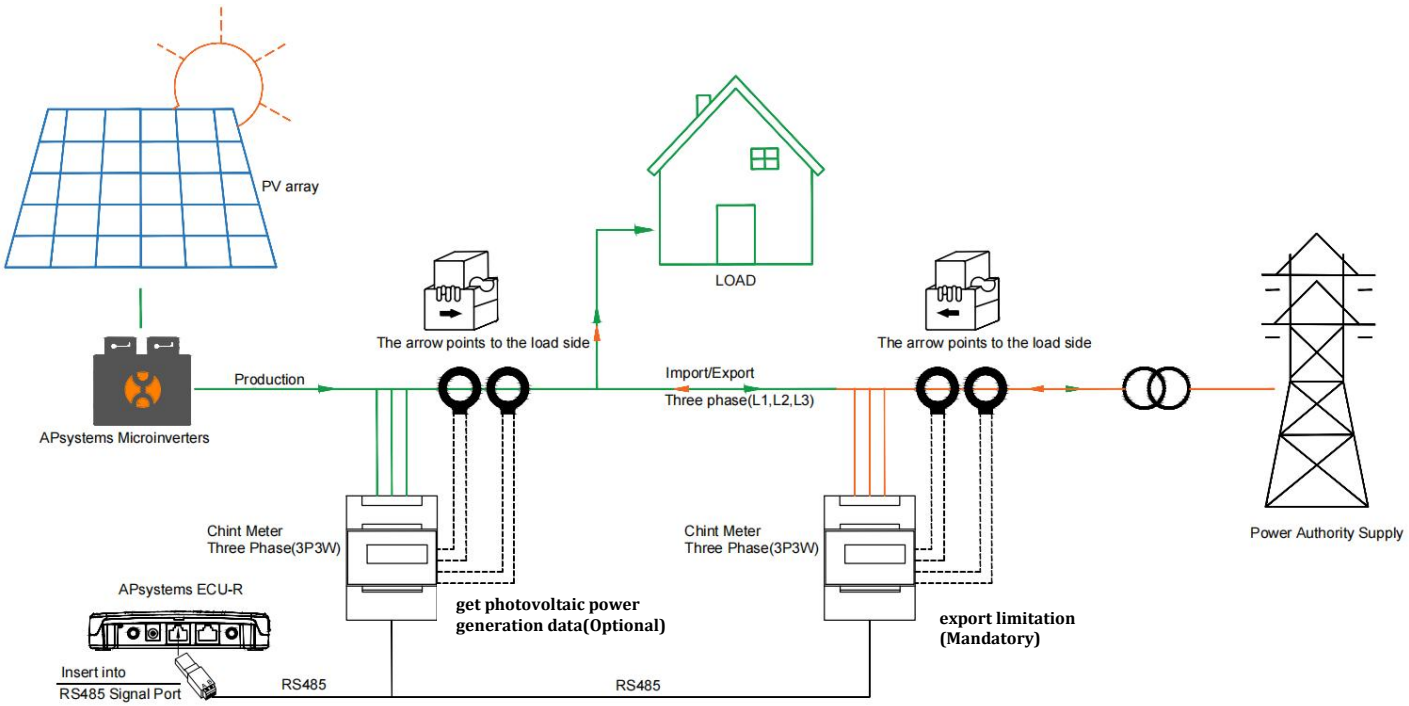
◆ Three Phase System 3P3W

This drawing applicable for CHINT Meter DSSU666-1.5(6)A-3X480V



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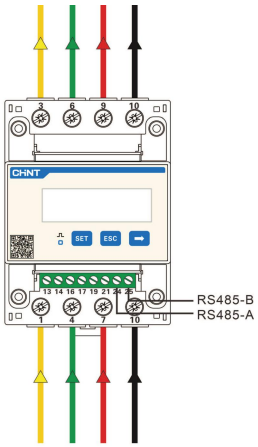
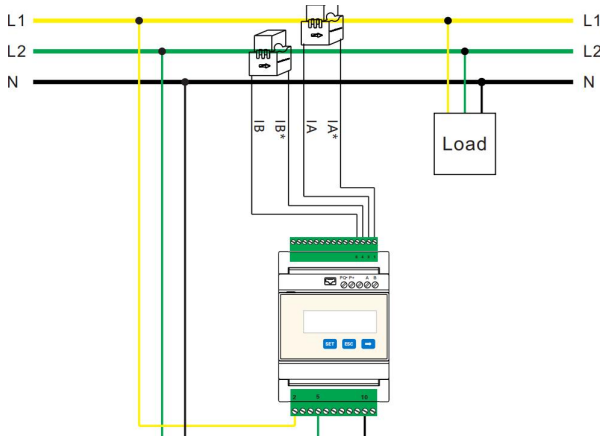
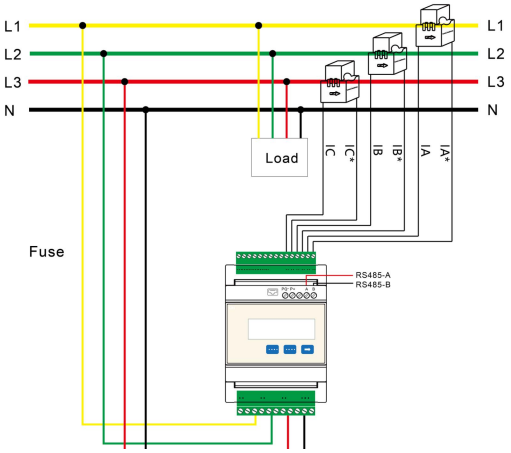
Detail Wiring of CHINT Meter



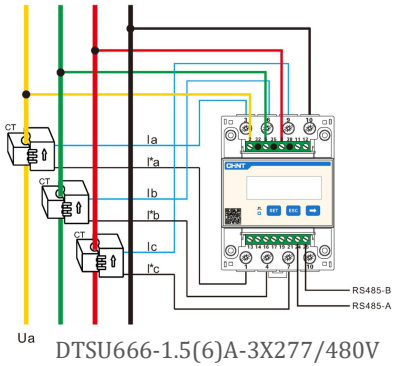
DTSU666-5(80)A-3X277/480V



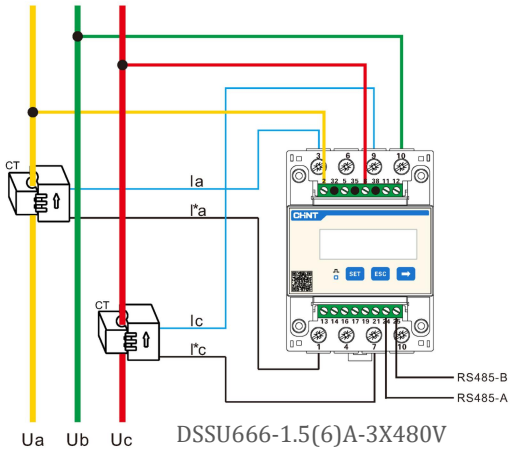
DTSU666-100/40mA-120/240V
DTSU666-250/50mA120/240V



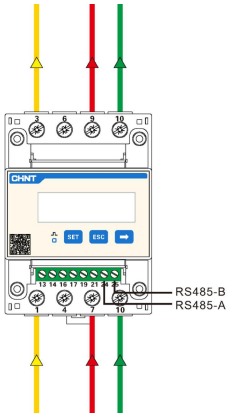
DTSU666-100A/40mA-3X120/208V
DTSU666-250A/50mA-3X120/208V



DTSU666-1.5(6)A-3X277/480V



DSSU666-1.5(6)A-3X480V



DSSU666-5(80)A-3X480V

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Meter Settings

The electric meter function can be enabled on ECU-R or EMA platform, and the EMA platform can also display detailed data. Client can choose export limitation function, then enter the electric meter settings page to configure electric meter type and setting the modulus address.

