V1.2

USER MANUAL FOR I/O EXPANSION CARD

（IOV-D104 STANDARD TYPE）

Technical parameters

IOV-D104 standard I/O expansion card is configured as below:

- One group of RS485 channel;
- ±10V auxiliary voltage source;
- 3-circuit digital input ;
- Circuit high speed OC output;
- Circuit analog input;
- 1 group of normally open and closed contacts of relay programmable output.

Terminals

The connecting terminals are arranged as follows:

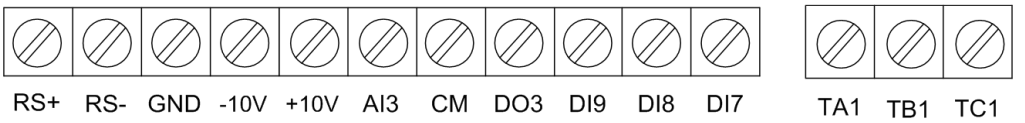

Figure-1 Terminals Introduction of I/O Expansion Card

Terminals & Functions

Type	Name	Description	Specification
Communication	RS+	485 differential signaling positive	Standard RS485 communication interface
	RS-	485 differential signaling negative	
Output power supply	+10V	Positive 10V voltage source	Max load capacity: 10mA
	-10V	Negative 10V voltage source	
Analog input	AI3	Analog input terminal. See F4 parameter in the user manual of applicable models.	Input range: -10V~10V Min Input impedance:100MΩ
Digital input	DI7	See F3 parameter in user manual	Input impedance: R= 4.7KΩ Max input frequency :200Hz
	DI8		
	DI9		Input impedance : R=4.7KΩ Max input frequency : 100KHz
Digital output	DO3	OC output. See F3 parameter in user manual	Max output frequency: 100KHz Max operating voltage: 24V Max output current: 150mA
Relay programmable output	TA1	TA1-TB1 normally closed contacts; TA1-TC1 normally open contacts See F3 parameter in the user manual	Contact capacity: AC 250V/1A
	TB1		
	TC1		
Common port	GND	Analog common port. The common port of ±10V,AI3	
	CM	Digital common port. The common port of DO3, DI7, DI8, and DI9	

Assembly & Disassembly

Refer to Figure-2 for the assembly and disassembly of the expansion board.

♦ **Assembly**

1. Place the expansion board in the direction as shown in the figure, and press it until it is well contacted with the socket on the control panel;
2. Align with screw holes on the left of the expansion board and tighten the three M3 screws.

♦ **Disassembly**

1. Unscrew the three screws on the left of the expansion board;
2. Pull the expansion board upward (as shown in Figure-2) to remove it from the socket on the control panel.

