

# **EPEVER TCP 306**

# **User Manual**



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## **Important Safety Instructions**

#### Please reserve this manual for future review.

- Thanks for selecting the EPEVER TCP 306; please read this manual carefully before using the product.
- When you receive the product, check whether any damage occurred in transportation. Contact the transportation company or our company in time for any problem.
- Please read this manual and safety information carefully before installing it.
- Keep the product away from rain, exposure, severe dust, vibration, corrosion, and intense electromagnetic interference.
- Please avoid water and other liquids entering the product.
- There are no user-serviceable parts inside the product. Do not disassemble or attempt to repair it.



Do not install this product in humid, salt spray, corrosion, greasy, flammable, explosive, dust accumulative, or other severe environments.

## **1 Overview**

EPEVER TCP 306 is a serial device server connecting with EPEVER solar controller, inverter, and inverter/charger via an RS485 port. Communicating by the TCP network, it transfers collected data to the EPEVER cloud server to realize the remote monitoring, parameter setting, and data analysis. With simple and easy operations, the TCP device server's IP address, TCP server, and TCP client can also be modified by the PC software.

#### Features:

- Equipped with standard network cable port
- Adjustable 10M/100M Ethernet port
- Configurable serial port baud rate (600bps~230.4Kbps)
- Auto obtain the IP Address by the DHCP function
- High compatibility without any drivers
- Unlimited communication distance
- Flexible power supply for the communication interface
- · Designed with low power consumption, and high running speed

#### 1.1 Appearance

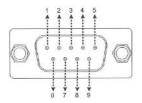


No.	Port	Instruction
0	Power port	Support 5V~36V DC power adapter
2	Reload button $\star$	Return to the factory settings
3 RS232 interface		Reserved
4	Indicator	To indicate the working status
6	Power terminal (2P 5.08)	Connect the solar controller, inverter, and inverter/charger for power supplying
6	RS422/ RS485 interface	Connect the solar controller, inverter, and inverter/charger for data transmission
0	Ethernet port	To connect the PC or router

★ When the module parameter error occurs, or you forget the setting password, press the Reload button for 5s~15s to restore factory mode. It will not restore when pressing the Reload button for less than 5s or more than 15s.

### 1.1.1 Pin definition

#### Definition for the RS232 terminal:



Pin	Definition	Pin	Definition
1	NC	6	NC
2	RXD	7	NC
3	TXD	8	NC
4	NC		NC default, it can also be used as a
5	GND	9	power pin.

#### Definition for the RS422/ RS485 terminal:



Pin	Instruction
T+(A)	For the RS422, they are data transmitting pins to send data to the serial
	device.
T-(B)	For the RS485, they are data transmitting and receiving pins.
R+	
R-	They are data-receiving pins for the RS422 communication.

#### 1.1.2 Indicator

Indicator	Status	Instruction
WORK	Slowly flashing	Normal work
(Work status indicator)	Fast flashing	Module upgrading
PWR	Red ON	Normal power on
(Power Indicator)	OFF	No power
	ON solid	TCP connection normally
LINK	OFF instantly	TCP disconnect normally
(TCP link indicator★)	OFF after a delay of 40s	TCP disconnect abnormally
TX (Transmit indicator)	Flashing	The serial port sends data
RX (Receive indicator)	Flashing	The serial port receives data

 $\star$  The LINK indicator matches the TCP link function, it just takes effect in the TCP Client or TCP server mode. The LINK indicator is ON solid when enabling the link function in the UDP mode.

## 2 Work on EPEVER cloud

### 2.1 System connection



★ Select an appropriate communication cable per the communication interface of the controller, inverter, or inverter/charger.

#### 2.2 Work procedures

Step 1 log in to the cloud server: Enter (https://hncloud.epsolarpv.com/) in Google browser to log in to the cloud server.

EPEVER
L Sxy
Keep me signed in Forgot password?
Sign in
No account yet? Sign up now

Note: If you do not have a cloud server account, you can register an account for free.

Step 2 Add a power station (optional): Click "Power station > Add power station" on the left navigation. Input the power station information and click the "Save" button.

Note: You can skip this step if the power station already exists.

