

General Isolated Barriers Backplane






TU031-I0000

User manual

IM19H24-E

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Symbol Definition	
	WARNING: Indicates information that a potentially hazardous situation which, if not avoided, could result in serious injury or death.
	RISK OF ELECTRICAL SHOCK: Indicates information that Potential shock hazard where HAZARDOUS LIVE voltages greater than 30V RMS, 42.4V peak, or 60V DC may be accessible.
	ESD HAZARD: Indicates information that Danger of an electro-static discharge to which equipment may be sensitive. Observe precautions for handling electrostatic sensitive devices
	ATTENTION: Identifies information that requires special consideration.
	TIP: Identifies advice or hints for the user.

Security& Caution Symbols

The following table lists Security& Caution symbols used on equipments.














No.	Symbol	Description
1		Direct current (DC)
2		Alternating current (AC)
3		Ground (Earth) terminal
4		Protective earth (ground) terminal
5		Reference ground (Earth) terminal
6		Frame or chassis
7		Equipotentiality
8		On (power)
9		Off (power)
10		Caution, risk of electric shock
11		Caution, hot surface
12		Caution, risk of danger
13		Electrostatic sensitive devices (ESD)

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Isolated Barriers Backplane TU031-I0000

Section 1 Description

TU031-I0000 is the general isolated barriers backplane, which can connect with the isolated barriers of various signals. TU031-I0000 can install 8 isolated barriers of SB4000 series.

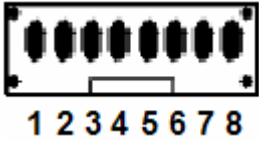
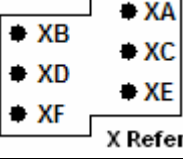
Section 2 Technical Specifications

Table 2-1 Technical Specifications of TU031-I0000

Parameter	Instruction	Remark
Module	TU031-I0000	
Index Item	Index Instruction	Remark
Channel No.	Determined by Isolated Barriers Backplane	
Matching Isolated Barrier	Isolated Barriers Backplane of SB4000 Series	
Power Supply Voltage	24V DC (Redundant)	Fuse with Fusing Type
Dimension	(153.5*151.5) mm	
Operating Temperature	0℃~60℃	

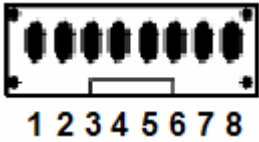
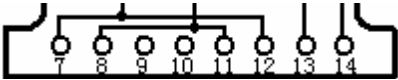
Section 3 Working Theory

Table 3-1 Field Signal Wiring

Backplane (M1~M8 Socket Connector Pin No.)	System Terminal of Each Channel
	
1	F
2	E
3	D
4	C
5	B
6	A
7	24V-
8	24V+

TU031-I0000 can house isolated barriers of SB4000 series. The isolated barrier has 8 pins in its bottom socket connect. Pin 1~6 correspond to the terminals 1~6 of each channel separately. Pins 7 and 8 correspond to the 24V- and 24V+ of backplane power separately.

Table 3-2 Connectors

Backplane (M1~M8 Connector Pin No.)	8PIN Connector On the Bottom of Isolated Barrier
	
1	7
2	8
3	9
4	10
5	11
6	12
7	13
8	14

When using different types of isolated barriers backplanes, please refer to the port instruction of the bottom of isolated barrier backplane, and perform wiring based on Table 3-1 and Table 3-2. the wiring of system terminal and module refer to the instruction of signals connected module working with XP520 or XP520R.

Wiring terminal of power supply in barrier backplane is shown as the figure below.

