INSTRUCTION MANUAL

SWITCH UNITS FOR
THE INTERLOCK CONNECTOR BOX

MODEL: TSC-RAP
MODEL: TSC-RAP1

3RD Edition August 30, 2005

MADOKA SYSTEM CO.,LTD

MADOKA SYSTEM CO.,LTD.

CONTENTS

1. Outline

TSC-RAP and TSC-RAP-1 are installed to the interlock connector box for use and they are the equipment for receiving and sending the interlock signals among equipments.

Please refer to the following table for the different cable lengths of TSC-RAP and TSC-RAP-1.

Please use in compliance with the interlock connector box that is installed with the switch units.

MODEL	CABLE LENGTH	SUITABLE INTERLOCK CONNECTOR BOX MODELS
TSC-RAP	550mm	TSC-MF-S TSC-MF-M
TSC-RAP-1	620mm	TSC-MF-Z

2. Appearance

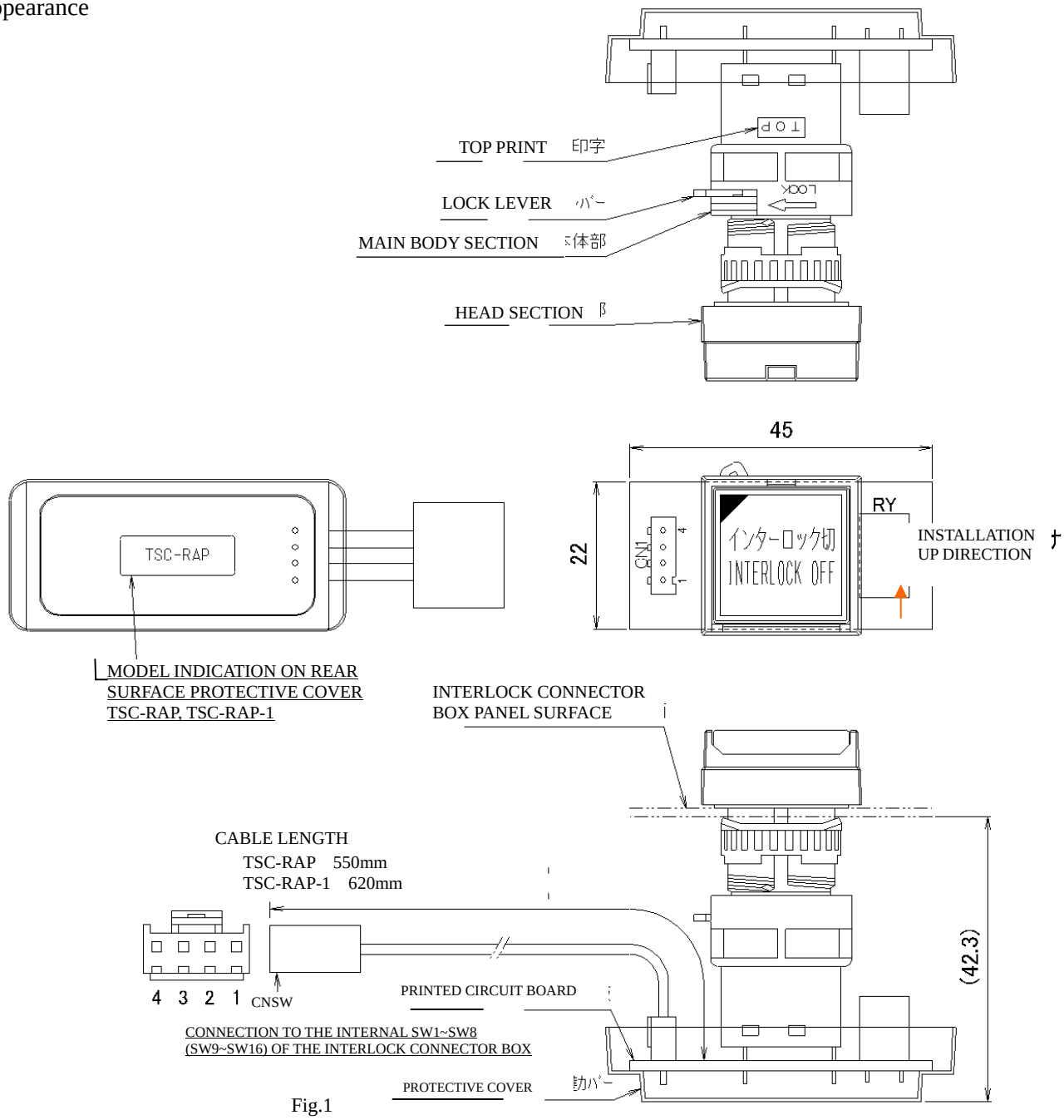
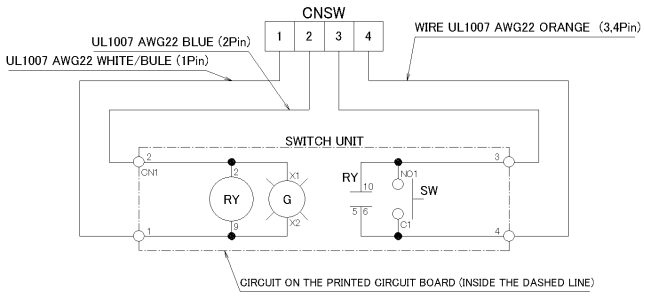


Fig.1

3. Circuit



- THERE IS NOT DIODE AT THE RELAY COIL END.
- LAMP IS NON POLARITY.

