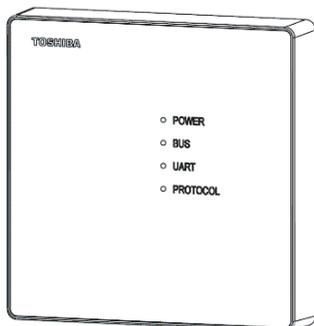# TOSHIBA OWNER'S MANUAL

Use for Indoor Unit only

MODEL : TCB-SSRL011UUP-E

RAC Interface for BMS

(Interface Adapter for RAC/IMS – Central Controller)

Component Parts

No.	Part Name		Qty.
1	Interface Adapter		1
2	Screws Ø3.1 x 16		4
3	Connection cable		1
4	Owner's manual		1
5	CD-ROM		1

[For Installation Professionals]

• Before installation work, please read this manual thoroughly and install the products correctly.

Precaution for safety

⚠ WARNING

- **Ask an authorized dealer or qualified installation professional to install/maintain the air conditioner.**
  Inappropriate installation may result in water leakage, electric shock or fire.
- **Perform installation work surely based on this Installation Manual.**
  Incomplete installation causes an electric shock or a fire.
- **Ask an authorized dealer or qualified installation professional to reinstall Interface Adapter.**
  Incomplete installation causes an electric shock or a fire.
- **For an electric work, this Installation Manual shall be referred and exclusive circuit shall be necessarily used. The used voltage shall be also match with the rated voltage of the product.**
  If there is capacity shortage of electric circuit or installation work is poor, an electric shock or a fire may be caused.

⚠ CAUTION

- Using the specified wires, surely connect wires so that external force of wire is not applied to connecting part of the terminals; otherwise disconnection, heating or fire will generate.
- For wiring work, use wires with correct current capacity; otherwise leakage, heating or fire will generate.

- Do not apply an excessive force on the board body, otherwise bending, separation, or disconnection generates resulted in heating or fire.

- After installation work, execute a test run to confirm there is no trouble.
  And also ask the customers to keep this Manual by themselves.

Connectable Products

Connectable Residential Air Conditioner / Indoor Multi Split

Model name	Model type	Note
Toshiba Residential Air Conditioner	High-Wall	Connect by UART Connector
	Console	
Toshiba Indoor Multi Split	High-Wall	Connect by UART Connector
	Console	

Wire Specifications

No. of wires	Size	Specifications
2	Up to 1000 m, braided wire 1.25 mm^2	2-core shield wire
	Up to 2000 m, braided wire 2.0 mm^2	

- Wire is 2-core and non-polarity.
- The length is same to wire length of the central control system.
- To prevent noise defect, use 2-core shield wire.
- Connect shield wires with closed-terminal connection and apply open process (insulation process) to the last termination. For grounding (earth), perform grounding with one point at indoor unit side.
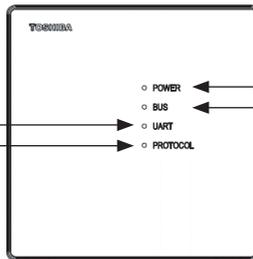
LED Status

UART LED
It discriminates communication condition between Interface Adapter and A/C unit.
- Blinking during communication.
- OFF when no communication.
- Lighting (ON) during communication error between Interface Adapter and A/C unit when Interface Adapter doesn't receive response from A/C unit for 3 times

PROTOCOL LED
It discriminates communication type.
- Blinking when it communicates in TCC-LINK mode.
- Lighting (ON) when it communicates in TU2C-LINK mode.

TOSHIBA

○ POWER
○ BUS
○ UART
○ PROTOCOL

POWER LED
- Lighting (ON) when Power On
- OFF when Power Off

BUS LED
It discriminates communication condition between Interface Adapter and Central Controller.
- Blinking during communication.
- OFF when no communication.
- Lighting (ON) during communication error between Interface Adapter and Central Controller when Interface Adapter doesn't receive response from Central Controller for 20 minutes.

