

Export Power Control

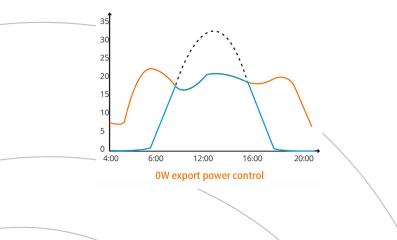
ECU-R with CHINT Meter Solution

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.





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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	СТ	Application
	2270102003	DTSU666-5(80)A	3X277/480V customize	Direct connection	No need	Applicable for the circuit current is within 80A
Three phase four	2270104003	DTSU666-100A/40mA	3X120/208V Via CT 3X120/208V Via CT		Standard configuration:3CTs of 100A,with package;	Applicable for the circuit current is within 100A
wire(3P4W)	2270106003	DTSU666-250A/50mA			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
	2270109003	DTSU666-100/40mA	120/240V	Via CT	Standard configuration:2 CTs of 100A,with package;	Applicable for the circuit current is within 100A
Split phase(1P3W)	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,

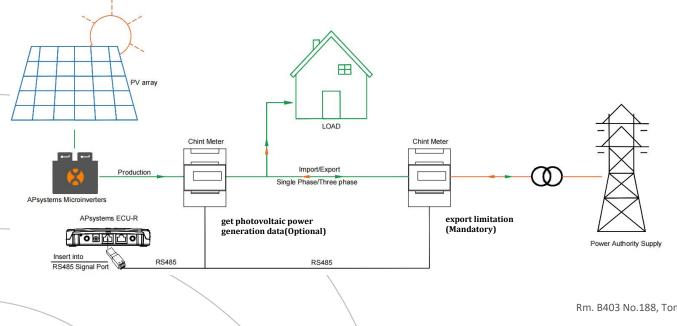
therefore power generation of the three phase will be uniformly reduced if any phase flows to the grid.

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.



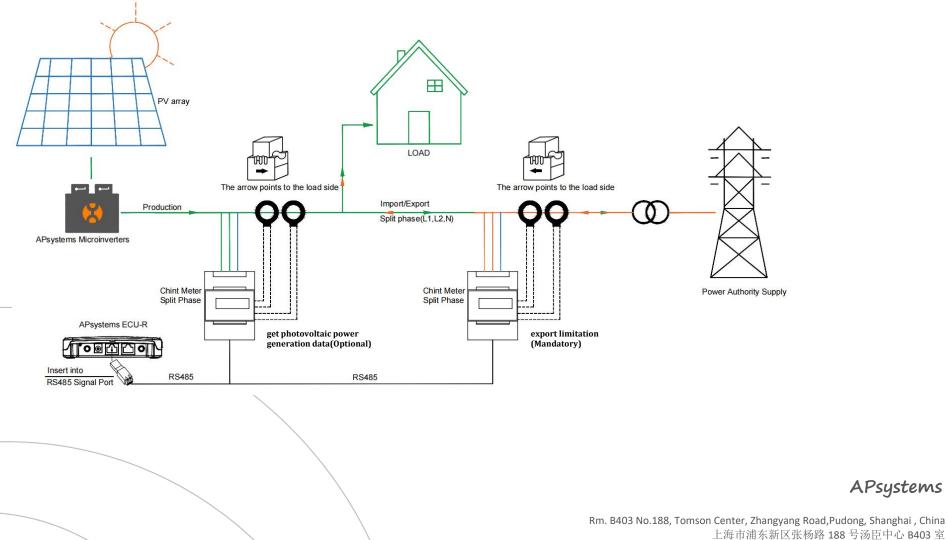
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Equip with CT Connection

