TOSHIBA
Carrier

Installation Manual

BN interface

Model name:

BMS-IFBN640TLUL

English

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Precautions for safety

The following instructions must be observed.

- Carefully read these "Precautions for Safety" before installation, and perform installation work safely.
- These precautions contain important information regarding safety.
- After installation work, carry out an operation trial to confirm that there are no problems, and explain to the customer how to operate and maintain the system. Ask the customer to keep this Installation Manual.

Expressions

⚠ **Warning**	Text set off in this manner indicates that failure to adhere to the directions in the warning could result in serious bodily harm (*1) or loss of life if the product is handled improperly.
⚠ **Caution**	Text set off in this manner indicates that failure to adhere to the directions in the caution could result in serious bodily injury (*2) or damage (*3) to property if the product is handled improperly.

*1: Serious bodily harm indicates loss of eyesight, injury, burns, electric shock, bone fracture, poisoning, and other injuries which leave aftereffect and require hospitalization or long-term treatment as an outpatient.
*2: Bodily injury indicates injury, burns, electric shock, and other injuries which do not require hospitalization or long-term treatment as an outpatient.
*3: Damage to property indicates damage extending to buildings, household effects, domestic livestock, and pets.

Graphic symbols

Prohibited	"⃠" indicates prohibited items. The actual contents of the prohibition are indicated by a picture or text placed inside or next to the graphic symbol.
Compulsory	"❗" indicates compulsory (mandatory) items. The actual contents of the obligation are indicated by a picture or text placed inside or next to the graphic symbol.

⚠ Warning

- **Installation and reinstallation should be performed by your dealer or a qualified electrician**
  Attempting to carry out installation work on your own, and doing so incorrectly, may result in electric shock or fire.
- **Electrical work must be performed by a qualified electrician in accordance with this Installation Manual. The work must satisfy all local, national and international regulations**
  Inappropriate work may result in electric shock or fire.
- **Be sure to turn off the power before starting work**
  Failure to do so may result in electric shock.
- **Use only the power adapter supplied with this unit**
  A power adapter other than that supplied with this unit may provide a different voltage and have different polarity (+) (−), which could lead to fire, explosion or generation of heat.

- **Do not modify the unit**
  Doing so may result in excessive heat or fire.

Introduction

■ Overview

The BN interface refers to equipment used for controlling Building Management Systems (Procured locally) and air conditioners (TCC-LINK compatible models) through communications via a network to enable centralized control.

■ Included Items

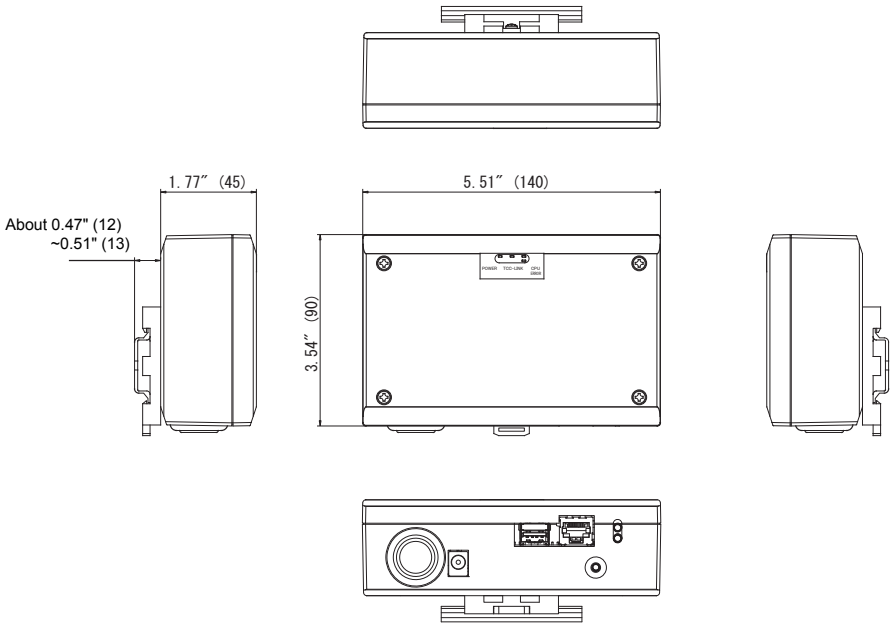
Component	Q'ty	Remarks
BN interface equipment	1	
Power adapter	1	BN interface power supply (model name: UI318-0526)
Pin terminal	2	TCC-LINK caulked connectors
Mounting bracket (DIN rail)	1	Use screws to secure the unit in locations without DIN rails (walls, etc.)
Screws (M4 x 12)	2	For securing the DIN rails
Rubber feet	4	For levelling the unit
Screws (M3 x 8)	4	For securing the rubber feet to the unit
Installation Manual	1	This manual
Tie-wrap	1	