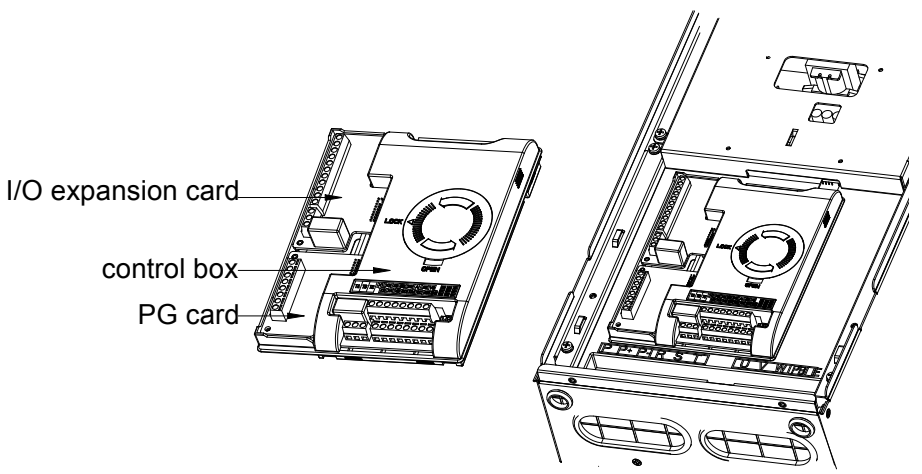

Figure-2 Schematic Diagram of Assembly & Disassembly of I/O Expansion

Wiring

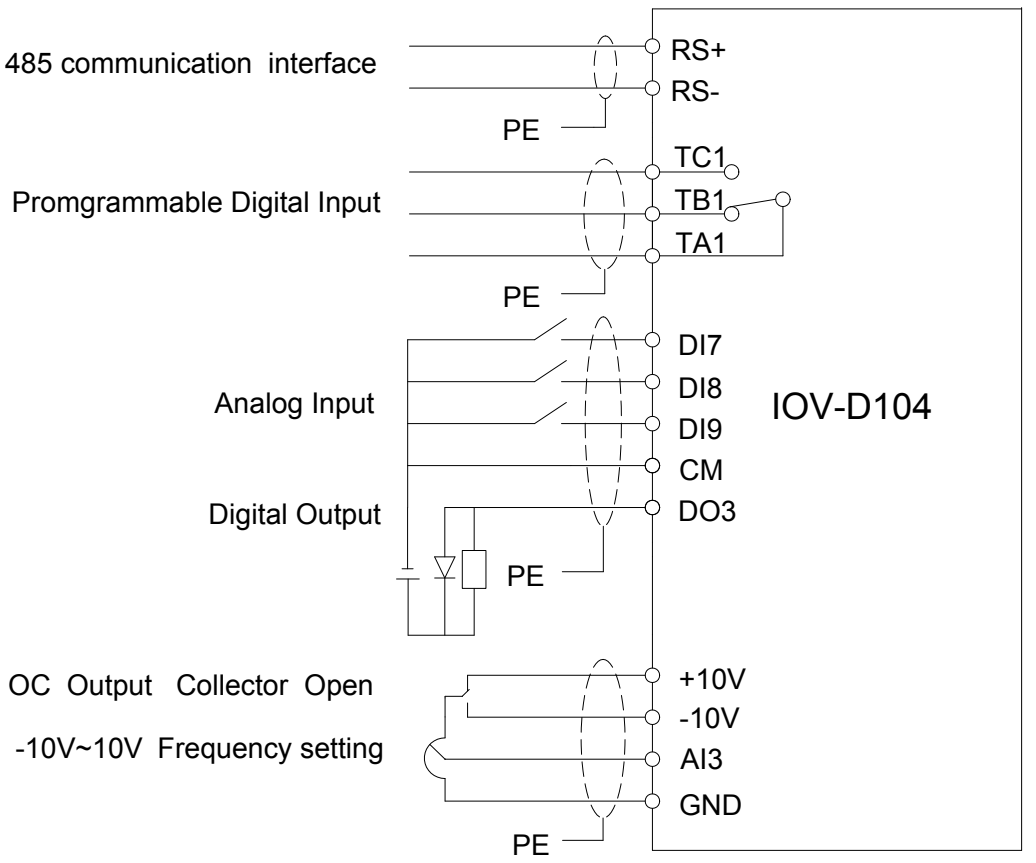

Figure-3 Wiring for I/O Expansion Card

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I/O Extension Card User Manual

IOV-A102 (with communication)

Specification

Configuration of I/O Extension Card IOV-A102 as following:

- 1 RS485 channel;
- +10V auxiliary voltage source;
- +24V auxiliary power supply;
- 4 digital inputs;
- 1 high-speed OC output;
- 2 analog inputs;
- 1 relay programmable output with normal open and normal close contactor;
- 1 analog output;

Wiring Terminal

Wiring terminal as below.

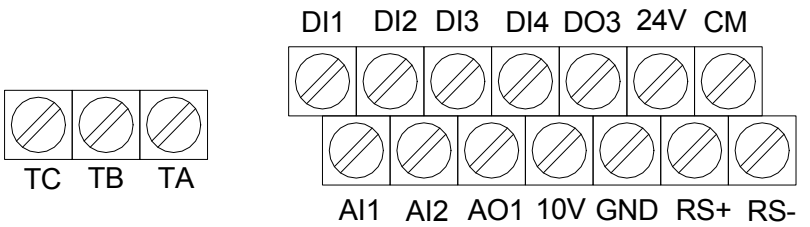

Figure 1 Terminals of I/O Extension Card

Terminal Explanation

Type	Name	Explanation	Spec.
Commu-nication Interface	RS+	485+ difference signal	Standard RS85 communication interface
	RS-	485- difference signal	
Output Power Range	10V	+10V auxiliary voltage source	Max overload capacity: 20mA
	24V	+24V auxiliary voltage source	Max overload capacity: 100mA
Analog Input	AI1	Analog input terminal, with suitable models as manual parameter F4.	Input range: 0~10V; Input power: 0~20mA
	AI2		
Digital Input	DI1	Digital input, with suitable models as manual parameter F3.	Input impedance: R= 4.7KΩ Max input frequency: 200Hz
	DI2		
	DI3		
	DI4		
Analog output	AO1	Multi-function analog output, with suitable models as manual parameter F4.	Current output: 0~20mA; Voltage output: 0~10V; JP1 turn to V : voltage output; JP1 turn to A : current output.
Digital output	DO3	OC output, with suitable models as manual parameter F3.	Max output frequency: 100KHz; Max working voltage: 24V; Max output current: 150mA