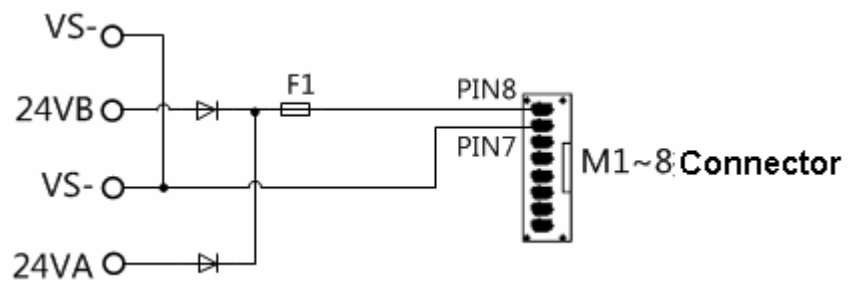


Figure 3-1 Wiring Terminal of Power Supply

Section 4 Usage Instruction

4.1 Structure Diagram

The structure diagram of TU031-I0000 is shown as below.

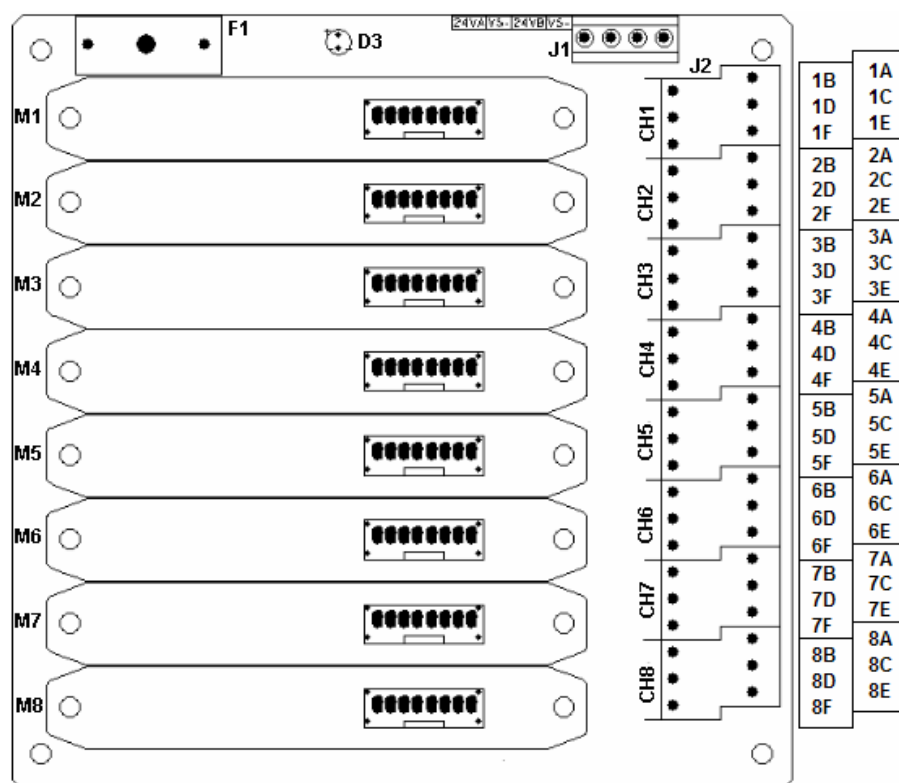


Figure 4-1 Structure Diagram of TU031-I0000

4.2 Socket Connector Instruction

Connector Instruction of TU031-I0000 backplane is shown as Table 4-1.

Table 4-1 Connector Instruction of TU031-I0000

No.	Instruction
J1	Supply Power Connection Socket
J2	System Terminal
F1	Fuse Seat
M1	No.1 Isolated Barrier
M2	No.2 Isolated Barrier
M3	No.3 Isolated Barrier
M4	No.4 Isolated Barrier
M5	No.5 Isolated Barrier
M6	No.6 Isolated Barrier
M7	No.7 Isolated Barrier
M8	No.8 Isolated Barrier

**Tips:**

M1~M8 sockets are designed as anti-contrary installation and make sure the correct installation.