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			Designation (FO, GP, PHC format, the same of SH or less		
				·	

<u>Step 3 Add a gateway</u>: Click "Gateway manage > Gateway list > Add" to enter the gateway adding interface. Input the gateway information and click the "Save" button.

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Ľ	Statistic analysis 🗠	Devices map	50101, China Mip		
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Γ.					
				Save	

"Gateway SN" is obtained by scanning the QR code on the module sticker via the EPEVER cloud APP.

"Access Mode" selects the "TCP-A."

Note: You can also add gateways in batch by uploading a file.

<u>Step 4 Add a device</u>: Click "Device management > Add device" on the left navigation. Input the device information and click the "Save" button.

	Home page	Device management new (1) Device lation (2) Ad	d device	
	User center page	Add Device Batch Add Equipment		
	Power station 🗸	* Oustom Devise Name	Flases aviar a custors devica name	0.24
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	Denna Inf.			
	Add device	* Organization	Please select organization	
	Task monitoring	- Galeriay	Pipese selected gateway	
D	/lam linkage 🗸 🗸			
2	9tatistic analysis 💉	* Sanicl Product Facility	Select Product Family	
	System setting 🔷 👻			
				Sant

"Equipment Serial Number" can be obtained from the device sticker.

"Gateway" must be the added gateway in Step 3.

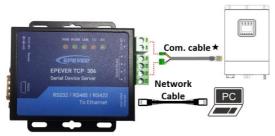
"Select Product Family" must be selected correctly, or it will cause a communication failure.

Step 5 Set the IP type: There are two methods to obtain the IP address for the module.

One is "Static IP," which must manually input the IP address, submask, and gateway.

The other is "DHCP," which automatically obtains the IP address. You need to set the method for obtaining the IP address as below.

1) Connect the module to a PC by a network cable, and connect the module to a controller, inverter, or inverter/charger by an RS485 cable.



- 2) Set the computer's local IP address to the same network segment of the module. Such as the module's IP address is "192.168.0.7", you need to set the computer's local IP address as "192.168.0.x (x states any number among 0~255, except 7.)."
- Input the module's IP address in the Google browser, and a login prompt box shows. And then, input the user account and password to log in.

**Note:** The module's IP address, user account, and password can be obtained on the sticker.

4) Click the "Login" to enter the picture below. Click the "Local IP Config" on the left navigation, and select the "IP type" as "Static IP" or "DHCP."



<u>Step 6 System connection</u>: Connect the EPEVER TCP 306 module to a router by a network cable, and connect the module to a controller, inverter, or inverter/charger by an RS485 cable. See <u>2.1 System connection</u>.

Step 7 Power on the controller, inverter, or inverter/charger: When the LINK indicator is ON solid, it indicates the TCP connection is normal.

**Note:** Click "Gateway manage > Gateway list "and "Device management > Device list"; the newly added gateway and device are online. It indicates that the gateway and device have been added to the EPEVER cloud.

	Home page	Opteway manage	Galaway list			83	1 kome pege	Device management	new > Device kst		
	User center page	Gateway List			_	8	User center page	Device List			
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٥	Galeway manage	Serial Number	Gateway Name	State	Gateway S	ø	Galeway manage 🛛 👻	Device name	Device status	Organization	
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	Device management*	2		Offline	00501522	2	Device list	XTRA2206	untrie		
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Step 8 Monitor the device's real-time status and set parameters: Click "Device management > Device list" to enter the device list interface. Click the "Check" icon to monitor the device's real-time status.



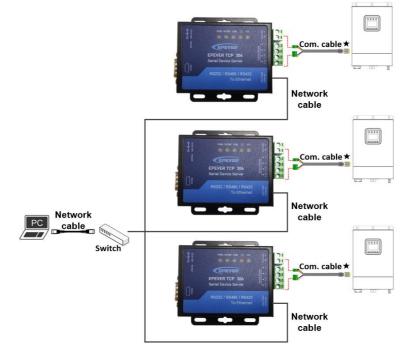
Click the "User center page" to enter the power station list. Select a power station to enter its overview page. You can check the real-time status, historical curve, device information, alarms, etc., and set parameters.

## 3 Work on LAN

#### 3.1 LAN connection

Connect the TCP module to a PC by the Ethernet port, and connect the module to a controller, inverter, or inverter/charger by an RS485 cable.

