TOSHIBA
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TCS-NET RELAY INTERFACE

Installation Manual

TCS-NET Relay Interface

Model name:

BMS-IFLSV3E

- Thank you very much for purchasing this TOSHIBA TCS-NET Relay Interface.
- Please read this manual carefully beforehand for proper installation of the relay interface.

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1 Precautions for Safety

- Read these “Precautions for Safety” carefully before installation.
- The precautions described below include important items regarding safety. Observe them without fail.
- After the installation work, perform a trial operation to check for any problem. Explain how to use and maintain the unit to the customer. Ask the customer to keep this Installation Manual.

⚠ WARNING

- **Ask an authorized dealer or qualified installation professional to install or reinstall the TCB-IFMB640TLE.**
  Improper installation may result in electric shock or fire.
- **Turn off the main power supply switch or breaker before attempting any electrical work.**
  Make sure all power switches are off. Failure to do so may cause electric shock.
- **Perform installation work properly according to this Installation Manual.**
  Improper installation may result in electric shock or fire.
- **Do not modify the unit.**
  Any modification may cause a malfunction, resulting in overheating or fire.

⚠ CAUTION

- **Perform wiring correctly in accordance with the specified the current capacity.**
  Failure to do so may result in short-circuit, overheating, or fire.
- **Connect the specified cables for the terminals securely to prevent external forces from affecting them.**
  Failure to do so may result in disconnection, overheating, or fire.

2 Introduction

■ Applications/Functions/Specifications

Applications

- The TCS-NET Relay Interface is used to connect air conditioners (with TCC-LINK installed) to the air conditioner control system or BACnet system.

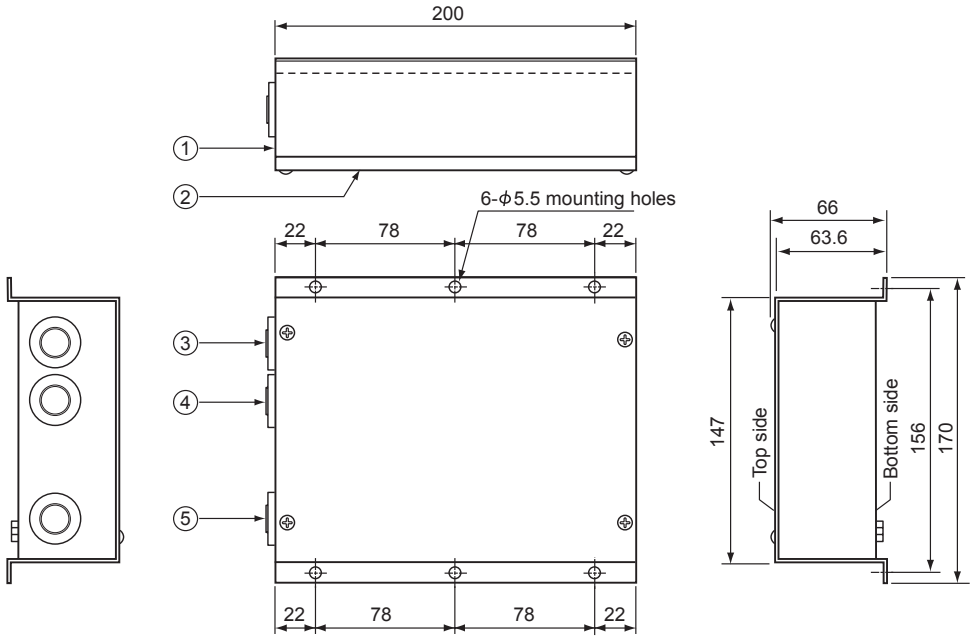
Functions

- The TCS-NET Relay Interface converts signals between TCC-LINK and RS-485.

Specifications

Power supply	220 - 240 VAC, 50/60 Hz
Current	18 mA
Power consumption	2.4 W
Operating temperature/humidity	0 to 40 °C, 10 to 90% RH (no condensation)
Storage temperature	-20 to +60 °C
Chassis material	Galvanized sheet metal 0.8t (no coating)
Dimensions	66 (H) x 170 (W) x 200 (D) mm
Mass	1 kg

■ External View



	Parts name	Specifications
1	Case	Galvanized sheet metal
2	Case lid	Galvanized sheet metal
3	Grommet	C30-SG20A
4	Grommet	C30-SG20A
5	Grommet for power supply	C30-SG20A

3 Before Installation

Check the following package contents.