Fig.2

4. Specifications

4-1. General Specifications

ITEM	SPECIFICATIONS
Vibration Resistance	IEC60068-2-6 Compliant
Impact Resistance	IEC60068-2-27 Compliant
Atmospheric Temperature for Use	0 ~ 40℃
Atmospheric Humidity for Use	25 ~ 85 % RH No Dew Condensation
Atmospheric Temperature for Preservation	−10 ~ 50℃
Environment for Use	No Corrosion Gas

4-2. Rating

ITEM	SPECIFICATIONS
Switch Lamp Section	Green LED Lamp DC24V±10% Current Consumption 8mA Non Polarity
Switch Contact Point	Insulation Voltage 250V Rated Capacity 3A Rated Applicable Voltage・Rated Working Current 0.1A/DC30V
Relay Coil Section	Rated Voltage C24V Power Consumption 175mW
Relay Contact Point	Rating 1A/DC24V

Confirm the rating details with the maker’s catalog.

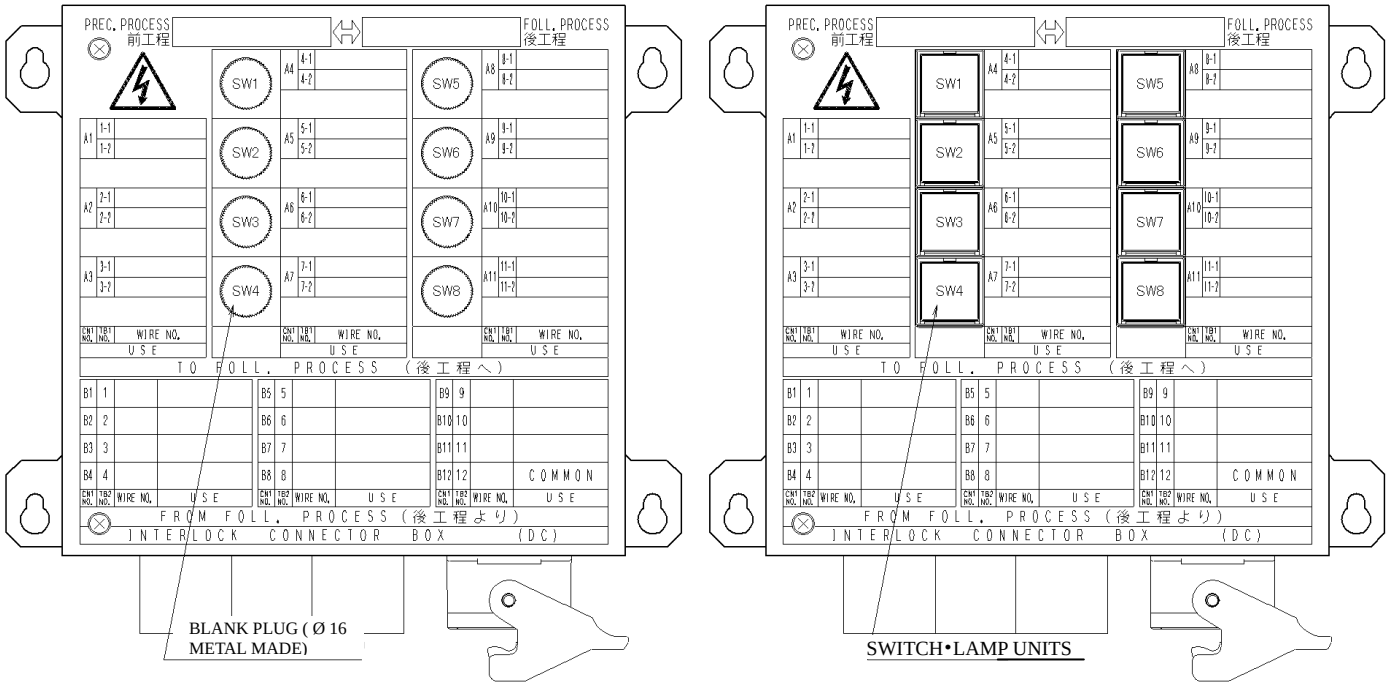
4-3. Main Parts

PART NAME	MODEL	MAKER	
Illuminated Switch	HA2L-M1C14VGF	IZUMI DENKI (CO., LTD.)	
Relay	SY-24K	FUJITSU COMPONENT LIMITED	
Connectors (CNSW)	VHR-4N	J.S.T. MFG. CO., LTD.	

5. Installation

5-1. Switch Units TSC-RAP

Install to the interlock connector box TSC-MF-S, TSC-MF-M.



INTERLOCK CONNECTOR BOX
APPEARANCE DRAWING
(SWITCH・LAMP UNITS NOT INSTALLED)

INTERLOCK CONNECTOR BOX
APPEARANCE DRAWING
(SWITCH・LAMP UNITS INSTALLED)

Fig.3

PROCEDURE

The above figure is for TSC-MF-S and TSC-MF-M is the same for installation.