Connecting Terminal / Connector

Terminal / Connector Name	Description
Uh line Terminal (CN20)	Communicate to Central Controller by TCC-LINK / TU2C-LINK
UART Connector (CN50)	Communicate to Toshiba A/C Unit

Line Address Information

Connection mode	Line Address
TCC-LINK	29
TU2C-LINK	29

Note: Central Controller use Line Address, Indoor Address or Central Address for sending operation. Interface Adapter can set Indoor Address and Central Address. Line Address are fixed number.

Caution Operation

Note: DRY mode fan speed is set to Auto only.

Setup of P.C. Board Switch

① Option Switch (SW21)

When the units controlled collectively are all Residential Air Conditioner or Indoor Multi Split, it is required to set up the terminator resistor.
- Using SW21, set up the terminator resistor.
- Set up the terminator resistor to only interface connected to the indoor unit with the least indoor address No.

SW21
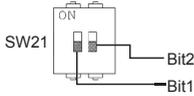
Bit2
Bit1

(Reference) Contents of switch setup

| Bit1	Bit2	Terminator resistor	Remarks
OFF	OFF	None	Shipping status from factory.
ON	OFF	100Ω	Central control of only Residential Air Conditioner or Indoor Multi Split.
OFF	ON	51Ω	Spare
ON	ON	34Ω	Spare
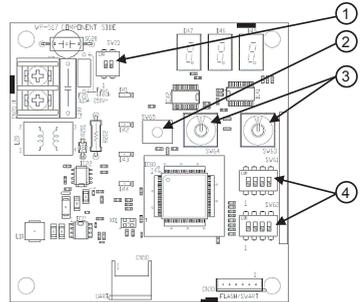
② Push Switch (SW65)

Push SW65 for 4 seconds to factory setting reset and clear Error code, 7 segment LED display "CLr".

③ Rotary Switch (SW63, SW64)

Setting Indoor Address and Central Address about Ones place and Tens place. Please see ④ for How to set Indoor Address = Central Address by setting Switch (SW62) and How to set Hundreds place by setting Switch (SW61).

X (0-9)	X (0-9)

SW64
0-9
(Tens place)

SW63
0-9
(Ones place)
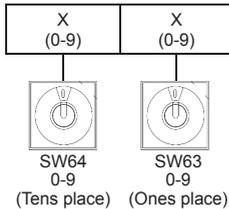
Example
Set Address is 00. Rotate rotary switch to position 0 for Ones place and Tens place

SW64
0-9
(Tens place)

SW63
0-9
(Ones place)

④ Setting Switch (SW61, SW62)
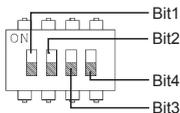
Bit1
Bit2
Bit4
Bit3

Setting Switch (SW61)

Position	Function
Bit1	Setting Indoor Address about Hundreds place. (ON=1xx, OFF=0xx)
Bit2	Switch Automatic / Manual for operation type TCC-LINK (Light commercial A/C type) or TU2C-LINK (Residential A/C type) mode selection. If the setting is Manual, please select Bit3. ON : Manual OFF : Automatic
Bit3	Switch TCC-LINK (Light commercial A/C type) or TU2C-LINK (Residential A/C type) mode. ON : TU2C-LINK Mode OFF : TCC-LINK Mode
Bit4	Set switch "OFF" (If set "ON" can't communicate with Central Controller)

Note: If the Central Controller to be connected supports RAC I/F, select TU2C-LINK. For other models, set TCC-LINK.