♦ Split Phase System

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



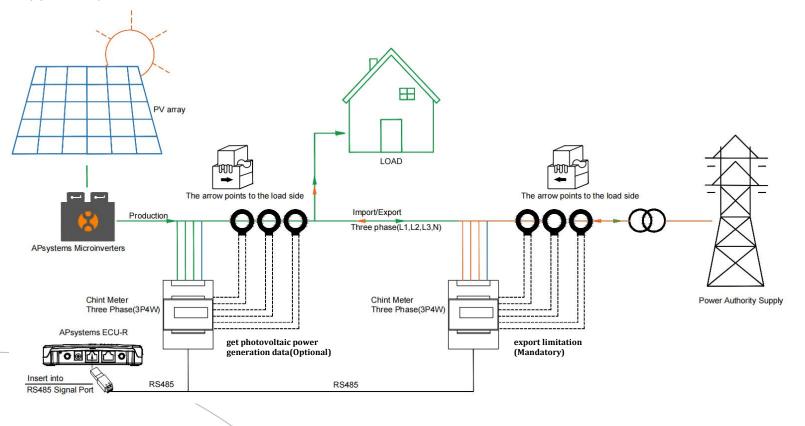
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◆ Three Phase System 3P4W

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

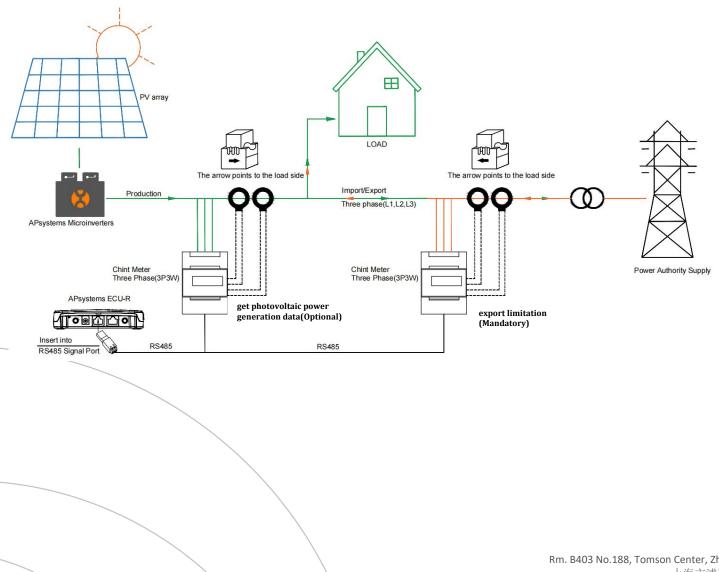


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• Three Phase System 3P3W

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



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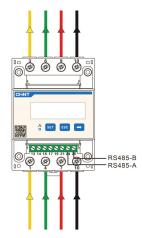


Detail Wiring of CHINT Meter

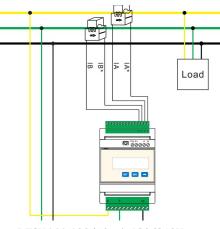
L1

12

N



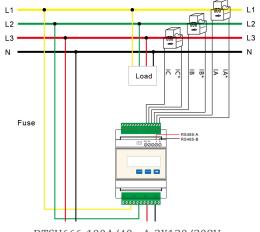
DTSU666-5(80)A-3X277/480V



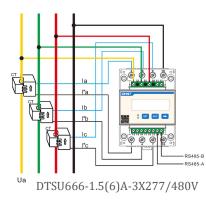
L1

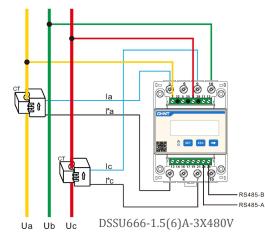
L2

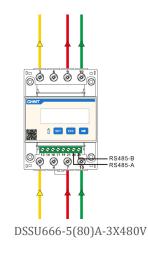
DTSU666-100/40mA-120/240V DTSU666-250/50mA120/240V



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







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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.

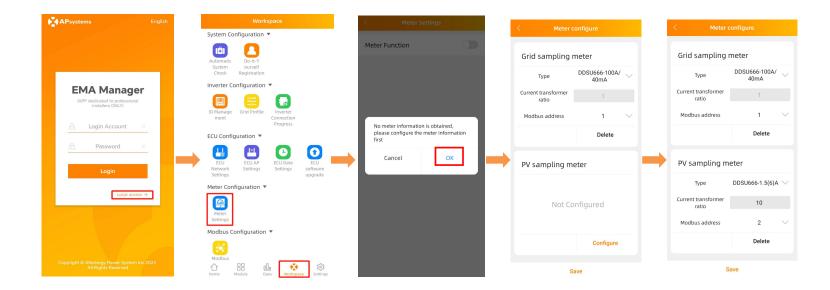
Only the type of 1.5(6) of electric meter need to set the current transformer ratio, the secondary current must be less than 5A.