If there is only one electric meter in the system,the modulus address is default 1,it does not need to be set.

Photovoltaic side and grid side are both installed electric meters and CT(optional),one of the electric meter's modulus address should be set as 2 on the electric meter and meter configure page.

Only the type of 1.5(6) of electric meter need to set the current transformer ratio,the secondary current must be less than 5A.

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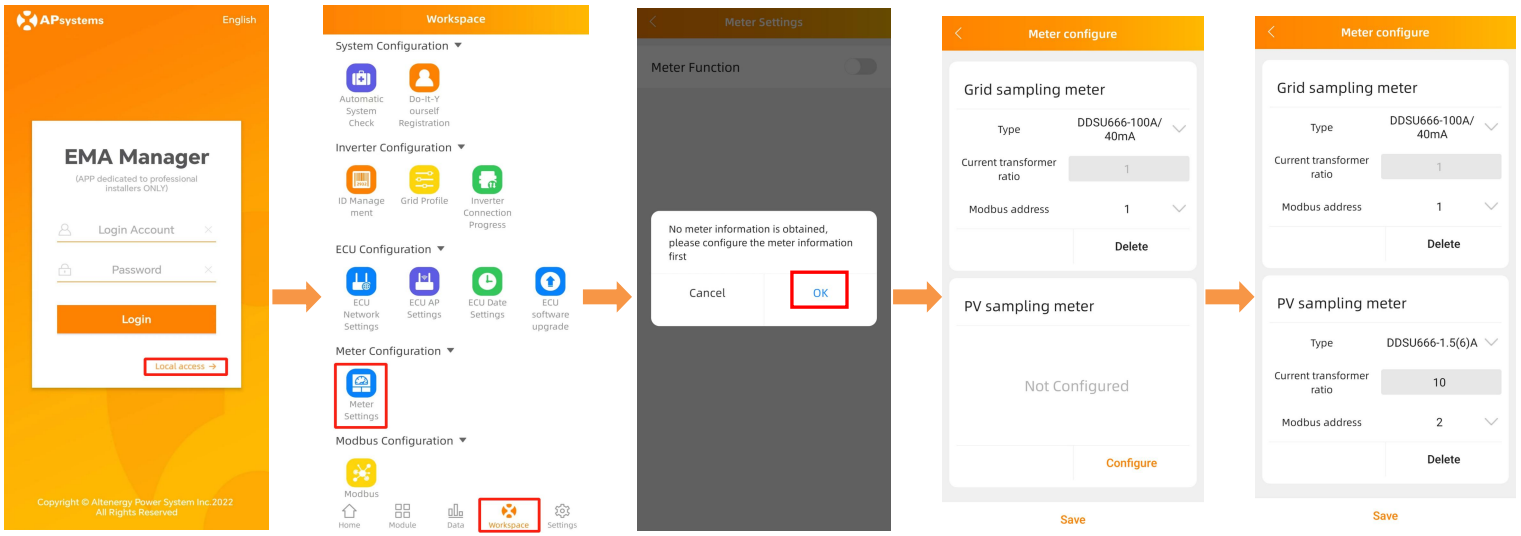
◆ Electric Meter Configure on ECU-R Local

By connecting the ECU-R hot-spot via mobile phone ,enter the Workspace interface to select electric meter settings, then configure electric meter and set the limit power.