Type	Name	Explanation	Spec.
Relay Programmable Output	TA	TA-TB normal close contactor, TA-TC normal open contactor, with suitable models as manual parameter F3.	Contactor capacity: AC 250V/1A
	TB		
	TC		
Public Terminal	GND	Analog public terminal	+10V、AO1、AI1、AI2 public terminal
	CM	+24V, digital public terminal	DO3、DI1、DI2、DI3、DI4 public terminal

Assembly & Disassembly

♦ **Assembly**

① Take off under cover, and put the card on the position with certain incline as fig-2.

② Put the card terminal on control board socket, and let them well contacted.

③ Make sure the two sides screws are connected with M3 screw.

♦ **Disassembly**

① Take off inverter above cover.

② Disassemble the two screw on its sides.

③ Take off the card from control board socket slowly, avoiding any damage.

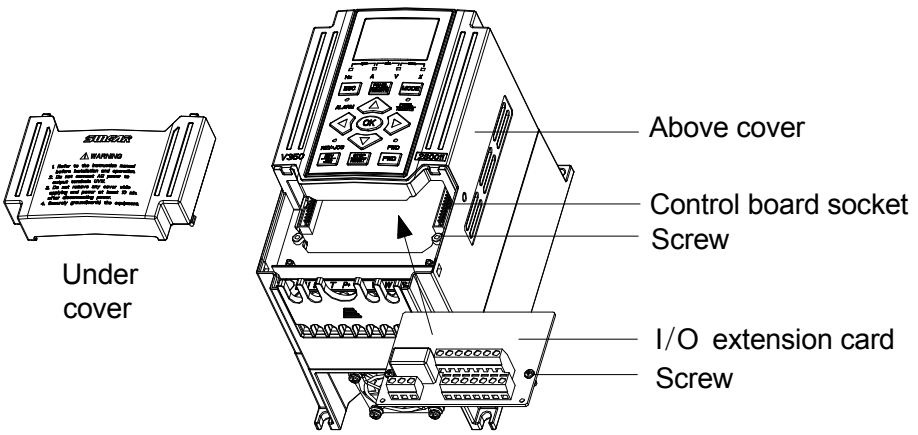

Fig-2 I/O Extension Card Installation

Wiring Mode

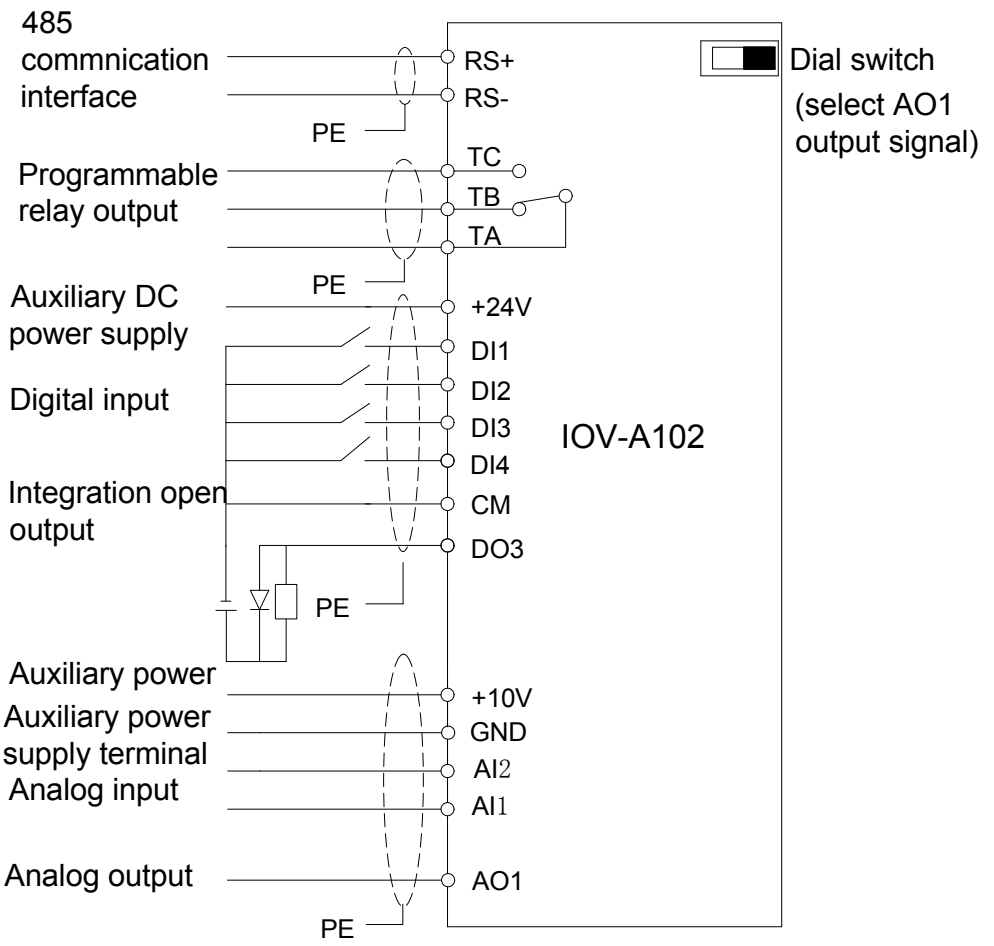

Fig-3 I/O Extension Card Wiring

V1.0

I/O Extension Card User Manual

IOV-A103 (with communication)

Specification

- Configuration of I/O Extension Card IOV-A103 as following:
- +12V auxiliary voltage source;
- 4 digital inputs;
- 1 high-speed digital input;
- 3 single PG signal input;
- 2 analog inputs;;
- 1 relay programmable output with normal open and normal close contactor;

Wiring Terminal

Wiring terminal as below.