① The ○ part on the interlock connector box panel surface is ϕ 16 BLANK PLUG.
(The indication of SW1~SW8 for the SW1~SW8 in the dashed line circle ○ on the above figure appearance drawing is at the inside of the door.)
Remove the BLANK PLUG.

② Release the LOCK LEVER of the switch units to separate the head section from the main body section and install the head section to the interlock connector box panel.
Put the TOP print surface of the main body section to the UP direction of the interlock connector box.
Use the appropriate tool (MT-001 made by IZUMI DENKI (CO., LTD.)) to tighten the tightening nut of the head section.
(Refer to the appearance drawing of the switch units.)

③ Insert the main body section into the head section of the switch units, and turn the LOCK LEVER to LOCK direction and fix it.

5-2. Switch Units TSC-RAP-1

Install to the interlock connector box TSC-MF-Z.

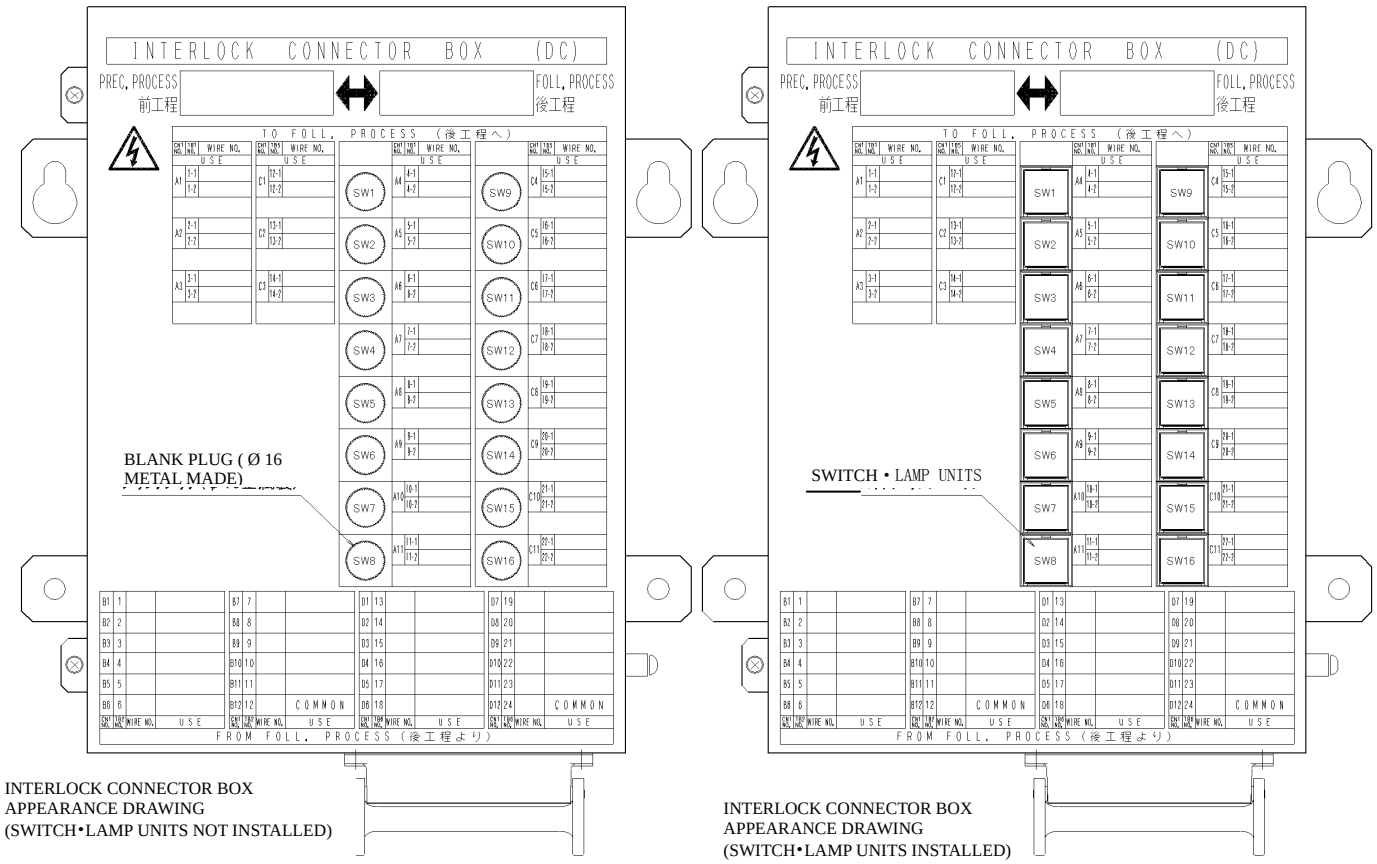


Fig.3a

PROCEDURE

① The ○ part on the interlock connector box panel surface is ϕ 16 BLANK PLUG.
(The indication of SW1~SW16 for the SW1~SW16 in the dashed line circle ○ on the above figure appearance drawing is at the inside of the door.)
Remove the BLANK PLUG.