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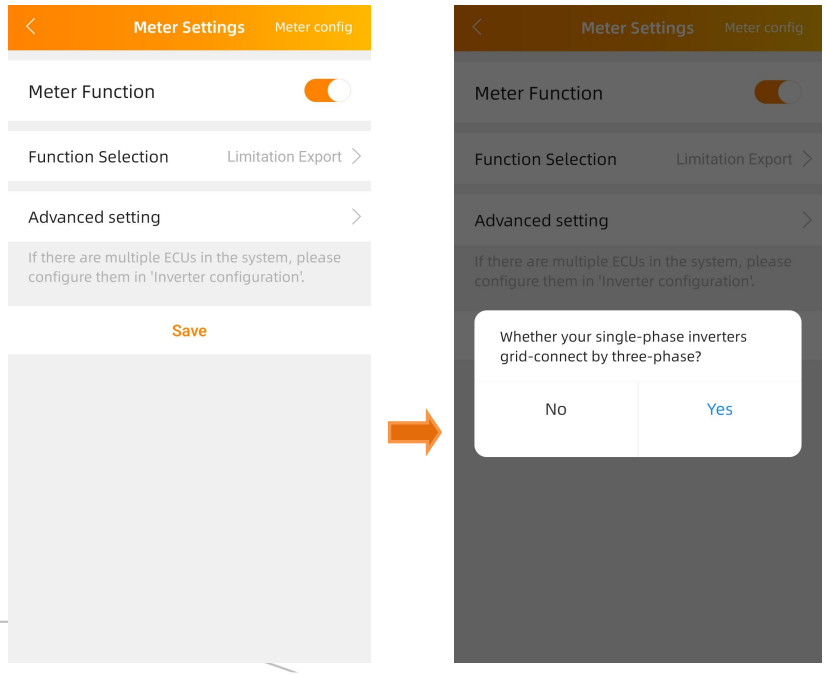
◆ Power Limit Setting on ECU-R Local

After configuring the electric meter,it will enter the electric meter function interface , this interface support set the power limit.if need adjust the electric meter configure,please click the electric meter “config”, it will back to the electric meter configure interface.



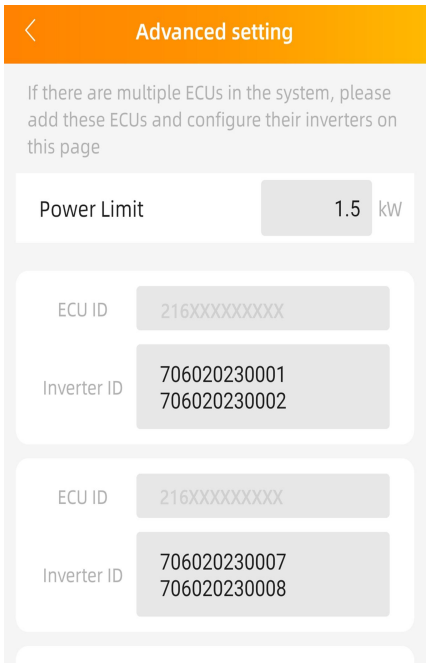


Figure 1

Figure 2

Note:

1.Figure 1(click “yes”) —Apply to the Single-phase inverters grid-connect by three-phase.

2.Figure 2(click “no”)—Apply to the three inverters,split phase inverters, and single-phase inverters .