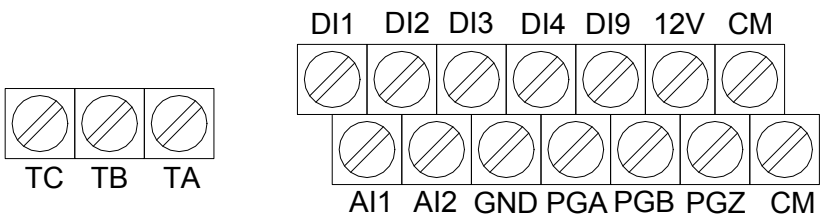

Fig-1 Terminals of I/O Extension Card

Terminal Explanation

Type	Name	Explanation
Auxiliary power	12V	Providing +12V maximum 100mA current externally
Single-ended PG signal input	PGA	NPN-type encoder A phase output; maximum frequency ≤100 KHz
	PGB	NPN-type encoder B phase output; maximum frequency ≤100 KHz
	PGZ	NPN-type encoder Z phase output; maximum frequency ≤100 KHz
Analog Input	AI1	Analog voltage 0 ~ 10V input impedence ≥ 100MΩ
	AI2	Analog current input：0 ~ 20mA
Digital Input	DI1~DI4	Frequency input ≤ 1KHz
High–speed Digital Input	DI9	In addition to D1-D4 functions，can also be High speed pulse input。Maximum frequency input：≤100Khz
Programmable conductor output	TA	TA-TB normal colse； TA-TC normal open； Contact capacity：AC 220V/ 1A
	TB	
	TC	
Public Terminal	GND	AI1、AI2 reference ground
	CM	12V，PGA，PGB，PGZ，DI1~DI4，DI9 public terminal

Assembly & Disassembly

- **Assembly**

④ Take off under cover, and put the card on the position with certain incline as fig-2.

⑤ Put the card terminal on control board socket, and let them well contacted.

⑥ Make sure the two sides screws are connected with M3 screw.

- **Disassembly**

④ Take off inverter above cover.

⑤ Disassemble the two screw on its sides.

⑥ Take off the card from control board socket slowly, avoiding any damage.