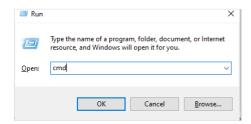
After successfully connecting to the PC, users can modify the TCP module's parameters or monitor the connected devices with the PC software.



#### 3.2 Work procedures

#### 3.2.1 Check the local IP address

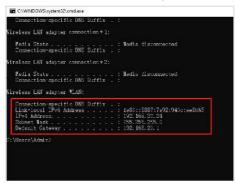
1. Pop up the "Run" window by clicking the shortcut key "+R" on the PC keyboard, enter the "cmd" command, and press the "Enter" key.



2. Enter the "ipconfig" command in the pop-up window and press the "Enter" key to view the local IP address.

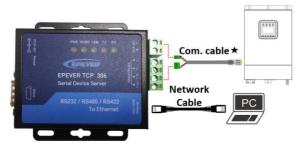
III C/WINDOWS/system32/cmd.exe
Vicrosoft Vindows [Version 10.0.19042.1343] (c) Vicrosoft Corporation. All rights reserved.
C:\Users\&dmin>
ipconfig

 It is shown in the figure below: Local IP address: 192.168.20.24; Subnet mask: 255.255.255.0; Default Gateway: 192.168.20.1.



#### 3.2.2 Configure TCP module

1. Connect the TCP module's power terminal and RS485 terminal with the device. And connect the TCP module's "Ethernet" port to a PC.



 After the TCP module is successfully connected to the PC (the Link indicator is green ON), set the IP address of the computer and TCP module in the same network segment.

# Note: The IP address of the TCP module is shown on the module label.

- Click to open the "EPEVER TCP RJ45 B.exe" tool from the after-sales technicians.
- 4. Modify the parameters by the sequence number marked in the figure below :

	te Via LAN	7		Bare Paras (shish is without 🏶 usually keep default)
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Device IP	Device Nume	MAC	ve (2	
92 168.0.7	EPEVER ICP RJ.	. D4 AD 20 46 31 C8	4017	SubnetRask # 255.255.055.0 Password adain
				Gateway # 192.168.0.1 Device Name EFEVER TC
				1985 Address 208.67.222.222
				Reset Tineout(s) 3600
				Clear Buffer Data Before Connected
				🗌 UART Set Parameter 🗾 BPC2217
			_	Port Faram Parity/Data/Stop HOME \[ 0 \[ 1 \] [ 1 \] [ 16200 \]
	Searce 1	h Device		3 Nobule work mode ICF Client Joral Fort 0 (4)
				RemoteIP hacons. spiolarpy. co Remote Port 15000
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相關已发送				Short Connection
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				Neartheat
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击搜到的设备	D4 AD 20 45 31 C8 ]		1	Heartbeat Packet Type Hone
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- (1) Click "Search Device" to read the TCP module information.
- (2) Change the "IP Type" to "Static IP."

The first 3 bits of the "Module Static IP" item should be consistent with the current PC. The current PC's local IP is 192.168.20.24. Thus the "Module Static IP" item needs to be changed to 192.168.20.130 (the last bit can be written at will).

The value of the "Subnet Mask" and "Gateway" items should be consistent with the current PC. The current PC's subnet mask is 255.255.255.0, and the default gateway

is 192.168.20.1. Change the value of the "Subnet Mask" and "Gateway" items to the same.

- (3) Change the "Module work mode" to "TCP Server."
- (4) Change the "Local Port" to "65010."

After modifying the above parameters, click the "Save Config" button.

0	e Via LAS		rate Via COM	Base Paran (which is without #, usually kee	p default)	
operat	e vis 155	Ope	rate via LUR	IP Type ★ Static IP 🗸	MTTP Fort	80
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192-168.0.7	IPIVER TOP BJ.	. B4 AD 20 4	5 31 08 4017	SubaetMask 🗙 255.255.255.0	Parword	shin
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Data has been	a sent			Heartbeat Packet Type Sone	~	
	ution Log	1	ler Stresss	Save Co	nfig	DataDebug

#### 3.2.3 Add Virtual COM

- 1. Install and open the USR-VCOM software , . The software installer can be requested from the after-sales technicians.
- 2. Click the "Add COM" icon to add a virtual COM port per the following procedures:

Add COM	DelCOM	Correct	Count Repet Count	Montor	Search Sir	at VODM	- <b>1</b>				
naks	COM Name	Parameters	COM Stale	Net Protocol	Remote IP		Port Local Port	COM Received			RegID
	COM7		Not used	TCP Client	192,168.1.13	0 65010	14	0	0	Connecting	0
					Add Virtual Seria	Port		×			
						-					
					Virtual COM:	CON7	-				
					Net Protocot	TCP Clerk					
						-	<u> </u>				
					Renote IP/ad	192.168.20	130				
					Remote Port	65010					
					Local Port	8234					
						pace.					
					Remarks	1					
					🕑 OK	😣 Cancel	Advanced ⊌				

- (1) "Virtual COM": COM1~COM255. For example, select "COM7 ".
- (2) "Net Protocol": Select "TCP Client."
- (3) "Remote IP/addr": Enter the "Local IP (192.168.20.130)", which is set by the TCP tool

in chapter 3.2.2 Configure TCP module.

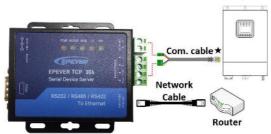
- (4) "Remote Port": Automatically display "65010" by the TCP Tool.
- (5) After finishing all settings, click the "OK" button.
- The "Net State" column displays "Connected," indicating that the virtual COM has been added successfully.



Note: If the "Net State" column displays a failed connection, please check whether the TCP module and the current PC are in the same network.

#### 3.2.4 Monitor devices with the PC software

 Connect the TCP module's power terminal and RS485 terminal with the device. And connect the TCP module's "Ethernet" port to the router by a network cable (The TCP module and the PC must share the same network).



 Download the PC software "Charge Controller V1.95 Windows" from the EPEVER website: <u>https://www.epever.com/support/softwares/</u>. Install the PC software "Solar Station MonitorV1.95" as per the *Installation guidance*.

Ch	arge Controller V1.95-Windows →
	^
• • •	PCsoftware USBDriver
	EPEVER

 Double-click the icon Solar Station MonitorV1.95 on the PC to open the "Solar Station MonitorV1.95" software. The initial interface is shown in the figure below.

 Station Name	v Devi e	N ID I	Interval (s) 30
Solar Information	Battery Information		DC Load Inform
Solar Current (A)	Battery Voltage(V)	Bottery Current(A)	Load Curre
		(I)	(I)
Solar Voltage (V)	Max Voltage(V)	Min Voltage(V)	Load Volta
	(F)		
	U		U
Energy Generated(kWh)	Real Time Curve		
Daily	Volt	Volta	ige Keal Time C
Daily		Volta	ige Keal Time C
Daily	· · · · · · · · · · · · · · · · · · ·		nge Real Time C

 Click the "System" menu to pop a "Station Information" box. Then click the "Controller" tab and select "COM7" for the "Port" item ("COM7" is the virtual COM set in chapter 3.2.3 Add Virtual COM).

🗗 🏗 🕼	Station Information 2 Station Information Solar Battery Controller		×
Station Explorer	Section adversame and and section (new constraints) Section adversame adver	单击 漆加图片 Click to add picture	al(s) 20 DC Load Information Load Current( Load Voltaged Keal Time Current
	Flease not to with * sust be filled Open State Information dialogue box estonically u E	oon start-up Exit	

After finishing all settings, click the "Add" button.

 After adding the "COM7", it displays "COM7 (Doesn't exist or not yet set up)" in the left navigation window. Configure the "COM7" in the following procedures.