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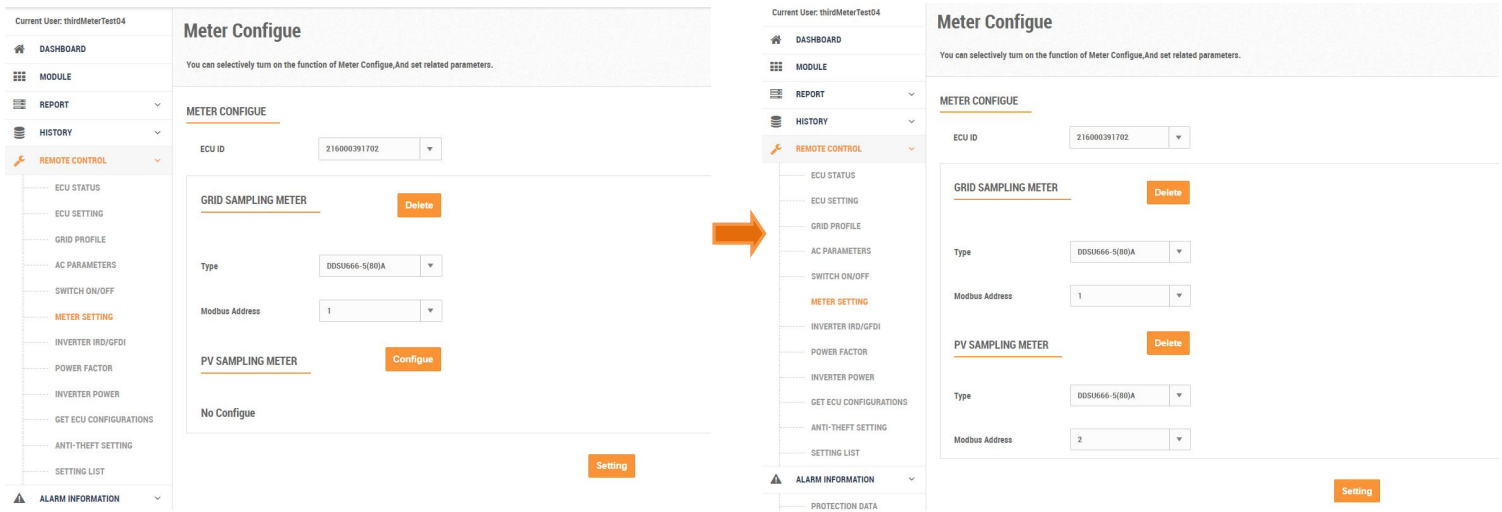
◆ Electric Meter Configure on EMA

After configure the electric meter on ECU-R local,the EMA page will display the configuration,EMA page support configure and modified the electric meter information remotely.



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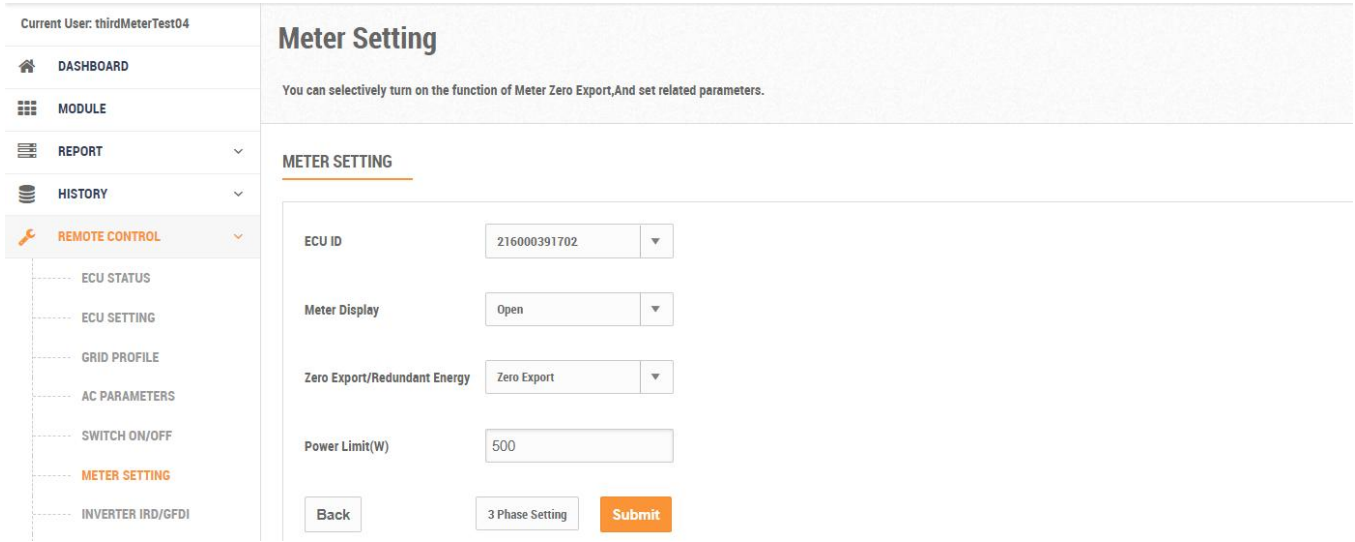
◆ Limit Power Setting on EMA

After configuring the electric meter,wait 15~20minutes,it will enter the electric meter function interface,if need adjust the electric meter configure,please click the “back”, it will back to the electric meter configure interface.