Setting Switch (SW62)

Position	Function
Bit1	Set switch "OFF" (Recommend to set "OFF" for default setting, Set "ON" is N/A)
Bit2	Set switch "OFF" (Recommend to set "OFF" for default setting, Set "ON" is N/A)
Bit3	How to set Central Address. ON : Central Address = Indoor Address OFF : No set Central Address
Bit4	Set switch "OFF" (Recommend to set "OFF" for default setting, Set "ON" is N/A)

Caution at Servicing

Error code, which is displayed on Central Controller, is automatically changed depending on communication type (TU2C-LINK or TCC-LINK).
Error code can be converted by using below conversion table.
Please see more detail in Service manual for Operation of diagnosis function.

| Error Code		Cause of operation
TU2C-LINK	TCC-LINK	
0x04	E04	1. Defective wiring of the connecting cable or miss-wiring. 2. Operation signal has not send from the indoor unit when operation start. 3. Outdoor unit has not send return signal to the indoor unit when operation started. 4. Return signal from the outdoor unit is stop during operation.
0x07	H04	Return signal of the outdoor unit has been sent when operation start. But after that, signal is stop some time. - Instantaneous power failure. - Some protector hardware of the outdoor unit open circuit of signal. - Signal circuit of indoor P.C. board or outdoor P.C. board is failure in some period.
0x0C	F10	TA sensor ; The room temperature sensor is short-circuit or disconnection.
0x0D	F03	TC sensor ; The heat exchanger temperature sensor of the indoor unit is out of place, disconnection, short-circuit or migration.
0x0E	J29	Refrigerant leak detection sensor, sensor is short-circuit or disconnection.
0x0F	F01	TCJ sensor ; The heat exchanger temperature sensor of the indoor unit is out of place, disconnection, short-circuit or migration.
0x11	P12	Fan motor of the indoor unit is failure, lock-rotor, short circuit, disconnection, etc. Or its circuit on P.C. board has problem.
0x12	F29	Other trouble on the indoor P.C. board.
0x14	P26	Current on inverter circuit is over limit in short time. - Outdoor Inverter P.C. board is failure, IGBT shortage, etc. - Compressor current is higher than limitation, lock rotor, etc.
0x16	P29	Compressor position-detect circuit error or short-circuit between winding of compressor.
0x17	H03	Current-detect circuit of outdoor inverter P.C. board error.
0x18	F06	TE or TS sensor ; abnormal. Out of place, disconnection, shortage, or misconnection (TE sensor is connected to TS connector, TS sensor is connected to TE connector) - TE sensor; Outdoor heat exchanger temperature sensor. - TS sensor; Suction pipe temperature sensor.
0x19	F04	TD sensor ; Discharge pipe temperature sensor is disconnection or shortage.
0x1A	P22	Outdoor fan failure or its drive-circuit on the outdoor inverter P.C. board failure.
0x1B	F08	TO sensor ; The outdoor temperature sensor is disconnection or shortage.
0x1C	E31	Compressor drive output error. (Relation of voltage, current and frequency is abnormal) - Overloading operation of compressor caused by over-charge refrigerant, P.M.V. failure, etc. - Compressor failure (High current).
0x1D	H02	Compressor does not rotate. Because of missed wiring, missed phase or shortage.
0x1E	P03	Discharge temperature exceeded 117°C.
0x1F	H01	Compressor is high current though operation Hz is decreased to minimum limit. - Installation problem. - Instantaneous power failure. - Refrigeration cycle problem. - Compressor break down. - Compressor failure (High current operation, etc.)
0x21	P20	Return signal of the outdoor unit has been sent when operation start but after that, signal is stop some time. - Instantaneous power failure. - Some protector (hardware) of the outdoor unit open circuit of signal. - Signal circuit of indoor P.C. board or outdoor P.C. board is failure in some period. - TE, TC high temperature TE for cooling operation, TC for heating operation
0x25	J30	Refrigerant leak detected
0x26	J31	Gas detector sensor life time
0x41	E11	UART communication error