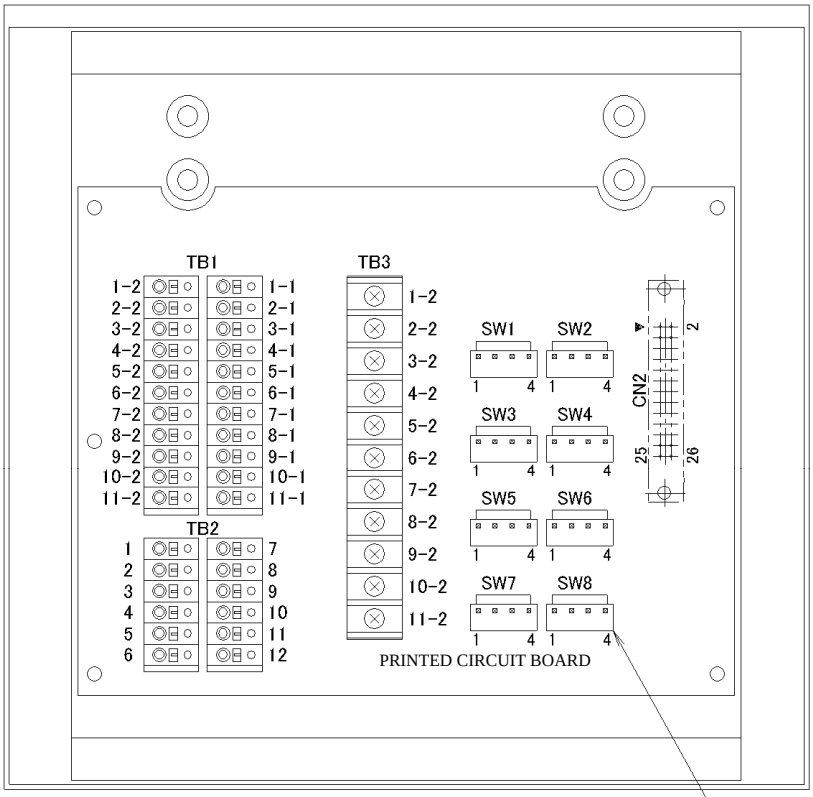
② Release the LOCK LEVER of the switch units to separate the head section from the main body section and install the head section to the interlock connector box panel.
Put the TOP print surface of the main body section to the UP direction of the interlock connector box.
Use the appropriate tool (MT-001 made by IZUMI DENKI(CO.,LTD.)) to tighten the tightening nut of the head section.
(Refer to the appearance drawing of the switch units.)

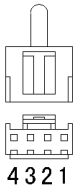
③ Insert the main body section into the head section of the switch units, and turn the LOCK LEVER to LOCK direction and fix it.

6. Connection

6-1. Switch Units TSC-RAP

Connect to the interlock connector box TSC-MF-S, TSC-MF-M.





INTERNAL LAYOUT DRAWING OF INTERLOCK CONNECTOR BOX

BRIDGE CONNECTOR

SW1~SW8 CONNECTORS FOR SWITCH UNITS CONNECTION

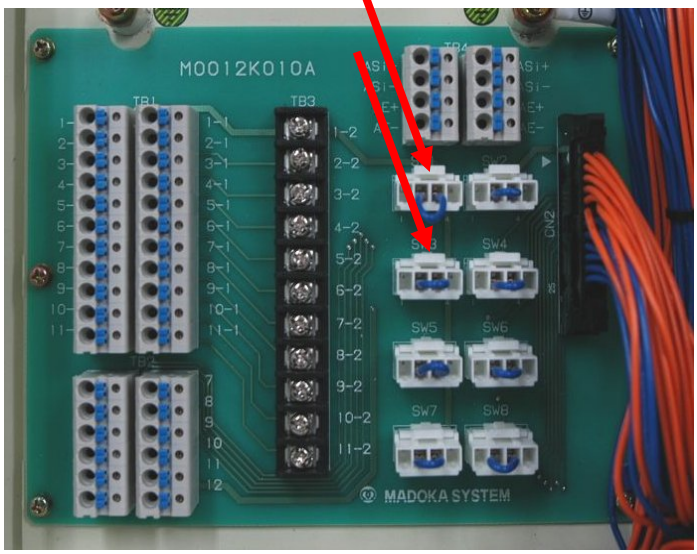
Fig.4

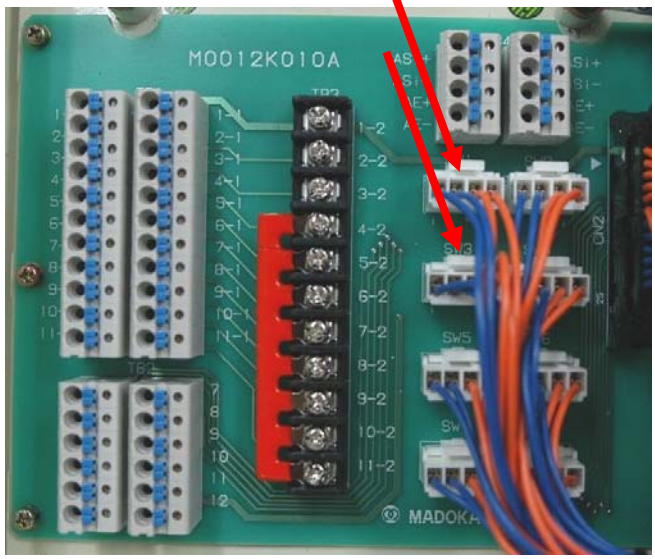
① Remove the bridge connectors installed to the internal SW1~SW8 of the interlock connector box.

