



# EP301 User Manual

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EtherNet expansion card

V 1.02

This manual is only for Shihlin inverter EtherNET communication expansion card

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# 1、 Overall

This chapter introduces the information of EtherNet standard and EP301 communication expansion card.

## 1.1 EtherNet standard

EP301 uses ModbusTCP protocol.

Modbus is a communication protocol developed by MODICON in 1979, and it is an industrial fieldbus protocol standard.

The Modbus protocol is an application layer message transmission protocol, including three message types: ASCII, RTU, and TCP. The protocol itself does not define the physical layer, but only defines the message structure that the controllers can recognize and use, regardless of the network they are communicating with.

## 1.2 EP301 Function Introduction

EP301 is an optional communication expansion device for Shihlin Electric's new generation of inverters. It can connect Shihlin inverters to an EtherNet network. On an EtherNet network, EP301 is considered a slave device. The following functions can be implemented through EP301:

1. Send control commands to the inverter (such as start, stop, target frequency, forward and reverse, etc.)
2. Send target frequency
3. Read status signal and actual running value from the inverter
4. Read and modify the parameter values of the inverter
5. Fault reset the inverter

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## 2、 Precautions before running

Please read this chapter carefully before connecting EP301 to use it correctly.

### 2.1 Delivery check

Before leaving the factory, each EP301 go through strict quality control and packed with anti-collision packaging. In the box should contain the following objects:

- ✓ One EP301;
- ✓ A simple installation guide;
- ✓ Two fixing screws.

*Note: If the EP301 you received is different from the above, please contact the agent or distributor you buy from.*

### 2.2 Specifications

#### 2.2.1 Inverter expansion card specifications

Type	Expansion card
Number of nodes occupied	One inverter occupies one node
Cable	Category 5e shielding 100M

#### 2.2.2 Network Interface

Connector	RJ-45 with Auto MDI/MDIX
Transfer method	IEEE 802.3, IEEE 802.3u
Transmission rate	10/100 Mbps Auto-Detect
Network protocol	ICMP, IP, TCP, UDP, DHCP, MODBUS OVER TCP/IP,

# 3、 Installation

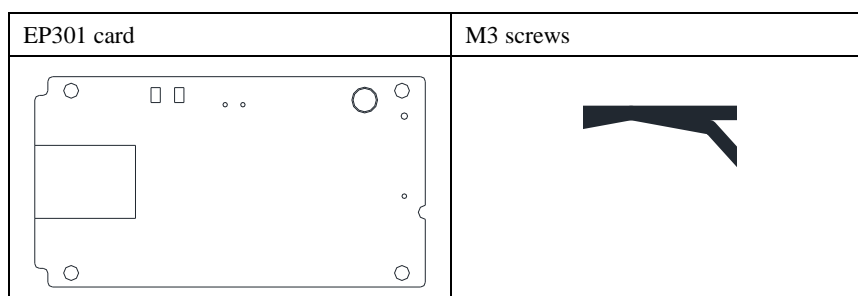
## 3.1 Precautions before installation

Make sure inverter is turned off.

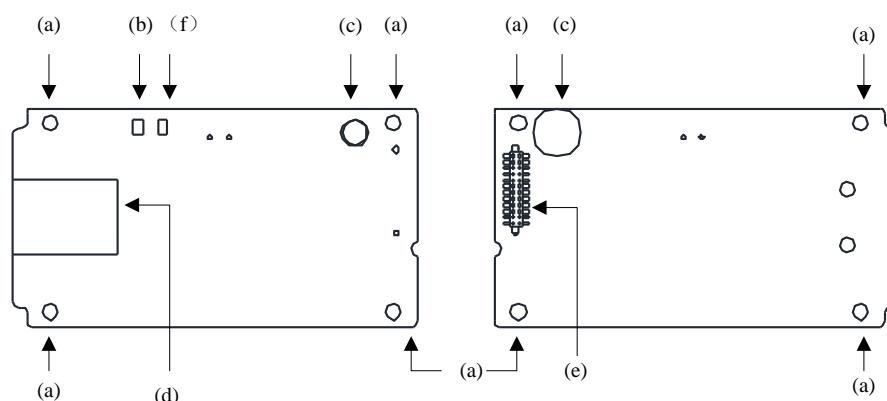
Need to be installed on slot1 in SA3 series inverter