No.	Item	Quantity	Remarks
1	TCS-NET Relay Interface	1	
2	Installation Manual	1	
3	Screw	4	M4 x 12mm tapping screws
4	Leaflet (Caution for exchanging product)	1	

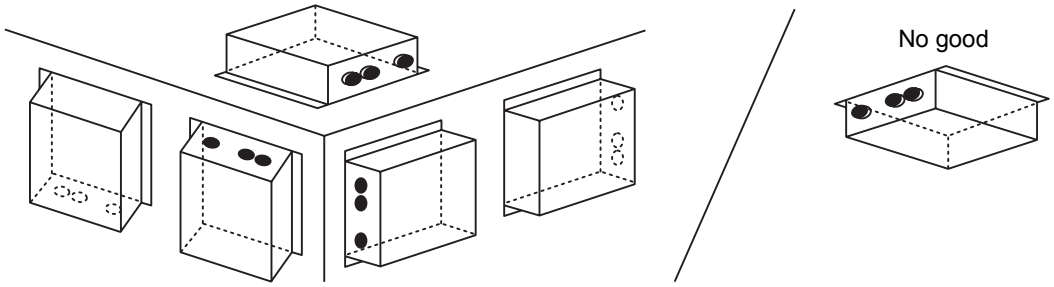
Use the following wiring materials to connect the signal lines and power lines. (Procured on site)

No.	Line	Description	
1	For TCC-LINK	Type	2-core shield wires
		Wire size	1.25 mm^2, 1000m max. 2.00 mm^2, 2000m max. (total length including air conditioner area)
		Length	
2	For RS-485	Type	2-core shield wires
		Wire size	1.25 mm^2, 500m max. (total length)
		Length	
3	For power	Type	H07 RN-F or 245IEC66 0.75mm^2, 50 m max.
		Wire size	

4 Installation

■ TCS-NET Relay Interface Installation Method and Orientation

There are five installation methods for this relay interface as shown below: surface mount and wall mounts. Use the attached screws.



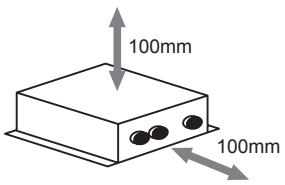
REQUIREMENT

Do not install the unit in any of the following places.

- Humid or wet place
- Dusty place
- Place exposed to direct sunlight
- Place where there is a TV set or radio within one meter
- Place exposed to rain (outdoors, under eaves, etc.)

■ Installation Space and Maintenance Space

A side space for connecting through cable inlets and an upper space for maintenance must be reserved before installation.
The other sides can be adjacent to surrounding objects.