② Install the connectors(CNSW) from the switch units that were installed by 5-1 to the internal SW1~SW8 connectors of the interlock connector box, and make sure that the connectors are surely locked.

BRIDGE CONNECTORS

CONNECTORS OF SWITCH UNITS





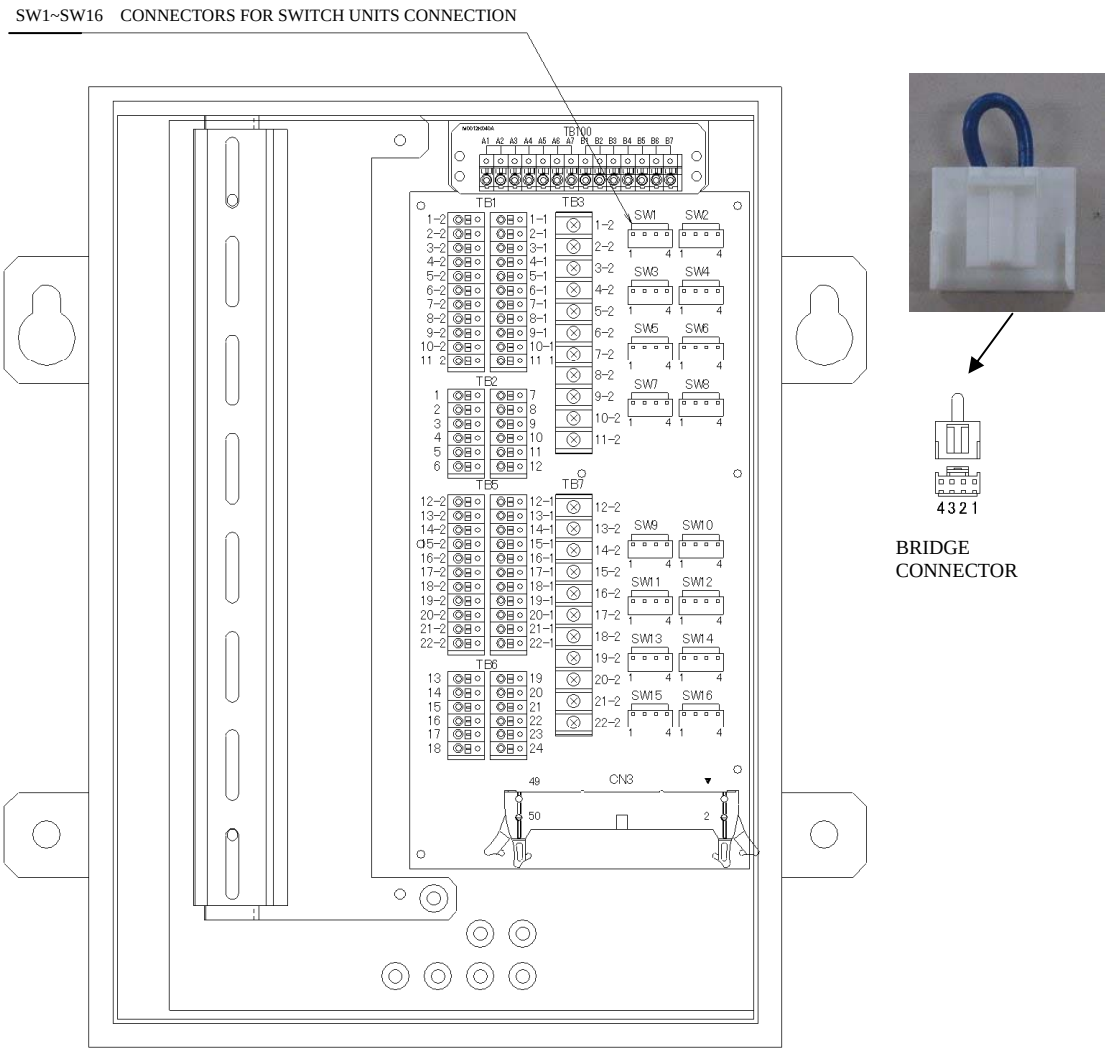
BEFORE INSTALLATION OF THE SWITCH UNITS

AFTER INSTALLATION OF THE SWITCH UNITS

6. Connection

6-2. Switch Units TSC-RAP-1

Connect to the interlock connector box TSC-MF-Z.