Before Installation

The Interface Adapter must be installed, maintained, repaired and removed by a qualified installer or qualified service person.
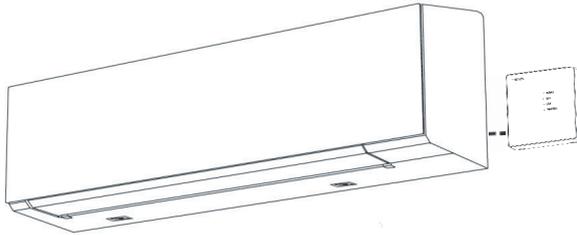
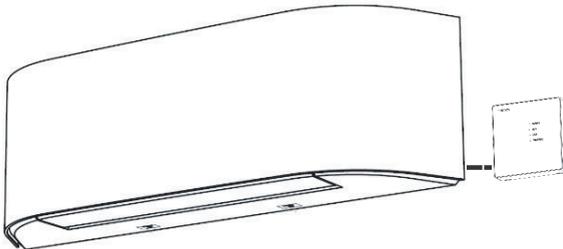### ⚠ Caution: Turn off power supply before installation and setting

Installation position

Console
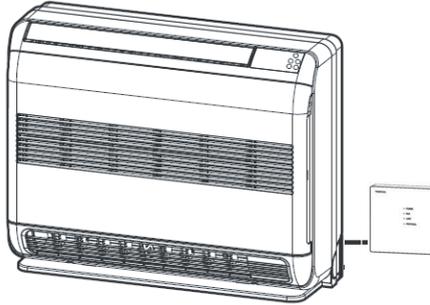
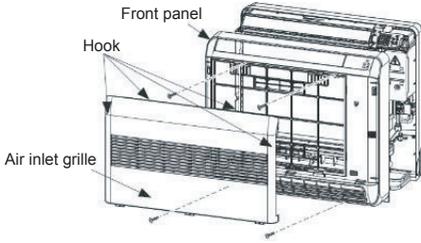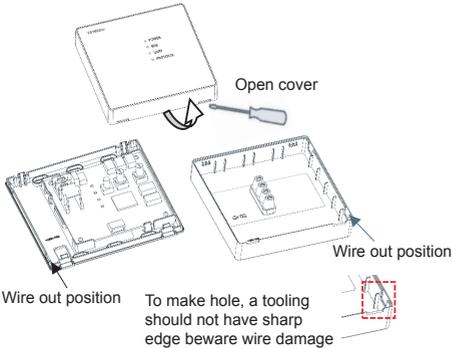**High-Wall type A**

High-Wall type B

<u>Note:</u>

Contact dealer and/or service center when equipment is malfunction.

Console

1. Remove the air inlet grille. (Open the air inlet grille and remove the strap.)
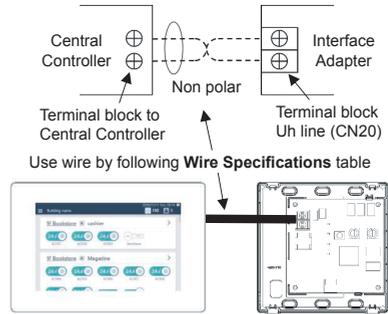2. Remove the front panel (Remove 4 screws).

Front panel
Hook
Air inlet grille

3. Open the cover of Interface Adapter and make hole for wire out.

Open cover

Wire out position

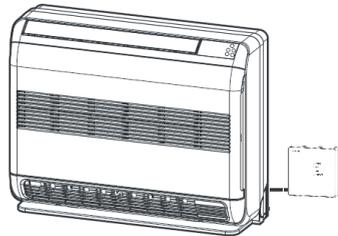Wire out position | To make hole, a tooling should not have sharp edge beware wire damage

4. Insert the lead wire in to A/C unit. Connect the Connection cable between Interface Adapter (CN50) and Communication cable from A/C. Fix on wall or partition following fixing position.

Communication cable from A/C
Connection cable from Interface Adapter

Screw fixing position

Cutting position for install connecting cable

5. Connect the 2-core shield wire between Interface Adapter (CN20) and Central Controller.

Central Controller
Non polar
Interface Adapter

Terminal block to Central Controller
Terminal block Uh line (CN20)

Use wire by following **Wire Specifications** table

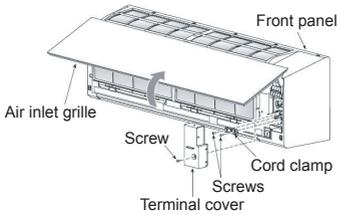6. Close cover of Interface Adapter.