*Note: Do not install or remove the card while power is on. Otherwise, the inverter and expansion card may be damaged*

### ■ Product confirmation



### ■ Parts name



Num.	Name	Description
a	Mounting holes	Install EP301 on inverter with M3 screws
b	SPEED LED	Internet speed indicator
f	LINK LED	Internet connected indicator
c	Plastic handle	Used to remove EP301 from inverter
d	RJ45	Communication port
e	Connector	Connect to inverter

■ Electrical specifications



Terminal form	Terminal name	function name	Description
RJ45	1	Tx+	Send data +
	2	Tx-	Send data -
	3	RX+	Accept data +
	4	---	---
	5	---	---
	6	RX-	Accept data-
	7	---	---
	8	---	---

### 3.2 Installation instructions (SA3)

Step 1: Insert the EP301 card into the SLOT 1 on the control board as shown in Figure 1. Do not insert to SLOT 2 or SLOT 3 .

Step 2: Use a screwdriver to tighten 2 M3 screws in the direction shown in Figure 2 with a torque of 4-6kgf.cm.

Remarks: 1. For SA3-A frame inverter, remove the plastic parts as shown in Figure 3, and then remove it as shown in Figure 4.

2. When disassembling EP301, firstly remove the left and right two M3 screws, and then lift the plastic handle by hand.

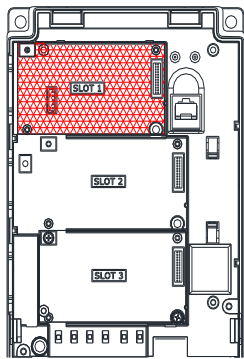


Figure 1

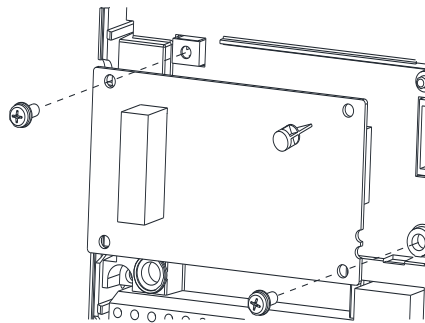


Figure 2

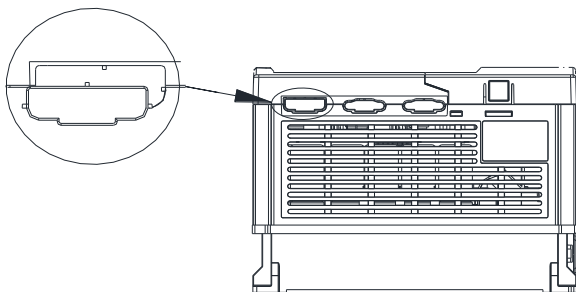


Figure 3

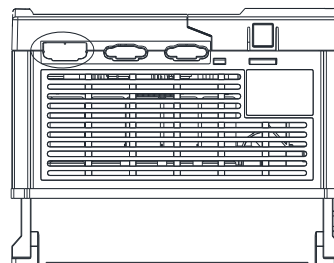


Figure 4

### 3.3 Installation instructions (SE3)

Step 1 : Turn off the power.

Step 2 : Open the top cover of the inverter.

Step 3 : Use the front rear as support and slide (a) in by pressing down as figure 1 shown. °

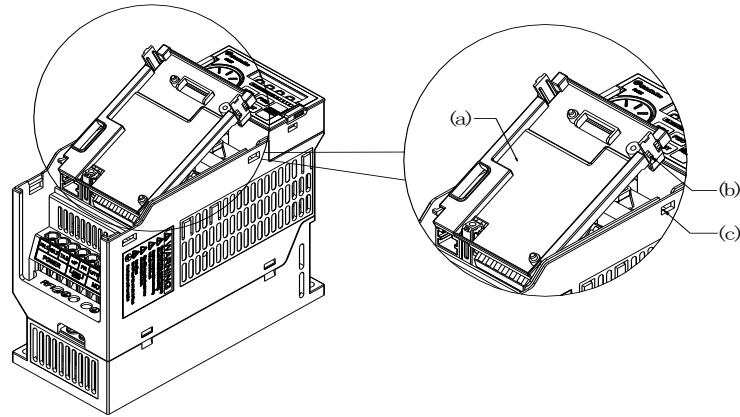


Figure 1

Note: (a)-Optional Card Housing; (b)-Hook, (c)-Slot

Step 4: Line up the connector (c) and (d), and press down the EP301 expansion card to the right position.