INTERNAL LAYOUT DRAWING OF INTERLOCK CONNECTOR BOX

Fig.4a

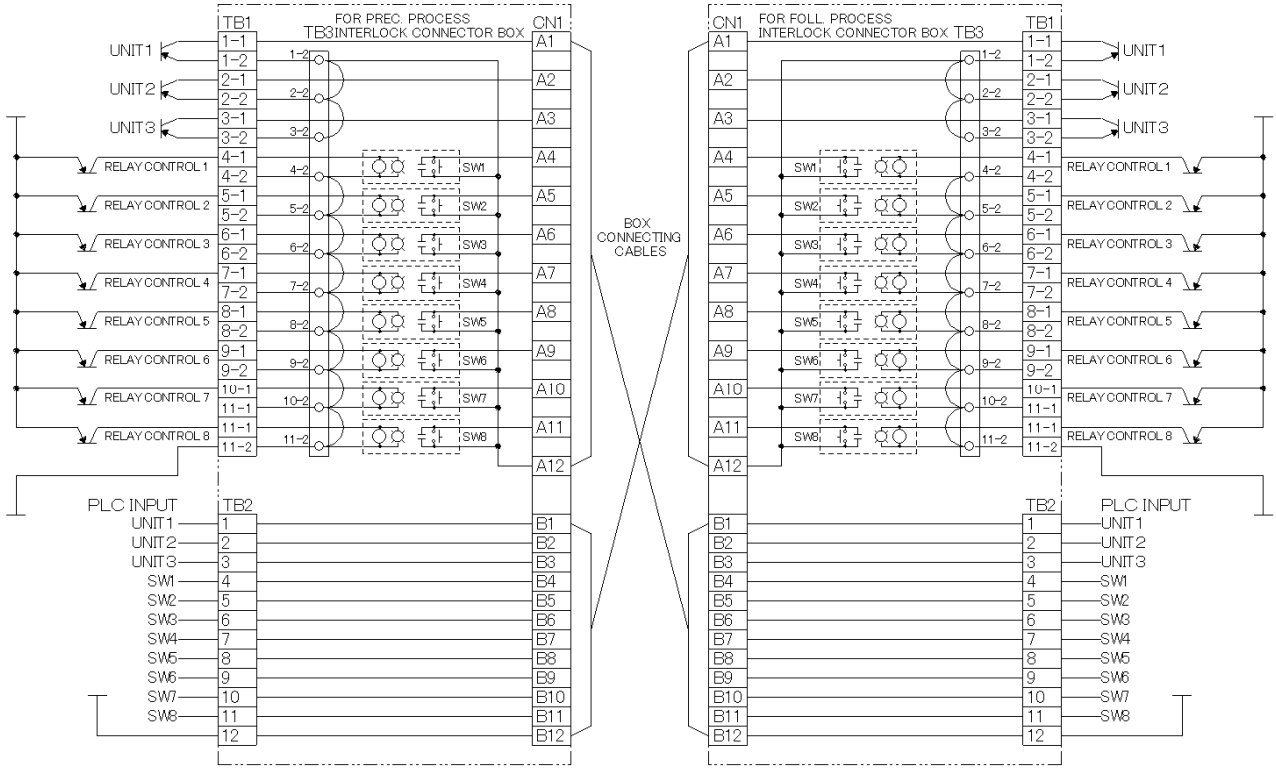
① Remove the bridge connectors installed to the internal SW1~SW16 of the interlock connector box.

② Install the connectors(CNSW) from the switch units that were installed by 5-2 to the internal SW1~SW16 connectors of the interlock connector box, and make sure that the connectors are surely locked.

7. Interlock Connector Box Circuit After Installation Of Switch Units

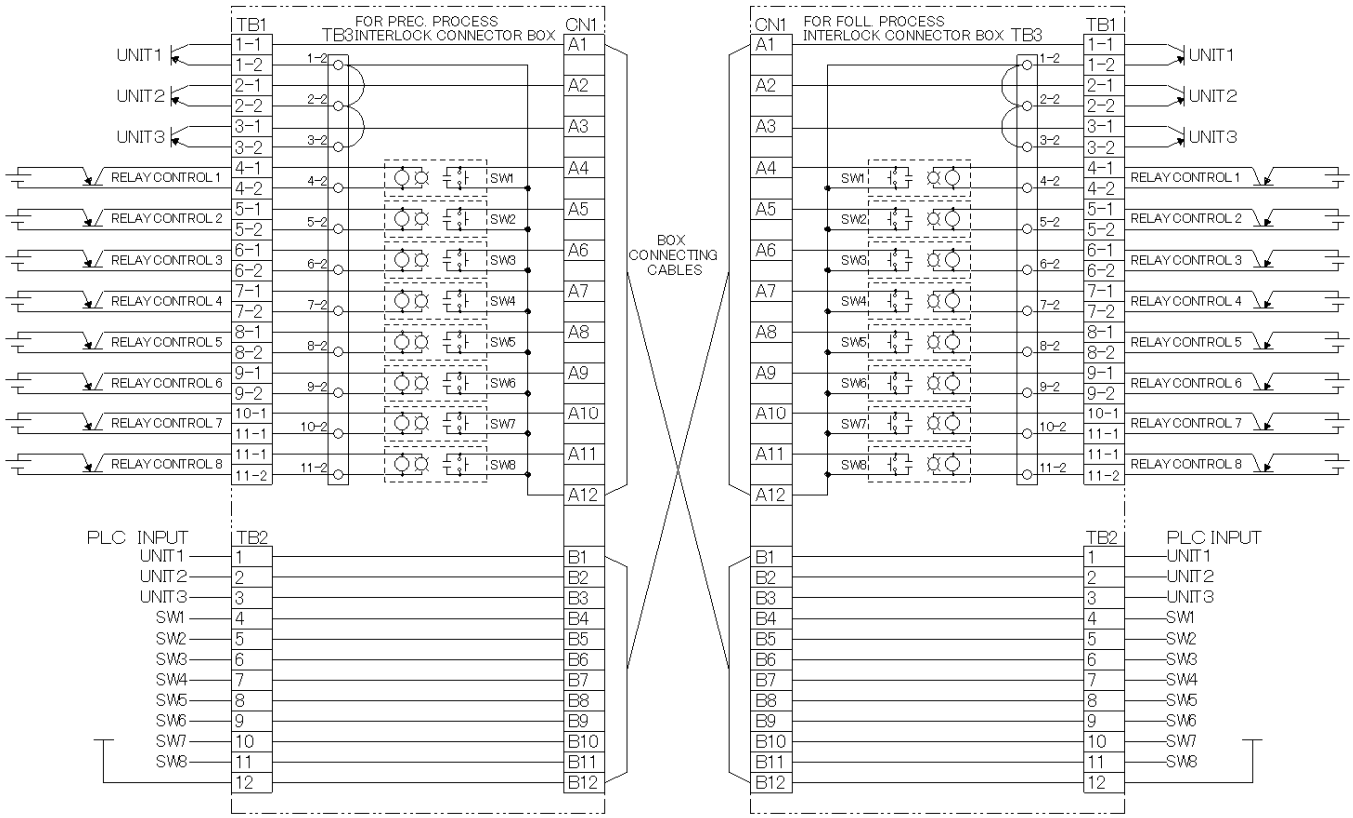
7-1. Switch Units + Input Units Common Connection TSC-MF-S, TSC-MF-M