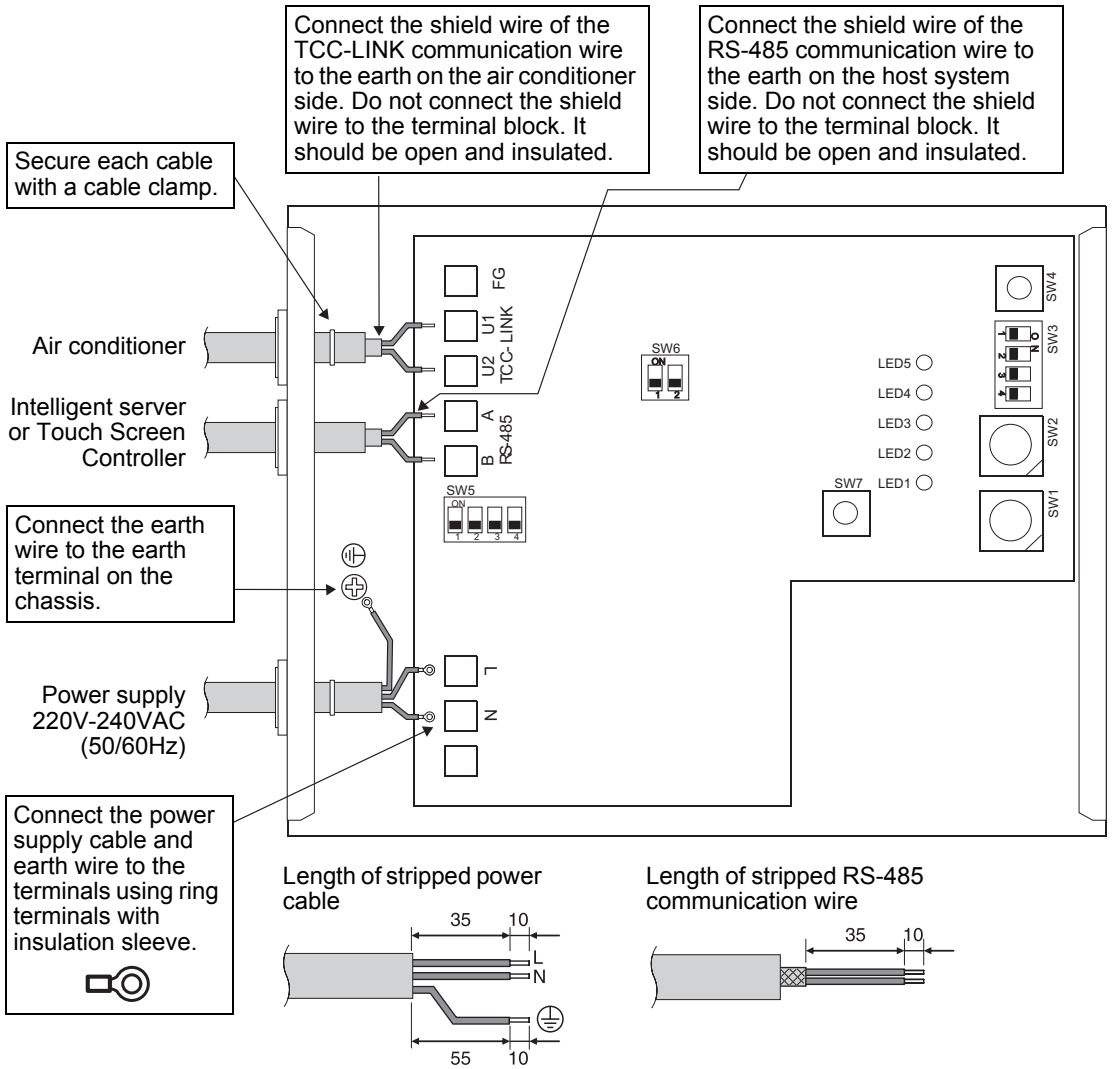
5 Connection of Power cables/Earth wires/ Signal wires

⚠ CAUTION

- The RS-485 signal lines have polarity. Connect A to A, and B to B. If connected with incorrect polarity, the unit will not work.
- The TCC-LINK signal lines have no polarity.

■ Power cables/Earth wires/Signal wires

Connect power cables, earth wires, and signal wires to the specified terminals on the terminal block.



REQUIREMENT

Disconnect the appliance from the main power supply.

This appliance must be connected to the main power supply by a circuit breaker or switch with a contact separation of at least 3mm.

Fasten the screws to the terminal with torque of 0.5Nm.