Installation note

1. Be sure no electrical power before installing this product.
2. Interface Adapter must not be installed in areas as below
   - Direct sunlight or areas exposed to outside air influences
   - Poor ventilation (near windows or other openings)
   - External heat sources (above radiators etc.)
   - Freezing or refrigerated areas
   - Do not install nearly device that can generate electrical noise such as elevators, automatic door and etc.
3. Do not modify for any electrical part, it can cause for malfunction, electric shock or fire.
4. Operating temperature should not over 50°C.
5. Turn off power supply A/C before setting Interface Adapter and then turn on. After that turn on Central Controller.
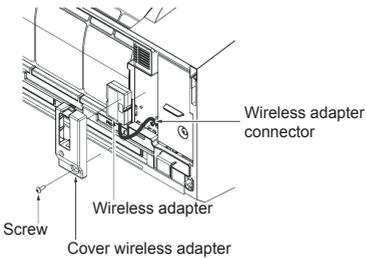
High-Wall type A / type A with Wireless adapter built-in

1. Open the air inlet grille.
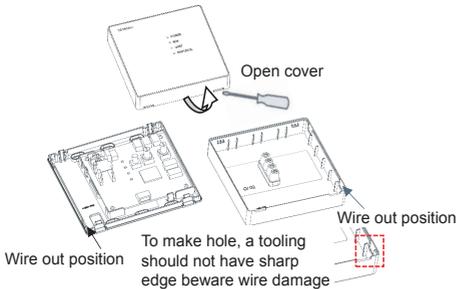2. Remove screw holding the terminal cover and open the terminal cover.

Front panel
Air inlet grille
Screw
Cord clamp
Screws
Terminal cover

2.1 - 2.2 For type A with Wireless adapter built-in

2.1 Remove screw holding the Cover wireless adapter.
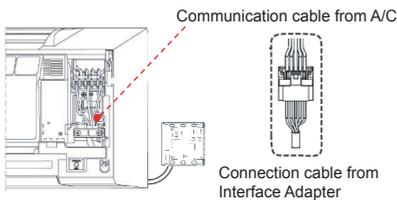2.2 Disconnect the connector of Wireless Adapter.

Wireless adapter connector
Wireless adapter
Screw
Cover wireless adapter

3. Open cover Interface Adapter and make hole for wire out.

Open cover
Wire out position
Wire out position
To make hole, a tooling should not have sharp edge beware wire damage

4. Connect the Connection cable.
   ### 4.1 For type A
   - Insert the lead wire in to A/C unit. Connect the Connection cable between Interface Adapter (CN50) and Communication cable from A/C.

Communication cable from A/C
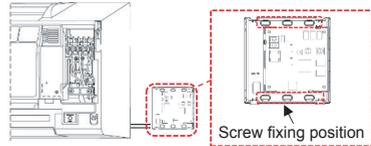Connection cable from Interface Adapter

### 4.2 For type A with Wireless adapter built-in
- Insert the lead wire in to A/C unit. Connect the Connection cable between Interface Adapter (CN50) and Communication cable that disconnect the connector of Wireless adapter (2.2).

Communication cable (Disconnect from Wireless adapter)
Connection cable from Interface Adapter
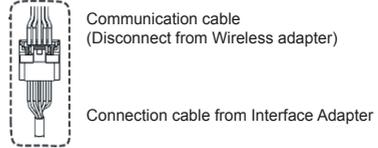
5. Fix on wall or partition following fixing position.