Switch Units 8 Input Units 3



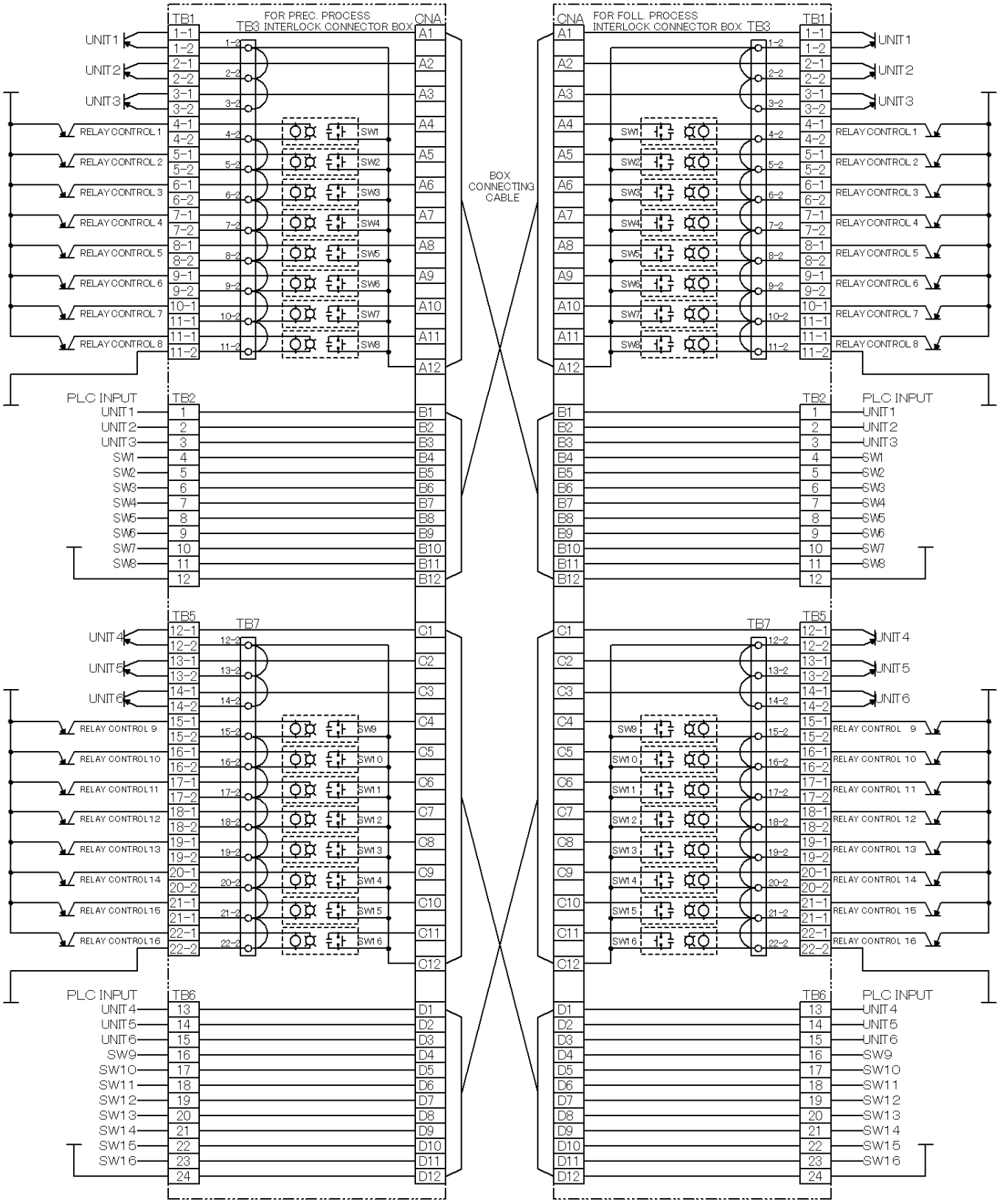
7-2. Switch Units (Independent Connection) + Input Units (Common Connection) TSC-MF-S, TSC-MF-M