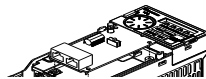


Figure 2

(a) (e)-Supporter, (b)-Plastic Handle, (c)-Male connector, (d)-Female connector

Step 5: Tighten two M3 screws with 4-6kgf.cm torque on the card. Install the cover after wiring.

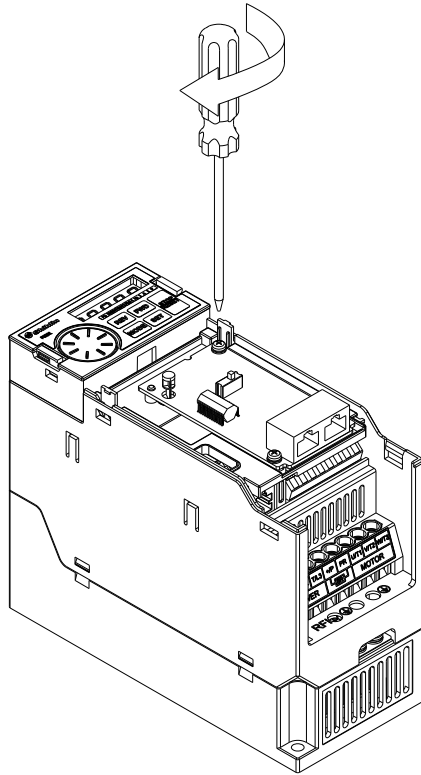


Figure 3

### 3.4 Installation instructions (SF3)

Step 1 : Insert EP301 expansion card into CN4 connector of control board .

Step 2 : Tighten the M3 screws with 4-6kgf.cm torque on the card as figure 2 shown.

Note :

1. For SF3 A frame inverters, remove the plastic part shown in figure 3, the result is shown in figure4.

2. When disassembling EP301, loosen the M3 screws first, then lift the plastic handle.

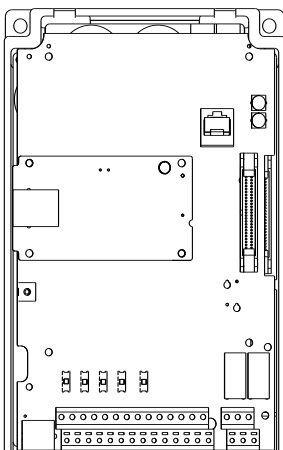


Figure 1

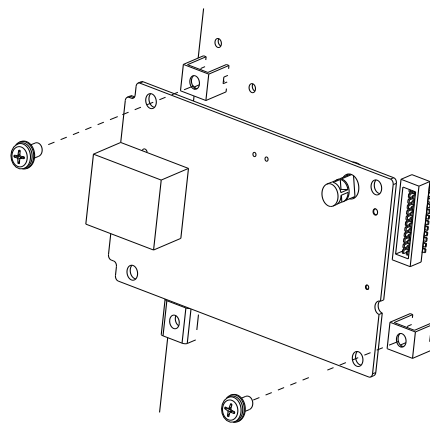


Figure 2



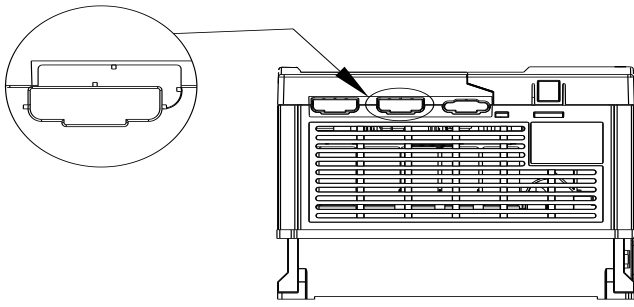


Figure 3

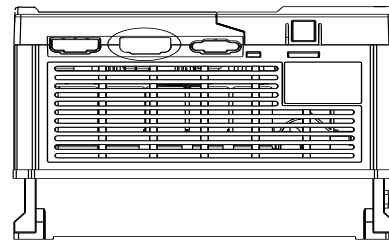


Figure 4

### 3.5 Others

Detailed manuals and catalogues of SA3, SE3, SF3series can be downloaded from our website:

<http://www.sseec.com.cn> & <http://www.seec.com.tw>

If you have any questions, please call the technical service hotline: 4008-566-088

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## 4、 Inverter setting

### 4.1 List of parameters

After connecting EP301 to SA3 series inverter correctly, EP301 can't work immediately, users need to check the values of the following parameters.

P mode ( DEC )	Group mode ( DEC )	Parameter Description	Default	Meaning of setting value
P.79	00-16	Operation mode	3	Communication only
P.829	07-44	Expansion card version	----	EP301 version
P.830	07-45	IP setting	0	Static IP (0) / Dynamic IP (1)
P.831	07-46	IP address-1	192	IP address 192.168.2.102
P.832	07-47	IP address -2	168	IP address 192.168.2.102
P.833	07-48	IP address -3	2	IP address 192.168.2.102
P.834	07-49	IP address -4	102	IP address 192.168.2.102
P.835	07-50	Subnet mask-1	255	Subnet mask 255.255.255.0
P.836	07-51	Subnet mask -2	255	Subnet mask 255.255.255.0
P.837	07-52	Subnet mask -3	255	Subnet mask 255.255.255.0
P.838	07-53	Subnet mask -4	0	Subnet mask 255.255.255.0
P.839	07-54	Default gateway-1	192	Default gateway 192.168.2.100
P.840	07-55	Default gateway-2	168	Default gateway 192.168.2.100
P.841	07-56	Default gateway-3	2	Default gateway 192.168.2.100
P.842	07-57	Default gateway-4	100	Default gateway 192.168.2.100

Note:

1. The IP of the host computer must be in the same network domain as the IP of EP301, and the port number is 502.
2. After the parameter is modified, SA3 needs to be powered on again.
3. EP301 must be used with SA3 firmware version V0.130 and above.

### 4.2 Operation mode setting

Inverter with EP301 has three operating modes

- (1) PU mode..... Use keypad on inverter to send control commands.
- (2) External mode..... Use switches wired on inverter to send control commands.
- (3) Communication mode..... Use communication to send control commands.

Please check before switching the operating mode :

- (1) Inverter output fully stops
- (2) P.79 setting is correct
- (3) P.79 cannot be modified when running

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## 5、 Fault tracking and troubleshooting

### 5.1 LED light display

EP301 has two LED indicators (POWER indicator and LINK indicator)

Status	Description	Improve strategy
Speed indicator is off	Communication network speed is 10M	
Speed indicator is on	Communication network speed is 100M	---
LINK indicator flashes	Exchanging data	---
LINK indicator is on	Normal	
LINK indicator is off	Host is not powered on	Please check if the host power is connected normally
	EP301 is not connect with inverter	Please check if EP301 is tightly connected with inverter
	Not connected to the network	Please check if the network cable is connected to the network
	RJ45 connector bad contact	Please check whether the RJ45 connector is correctly connected to the EtherNet communication port

### 5.2 INV error indication

When a communication error occurs between the inverter and EP301, causing the communication to fail, the keypad will report OPT alarm. At this time, you need to check whether the communication between the inverter and EP301 is disturbed, or whether there is any abnormality in the communication line.

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# ETHERNET COMMUNICATION EXPANSION CARD

## ( EP301 ) USER'S MANUAL

PLEASE READ THIS MANUAL CAREFULLY BEFORE USE TO  
ENSURE SAFE AND CORRECT USE OF THE PRODUCT.

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- ✧ Shihlin Electric reserves the right to modify this manual. For the latest version, please consult your dealer or download it from Shihlin Electric website. ( <http://automation.seec.com.tw> )