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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.

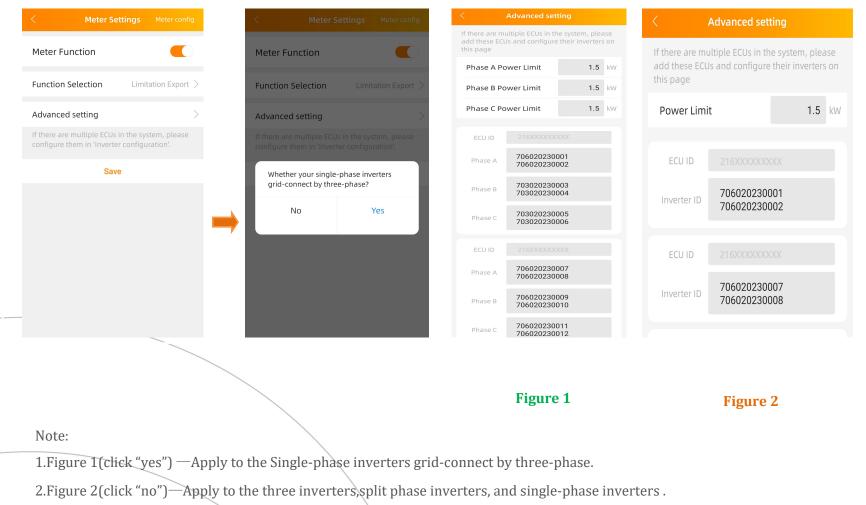


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Power Limit Setting on ECU-R Local

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.



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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.

Current User: thirdMeterTest04	Mater Carlinua	Current User: thirdMeterTest04 Meter Configue
A DASHBOARD	Meter Configue	DASHBOARD You can selectively turn on the function of Meter Configue, And set related parameters.
MODULE	You can selectively turn on the function of Meter Configue, And set related parameters.	You can selectively turn on the function of Meter Configue, and set related parameters.
REPORT V		E REPORT METER CONFIGUE
	METER CONFIGUE	HISTORY V
HISTORY ~	ECU ID 216000391702 -	FCU ID 216000391702
		ECU STATUS
ECU STATUS	GRID SAMPLING METER Delete	ECU SETTING ECU SETTING ECU SETTING
ECU SETTING		GRID PROFILE
GRID PROFILE		AC PARAMETERS Type D05U666-5(80)A V
AC PARAMETERS	Type DDSU666-5(80)A 💌	SWITCH ON/OFF
SWITCH ON/OFF	Modbus Address 1 v	METER GETTING Modbus Address 1 *
METER SETTING		INVERTER IRD/GFDI
INVERTER IRD/GFDI	PV SAMPLING METER Configue	POWER FACTOR PV SAMPLING METER Delete
POWER FACTOR		INVERTER POWER
INVERTER POWER	No Configue	GET ECU CONFIGURATIONS Type DOSU666-5(80)A *
GET ECU CONFIGURATIONS	no comigue	ANTI-THEFT SETTING Modbus Address 2 v
ANTI-THEFT SETTING	Setting	Modulu Adres Z *
SETTING LIST	setting	ALARM INFORMATION V
ALARM INFORMATION ~		Setting

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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.