Switch Units 8 Input Units 3



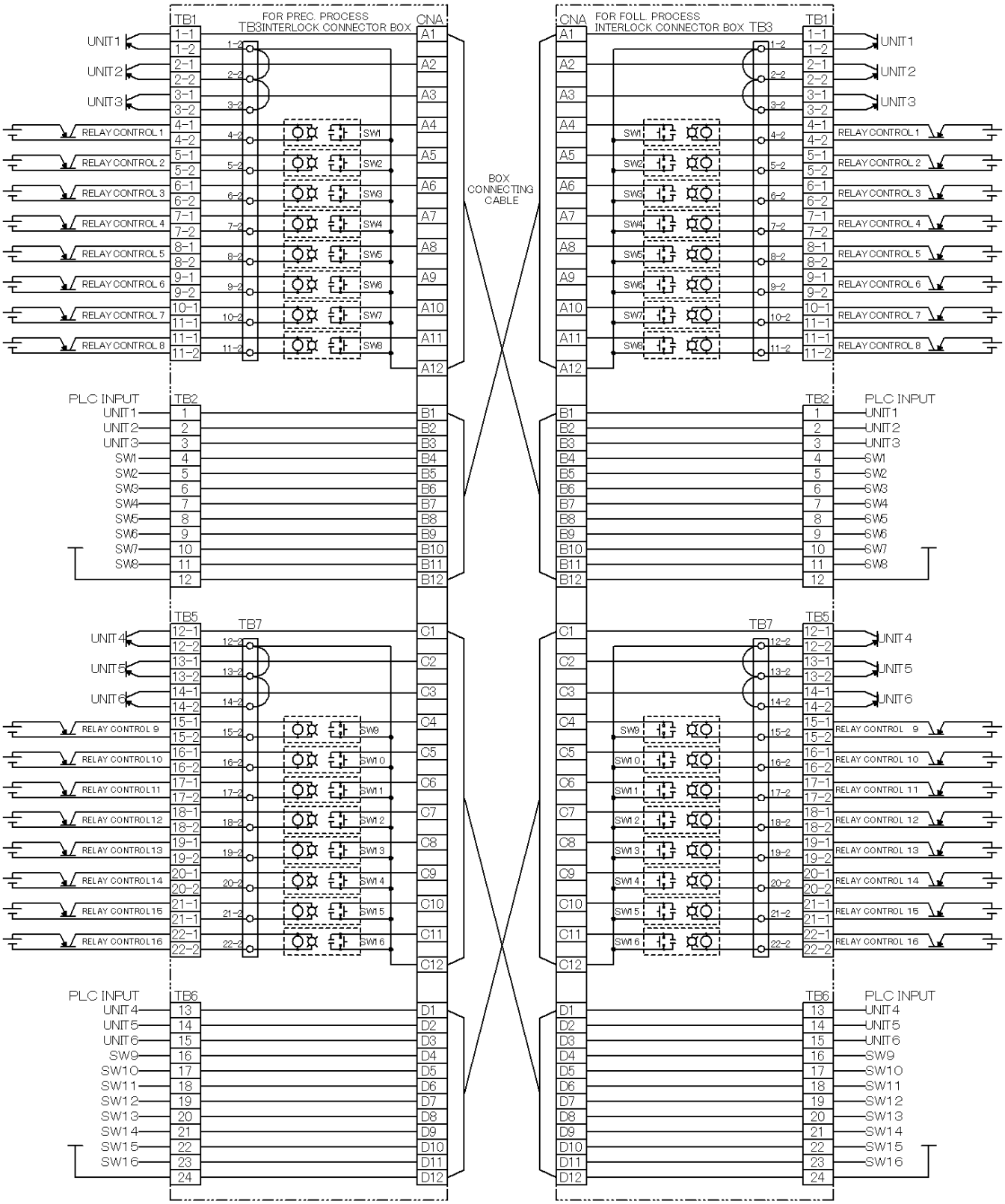
7-3. Switch Units + Input Units Common Connection TSC-MF-Z

Switch Units 16 Input Units 6



7-4. Switch Units (Independent Connection) + Input Units (Common Connection)　TSC-MF-Z

Switch Units 16　Input Units 6



Instruction Manual　Revision Record

Edition	Detail	Date
1st	First edition	October 10 2003
2nd	With the abandoning of TSC-MF-L, revised to the compliant for RSC-MF-Z Addition of the name plate INTERLOCK OFF ▼ on the appearance drawing Change of the address	September 13 2004 September 13 2004 September 13 2004
3rd	The color of the wire (1 Pin) is changed in Circuit Diagram, Blue → White & Blue.	August 30, 2005

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