Station Applager	Config(C) Paramete	rrs (P) Monit	oring( <u>M</u> ) Mainten	ance(C) Help(H)			
CON7 (Doexn't ex	Statio	S 48+4	~	Derice ID 1	In	terval(s)	30
	Solar Information	7	Battery Inform	nation		DC Loss	i Informati
	🗲 Serial Port Setting				×	Load	Current(
	con			Configuration			
	Fort	EX.E	→ Device Ma	hager	1	Load	Voltage(
	Baud rate	115200	v			9	
	Data Bits	8				-	
	Stop Bits	1				e Real T	ime Cur
	Perity	Hone	~	4 add	Delete		
	Total		]	8			
	Energy Consum	ad/kW/h)		6			

- (1) Click the "COM7 (Doesn't exist or not yet set up)" in the left navigation window.
- (2) Click the "Port Config" on the top menu bar to pop up a "Serial Port Setting" box.
- (3) Select "COM7" for the "Port" item.
- (4) Click the "Add" button to add the "COM7 "into the "Configuration" field, and then, the "Add" button automatically becomes the "Update" button. Shown as below:

🖮 😨 CON7 🛄 Han1	Stati	on Name - Numl		~	Device ID 1	Interval (s	.) [30
	Solar Informatio	on	Ba	ttery Information		DC	Load Informatio
	🥽 Serial Port Setting	g				×	oad Current(A
	COM				Configuration	(	<u> </u>
	Port	COM7	×	Bavice Manager	0007		oad Voltage(\
	Baud rate	116200	~			(	•
	Data Bits	8				_	,
	Stop Bits	1			5	je Rea	1 Time Curv
	atop arts						
	Parity	Bone	~		Update Deke	te	

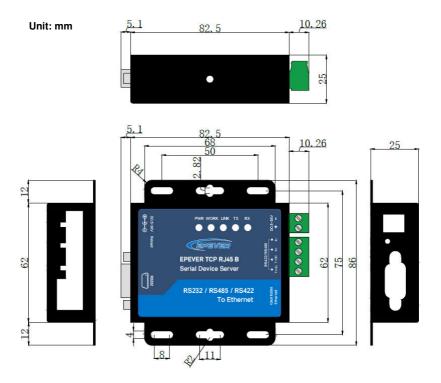
- (5) Select the "COM7 "in the "Configuration" field, and click the "Update" button to finish.
- 6. Click the "Parameters" on the top menu bar to monitor the devices and modify related parameters.

tation Exp	🙀 Control Parameter						o ×	
M Nus1	Station Ham	e Hunl	~		Device ID 1			0
	Rated Voltage(V) 24.00	Rated	Load Curr	ent(A) [10.00]	Rated Chargin	g Current(A	10.00	Load Info
		Default	Curren	at		Default	Current	D
	Battery Type	Sealed	Sealed	~ Rated Volta	pe Level	247	24V 🗸	oad Volt
	Charging Mode	Volt.Comp. Volt.Com		Boost Durati	ion(a)	120	120	
	Buttery Capacity(Ah)	200	200		uration (a)	120	120	9
	Temp. Compensation Coefficient(nV/C/2V)	-3	-3					
	Over Volt. Disconnect Volt. (V)	16.00	32.00	Operation successful	Voltage(V)	15.00	30.00	
	Over Volt.Reconnect Volt.(V)	15.00	30.00		sit Volt. (V)	10.60	21.20	il Tine
	Equalization Charging Volt.	14.60	29.20	OK	nnect Walt (V)	11.10	22.20	
	Boost Charging Valt (V)	14.40	28.80	Low Valt Re-	connect Volt. (V)	12.60	25.20	
	Float Charging Volt. (V)	13.80	27.60	Under Val. W	arning Valt. (V)	12.00	24.00	
	Bouxt Recon Charg Volt (V)	13.20 26.40		Wales Wales	Under Volt Warn Reve Volt (V		24.40	

## **4** Specifications

Model	EPEVER TCP 306
Work voltage	5V~36VDC
Work current	116mA@ 5V; 53mA@ 12V
Ethernet type	RJ45, 10/100Mbps, cross-direct adaptive
Support network protocol	IP, TCP/UDP, ARP, ICMP, IPV4, HTTP
Serial port baud rate	600bps~230.4Kbps
Transmission mode	TCP Server, TCP Client, UDP Server, UDP Client
Transmission delay	<10ms
Work temperature range	-25°C~75°C
Storage temperature range	-40°C∼105°C
Relative humidity	≤ 95% (N.C)
Dimension (Length x Width x Height)	98.0mm x 86.0mm x 25.0mm
Reliable level	1.5KV Electromagnetic isolation
Net Weight	205g

### **Appendix 1 Dimension**



#### Any changes without prior notice! Version number: V1.0

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