Screw fixing position

6. Connect the 2-core shield wire between Interface Adapter (CN20) and Central Controller.

Central Controller
Non polar
Interface Adapter
Terminal block to Central Controller
Terminal block Uh line (CN20)
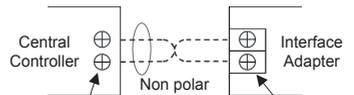
Use wire by following **Wire Specifications** table

7. Close cover of Interface Adapter.

Installation note

1. Be sure no electrical power before installing this product.
2. Interface Adapter must not be installed in areas as below
   - Direct sunlight or areas exposed to outside air influences
   - Poor ventilation (near windows or other openings)
   - External heat sources (above radiators etc.)
   - Freezing or refrigerated areas
   - Do not install nearly device that can generate electrical noise such as elevators, automatic door and etc.
3. Do not modify for any electrical part, it can cause for malfunction, electric shock or fire.
4. Operating temperature should not over 50°C.
5. Turn off power supply A/C before setting Interface Adapter and then turn on. After that turn on Central Controller.

High-Wall type B

1. Open the air inlet grille.
2. Remove screw holding the terminal cover and open the terminal cover.

Front panel
Cord clamp
Screw
Screws
Terminal cover
Air inlet grille
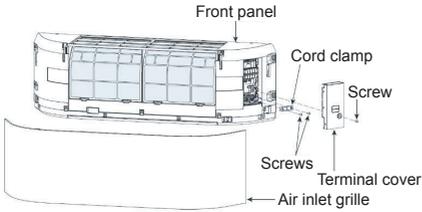
3. Remove the fixing screw (2 pcs) on front panel.

Screw

4. Take off the hooks of front panel from top side of the back body.

5. Slightly open the lower part of the front panel then pull the upper part of the front panel toward you to remove it as shown on figure.
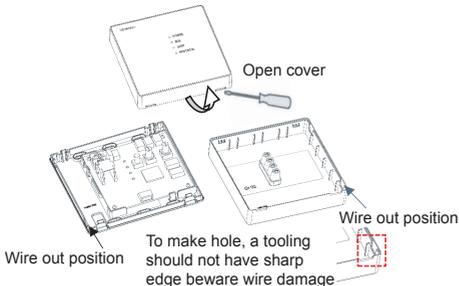

Front panel

6. Disconnect the connector of Wireless adapter.

Wireless adapter

7. Open the cover of Interface Adapter and make hole for wire out.

Open cover
Wire out position
Wire out position
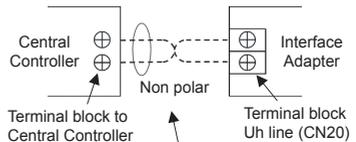To make hole, a tooling should not have sharp edge beware wire damage

8. Insert the lead wire in to A/C unit. Connect the Connection cable between Interface Adapter (CN50) and Communication cable that disconnect the connector of Wireless adapter (6.).

Communication cable (Disconnect from Wireless adapter)
Connection cable from Interface Adapter
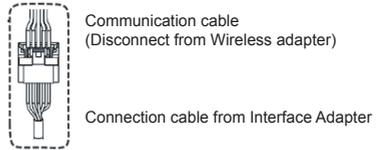
9. Fix on the wall or partition following fixing position.
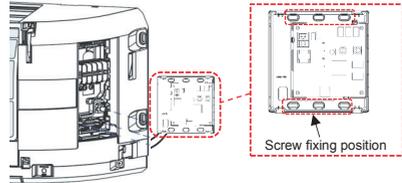
Screw fixing position

10. Connect the 2-core shield wire between Interface Adapter (CN20) and Central Controller.

Central Controller
Interface Adapter
Non polar
Terminal block to Central Controller
Terminal block Uh line (CN20)
Use wire by following **Wire Specifications** table

11. Close cover of Interface Adapter.

Installation note

1. Be sure no electrical power before installing this product.
2. Interface Adapter must not be installed in areas as below
   - Direct sunlight or areas exposed to outside air influences
   - Poor ventilation (near windows or other openings)
   - External heat sources (above radiators etc.)
   - Freezing or refrigerated areas
   - Do not install nearly device that can generate electrical noise such as elevators, automatic door and etc.
3. Do not modify for any electrical part, it can cause for malfunction, electric shock or fire.
4. Operating temperature should not over 50°C.
5. Turn off power supply A/C before setting Interface Adapter and then turn on. After that turn on Central Controller.