■ Specifications

Power supply	Rated voltage	120 VAC 60 Hz
	Power consumption	3 W
Operating temperature range		32 to 104 °F (0°C to 40°C), 10% to 80% RH (no condensation)
Storage temperature range		14 to 140 °F (−10°C to +60°C), 10% to 90% RH (no condensation)
Dimensions		5.51" (W) x 3.54" (H) x 1.77" (D) inch (140 (W) x 90 (H) x 45 (D) mm)
Mass		BN interface 0.57 lb (260 g) Power adapter 0.31 lb (140 g)

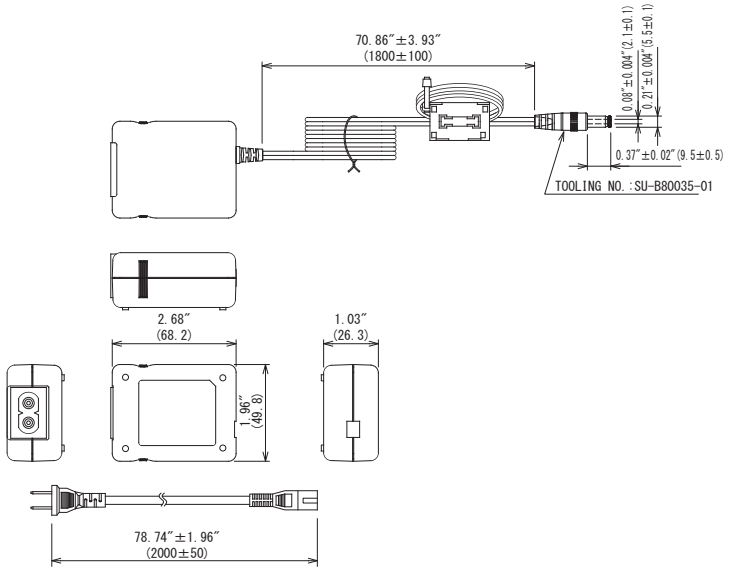
■ External View (BN interface equipment)

Unit: inch (mm)