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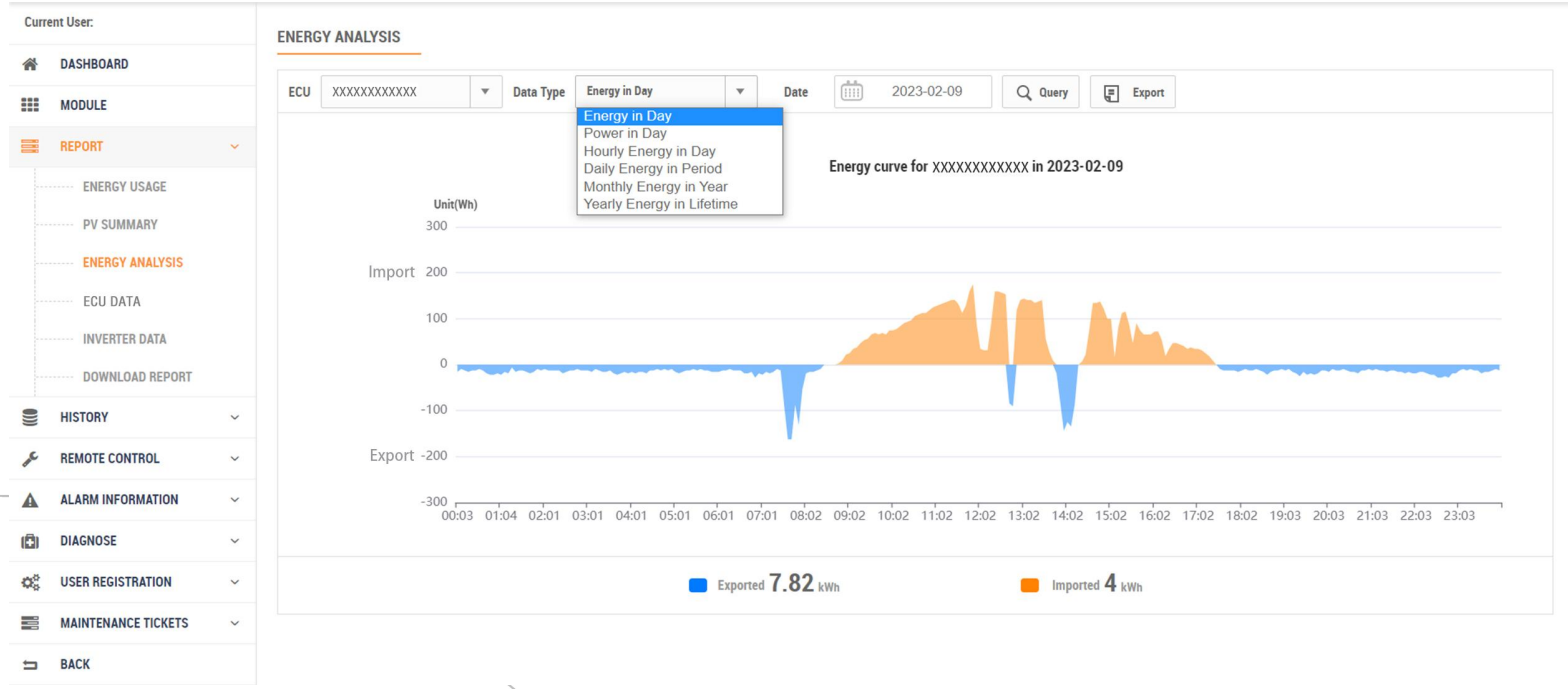
Display on EMA platform

The electric meter transfer Export/Import Power data and Photovoltaic power generation to the ECU-R via RS-485, then the ECU-R uploads those data to the APsystems Energy Monitoring and Analysis (EMA) platform by the router or wireless network.Through the EMA web or mobile application, users can get energy information.