■ Wiring Connection

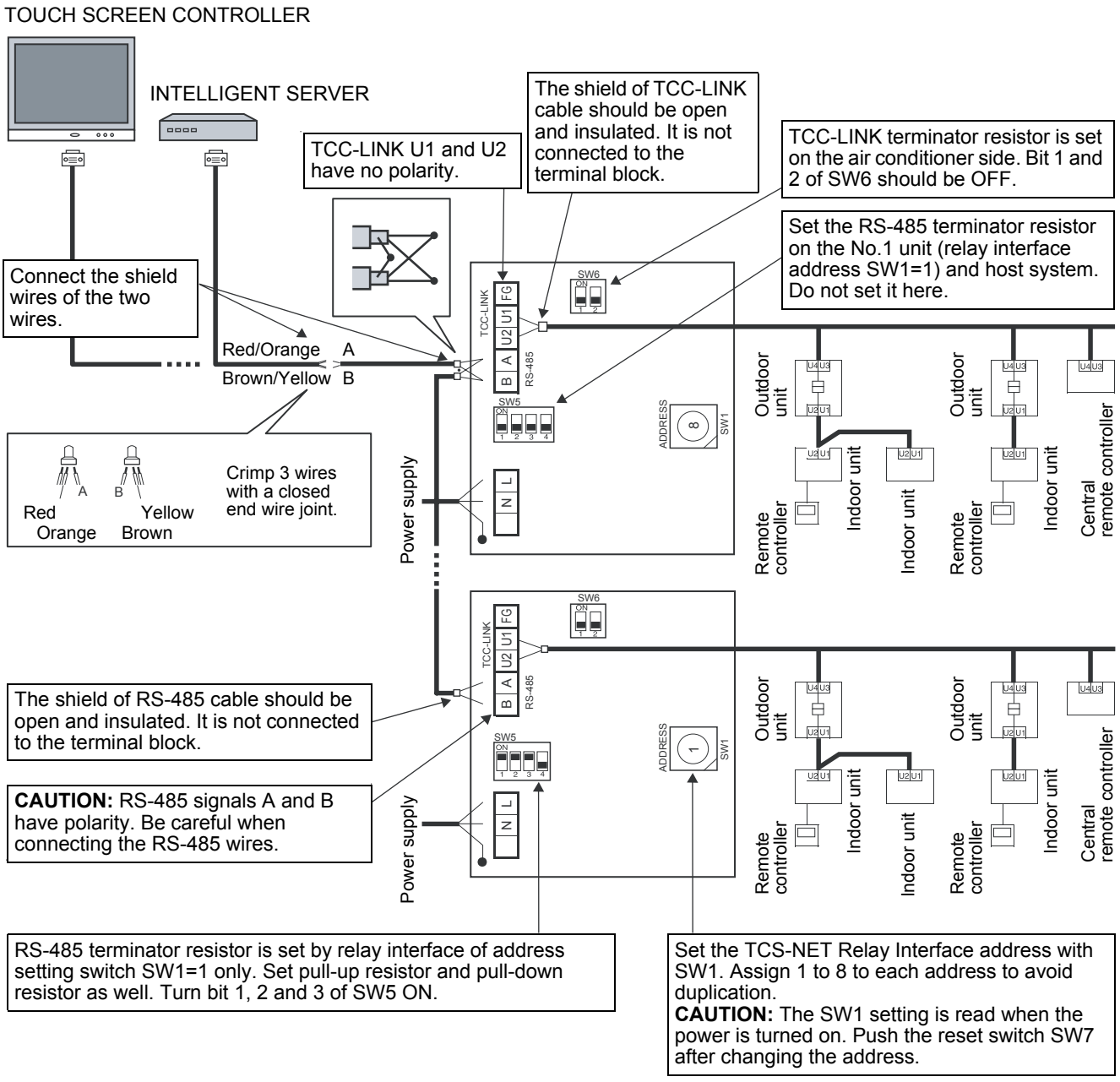
The following describes a connection example when using two or more TCS-NET Relay Interface units.

Terminator resistor setting (See “6 Setting” for the setting method.)

- Set the RS-485 terminator resistor to “Resistor set (120 ohm)” for No.1 (relay interface address SW1=1) TCS-NET Relay Interface unit, and set to “open” for other units.
- Set the TCC-LINK terminator resistor to “open” as it is set on the air conditioner side.

Shield earthing

- The shield of RS-485 signal wires should be connected at closed end, and the terminal end should be open and insulated. The shield earth of the RS-485 signal wires should be single-point earth at the host system.
  The shield earth of the RS-485 signal wires should be single-point earth.
- The shield of TCC-LINK signal lines should be connected at the closed end, and the TCS-NET Relay Interface terminal end should be open and insulated. Earth is connected on the air conditioner side.



6 Setting

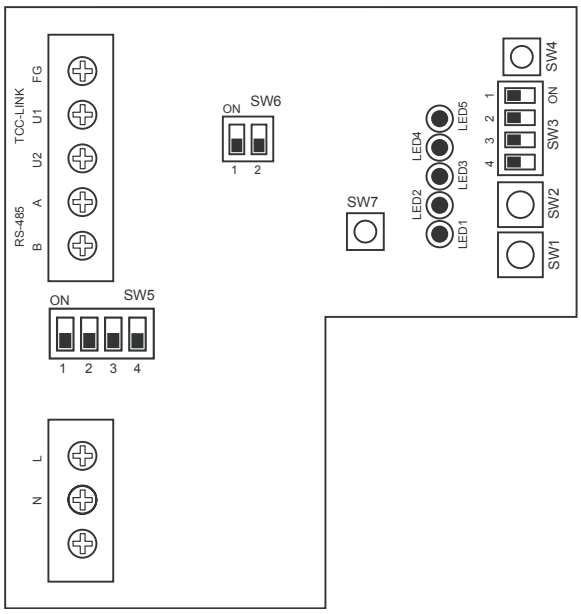
The following settings are necessary to use TCS-NET Relay Interface.