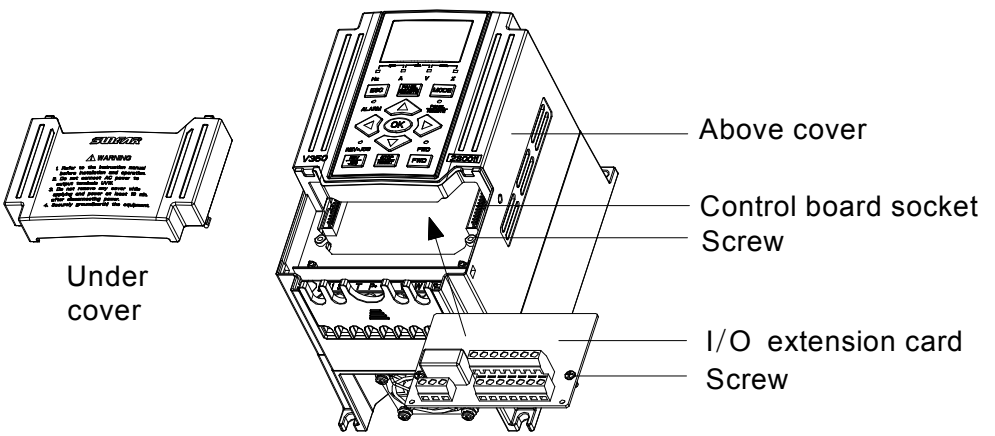

Fig-2 I/O Extension Card Installation

Wiring Mode

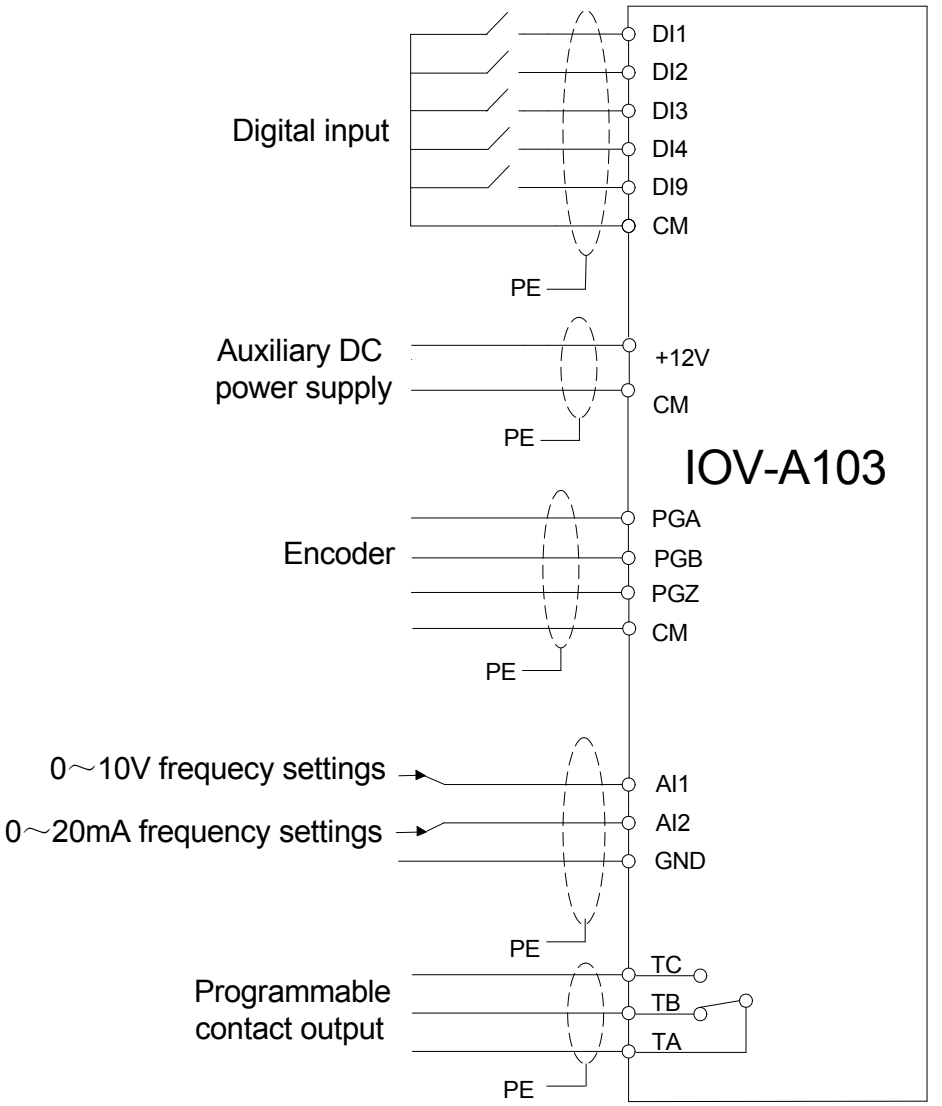

Fig-3 I/O Extension Card Wiring