Current User: thirdMet	terTest04		Meter Setting			
A DASHBOARD						
MODULE			You can selectively turn on the funct	ion of Meter Zero Exj	port,And se	relate
REPORT		~	METER SETTING			
HISTORY		~				
🔑 REMOTE CONTI	ROL	~	ECU ID	216000391702		
ECU STATU	JS					
ECU SETTI	NG		Meter Display	Open	3	
GRID PROF	ILE					
AC PARAM	ETERS		Zero Export/Redundant Energy	Zero Export		
SWITCH OI	N/OFF		Power Limit(W)	500		
METER SET	TTING					
INVERTER	IRD/GFDI		Back	3 Phase Setting	Subm	

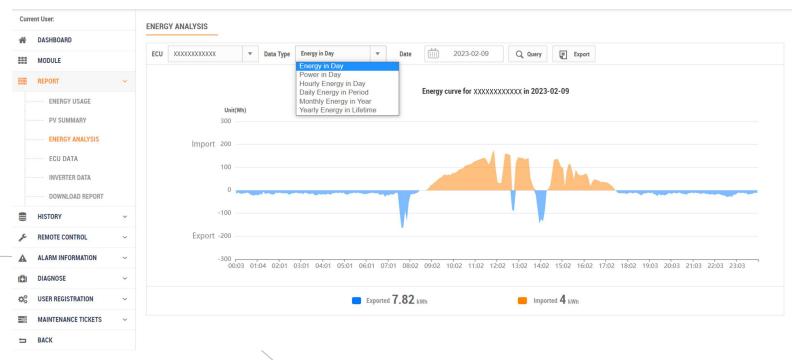
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Display on EMA platform

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

Current User:	ENERGY ANALYSIS
A DASHBOARD	
MODULE	ECU XXXXXXXXXX VX Data Type Energy in Day V Date IIII 2023-02-09 Q Query Export
REPORT ~	Energy in Day Power in Day Hourly Energy in Day Daily Energy in Period Energy curve for XXXXXXXXX in 2023-02-09
ENERGY USAGE	Unit(Wh) Yearly Energy in Lifetime
PV SUMMARY	300
ENERGY ANALYSIS	Production 200
ECU DATA	
INVERTER DATA	100
DOWNLOAD REPORT	0 00:03 01:04 02:01 03:01 04:01 05:01 06:01 07:01 08:02 09:02 10:02 11:02 12:02 13:02 14:02 15:02 16:02 17:02 18:02 19:03 20:03 21:03 22:03 23:03
HISTORY ~	
🖋 REMOTE CONTROL 🗸	
ALARM INFORMATION ~	
DIAGNOSE ~	
$\varphi^{e}_{a} \text{USER REGISTRATION} \qquad \qquad$	Produced 12.14 kWh
MAINTENANCE TICKETS ~	

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

Current User:		ENERO	GY ANALYSIS									
A DASHBOARD												
MODULE		ECU	XXXXXXXXXXXXX	*	Data Type	Energy in Day	Ŧ	Date (2023-02-09	Q Query	Export	
REPORT	~					Energy in Day Power in Day Hourly Energy in D Daily Energy in Pe		Fn	ergy curve for XXXXXXX	2023 in 2023	-02-09	
ENERGY	USAGE					Monthly Energy in	Year	LI		AAAAA III 2023	02.05	
PV SUMM	IARY			Unit(Wh) 300		Yearly Energy in Li	retime					
ENERGY	ANALYSIS	Im	nport/Produce/	200					4			
ECU DAT	A	Co	omsume	100								
INVERTEI	R DATA											
DOWNLO	AD REPORT			0								
HISTORY	~		-	100								
🔊 REMOTE CON	TROL ~		Export -	200				-				
	RMATION ~		-	300	1.04 02.01	03:01 04:01 05:01	06:01 07:01	08.02 09		2 13:02 14:02	2 15:02 16:02 17:02 18:	02 19:03 20:03 21:03 22:03 23:03
DIAGNOSE	~			00.05	1.04 02.01	05.01 04.01 05.01	00.01 07.01	00.02 0.	NUE 10.02 11.02 12.01	2 13.02 14.02	15.02 10.02 17.02 10.	02 13.03 20.03 21.03 22.03 23.03
Q ^O USER REGIST	RATION ~		Produce	d 12.14	kWh		Consumed 8.	32 kWh		Exported	7.82 kWh	Imported 4 kWh
MAINTENANO	CE TICKETS ~											
🗂 ВАСК												

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

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