- SW1 TCS-NET Relay Interface address set switch
  When two or more TCS-NET Relay Interface are used, set a different address for SW1 to avoid address duplication.
  Assign addresses in an ascending order.

⚠ CAUTION

- **Set relay interface addresses according to the air conditioner address table.**
  For the relay interface whose address SW1=1, perform terminator resistor setting.
- **When the SW1 setting has been changed, push the reset switch SW7. The new address setting is read.**

- SW2 Test switch
- SW3 Test switch
- SW4 Test switch
  Not used during operation.
  Set these switches to zero (0) or “all OFF”.
- SW5 RS-485 terminator resistor select switch
  Set “Resistor set (120 ohm)” only when the relay interface address SW=1, and set “open” for other relay interfaces.
- SW6 TCC-LINK terminator resistor select switch
  The TCC-LINK terminator resistor is set on the air conditioner side. Set SW6 to “open”.
- SW7 Reset switch
  When performing an address setting with SW1, push this reset switch after the address setting to read the set value.



SW1	Relay interface address set switch		
	1-8	Relay interface address	
	0, 9-F	Not used	
SW2	Test switch (0 usually)		
SW3	Test switch (all OFF usually)		
SW4	Test switch		
SW5	RS-485 terminator resistor select switch		
	ON 1 2 3 4	ON 1 2 3 4	Bit1: pull-up resistor select. Bit2: pull-down resistor select. Bit3: terminator resistor select. Bit4: terminator resistor select.
	Resistor Set	Open	
SW6	TCC-LINK terminator resistor select switch		
	ON 1 2	ON 1 2	Note:Bit 1 is not used.
	100 ohm	Open	
SW7	Reset switch		
LED1	Power indicator		
LED2	RS-485 communication status indicator		
LED3	TCC-LINK Communication status indicator		
LED4	TCC-LINK Communication error indicator		
LED5	Test indicator		

REQUIREMENT

- **RS-485 terminator resistor select switch SW5.**
  Set “Resistor set (120 ohm)” (bit1, 2, 3 ON) only when the TCS-NET Relay Interface address SW=1, and set “open” for other relay interfaces.
- **The TCC-LINK terminator resistor is set on the air conditioner side. Set SW6 to “open”.**

7 Trial Operation Check

■ Before starting trial operation

Complete the air conditioner trial operation.
Turn on the power of the TCS-NET Relay Interface after all cable connections and settings are completed.
Then turn on power of the Touch Screen Controller or intelligent Server.

■ Trial operation

Check the TCC-LINK and RS-485 communication status of the TCS-NET Relay Interface by checking the blinking of the LEDs.

⚠ CAUTION

For the operation check of the Touch Screen Controller, refer to the Touch Screen Controller Installation Manual.

LED		Normal operation	Abnormal operation
LED1	Power indicator	ON	OFF
LED2	RS-485 communication status indicator	Blinking	OFF
LED3	TCC-LINK communication status indicator	Blinking	OFF
LED4	TCC-LINK communication error indicator	OFF	ON
LED5	TEST indicator	OFF	ON

LED1 Power indicator
ON: While power is on
OFF: When power is not turned on
LED2 RS-485 communication status indicator
Blinking: When RS-485 communication with the host system is normal
OFF: When RS-485 communication with the host system is disabled
LED3 TCC-LINK communication status indicator
Blinking: When TCC-LINK communication with any of the air conditioners is normal
OFF: When TCC0-LINK communication with all air conditioners is disabled
LED4 TCC-LINK communication error indicator
ON: While TCS-NET Relay Interface cannot send signals due to busy communication on the air conditioner side. This status is temporary. This LED turns OFF after a while and communication will restart.
OFF: When communication of the air conditioner side is not busy
LED5 Test indicator
Not used in normal operation
Displayed only in the test mode

MEMO

MEMO