◆Export/Import data



Note: Electric meter and current transformer CT (optional) are installed at the grid side

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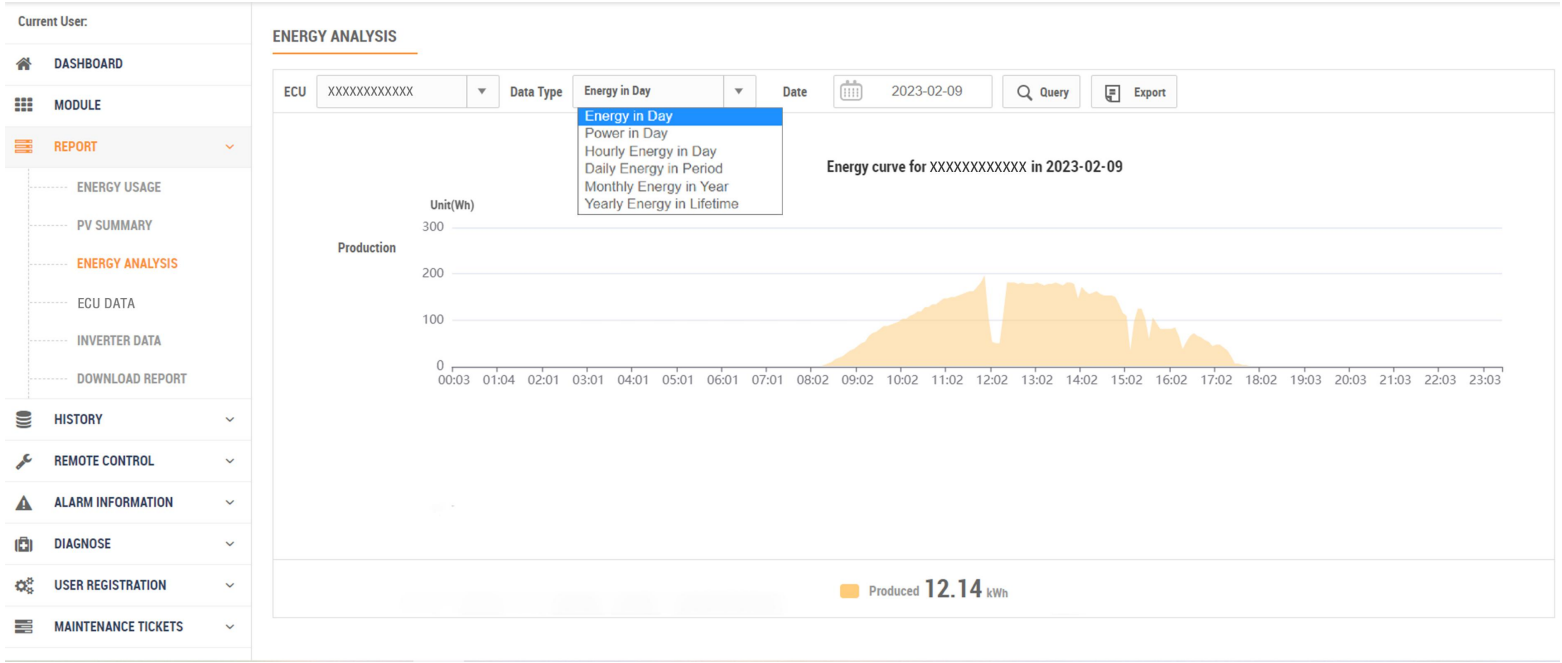
◆ Photovoltaic power generation data



Note: Electric meter and current transformer CT (optional) are installed at the photovoltaic side.

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◆ Photovoltaic Power Generation,Consumed Power and Export/Import Power data

Note: Electric meter and current transformer CT (optional) are installed at both the photovoltaic side and the grid side.