4.3 Isolated Barriers Supported by TU031-I0000

TU031-I0000 can install 8 isolated barriers. Each has an 8PIN socket connector on the bottom. Signals from the field output from the 8PIN socket connector after isolated transmission, and connect with system module by terminal.

Users can connect the I/O module and TU031-I0000 via terminal change-over module XP520 or XP520R in JX-300XP system, or perform wiring according to the features of system module and isolated barriers backplane. Details of module please refer to the user manual.

Isolated Barrier Part	Remark
SB4012-Ex	Intrinsic Safety DI (Switch, Proximity Switch) Input, System Relay output
SB4014-Ex	Intrinsic Safety DI (Switch, Proximity Switch) Input, System Relay output
SB4025-Ex	System (Switch Contact, collector Open Circuit Transistor, Logic Drive) Input, Intrinsic Safety Level Output, Output Voltage when Current is 48mA $\geq 12.8V$
SB4026-Ex	System (Switch Contact, collector Open Circuit Transistor, Logic Drive) Input, Intrinsic Safety Level Output, Output Voltage when Current is 48mA $\geq 7.0V$
SB4046-Ex	System 4 mA ~20mA Input, Intrinsic Safety 4 mA ~20mA Output, With HART
SB4042-Ex	Intrinsic Safety AI (4 mA ~20mA) Input, System 4 mA ~20mA Output, With HART
SB4043-Ex	Intrinsic Safety AI (4 mA ~20mA) Input, System 4 mA ~20mA Output, With HART
SB4044-Ex	Intrinsic Safety AI (4 mA ~20mA) Input, System 4 mA ~20mA Output, With HART
SB4049-Ex	Intrinsic Safety AI (4 mA ~20mA) Input, System 4 mA ~20mA Output, With HART
SB4073(TC/RTD)-Ex	Intrinsic Safety AI (TC/RTD) Input, System 4 mA ~20mA Output, With HART
SB4079-Ex	Intrinsic Safety AI (TC/RTD) Input, System 4 mA ~20mA Output, With HART

**Attention:**

Please choose the isolated barrier model supported by TU031-I0000, and perform wiring according to the isolated barrier user manual.

4.4 Terminal Definition & Connection

The terminals definition of TU031-I0000 is shown in below. Users can connect an external 24V power from terminal1 and terminal2 or terminal3 and terminal4 of J1 when supplying power for isolated barrier. “24V A” and “24V B” mean connecting with the anode of the 24V external power, “VS-” means connecting with the cathode of the 24V external power. Users can connect a 24V power from terminal1, terminal2, terminal3 and terminal4 separately when the redundant 24V external power is needed.

Table 4-2 Terminals Definition of TU031-I0000

Definition	Serial No.	Remark
24VA	1	Connects to 24V(1) anode
VS-	2	Connects to 24V(1) cathode
24VB	3	Connects to 24V(2) anode
VS-	4	Connects to 24V(2) cathode

4.5 D3 Indicator

D3 indicator is the power supply indicator of TU031-I0000. When D3 is on, it means 24V power supply is normal. Or it is abnormal.

4.6 Maintenance

F1 is the 24V power supply fuse seat for TU031-I0000, which contains the 20*5 glass tube fuse of fusing type. Models and specifications of fuse are shown below.

Table 4-3 Instruction of consumable.

Marking	Type	Specification	Model (Standard)
F1	Glass Tube, Time-lag Fuse	4A-250V	0218004.MXP

Section 5 Revision

Table 5-1 Retrofit List of the Version

Document Version	Applicable Product Version	Remarks
V1.0	TU031-I0000 V10.00.01	
V1.1	TU031-I0000 V11.00.00	Change the fuse capacity
V1.2	TU031-I0000 V11.00.00	Add maintenance
V1.3	TU031-I0000 V11.00.00	Modify structure diagram
V1.4(20161018)	TU031-I0000 V11.00.00	Add code.
V1.5(20190318)	TU031-I0000 V11.00.00	Add the figure of wiring terminal of power supply in barrier backplane