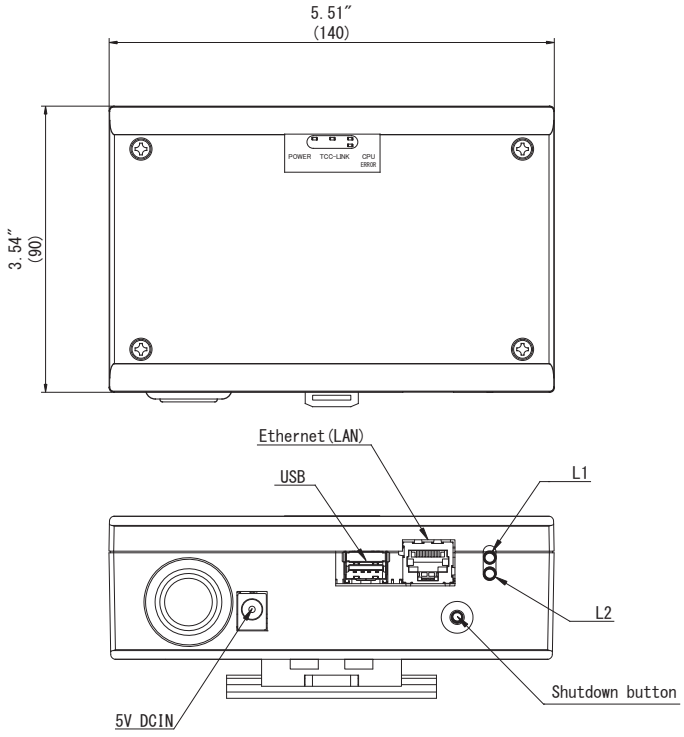


(Power adapter)

Unit: inch (mm)



■ Component Names



Name	Function
5V DCIN	Connect the power adapter
USB	(For service)
Ethernet (LAN)	Connect to the Building Management System
Shutdown button	Shutdown or switch to air-conditioning search mode
L1	BACnet communication status indicator
L2	BACnet communication status indicator, setting error indicator

1 Installation

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.)

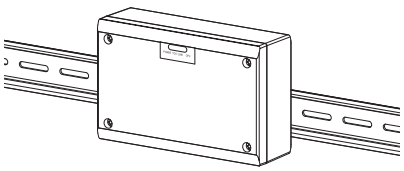
■ BN Interface Installation and Orientation

Install and orient the interface using the DIN rail to mount the unit or wall mount or surface mount it as shown below.
Use the supplied mounting bracket to wall mount or surface mount the interface.

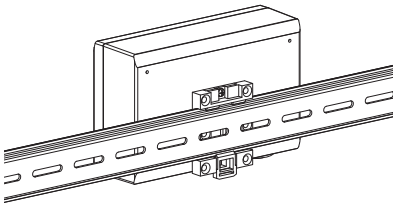
(1) DIN rail mount

Install the interface on DIN rails mounted on a switchboard or elsewhere.

Front view

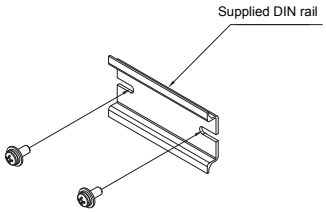


Back view

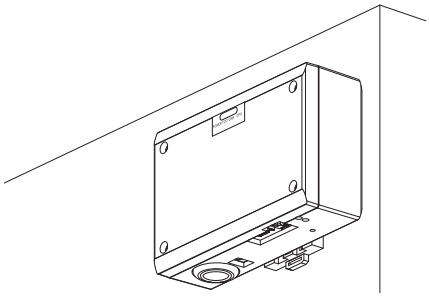


(2) Wall mount

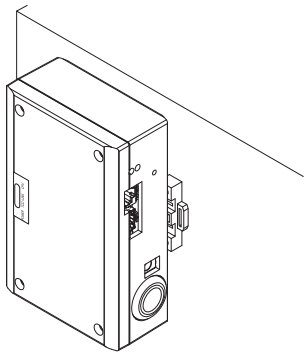
Use screws to attach the supplied DIN rails to a wall and install the interface on the DIN rail.



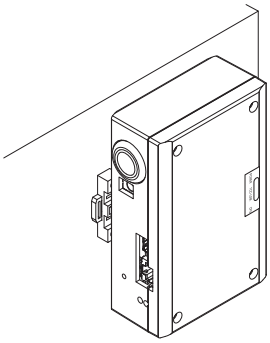
Wall mount A



Wall mount B

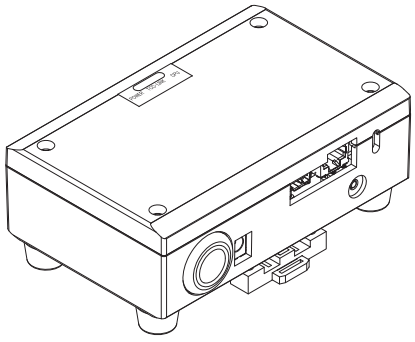


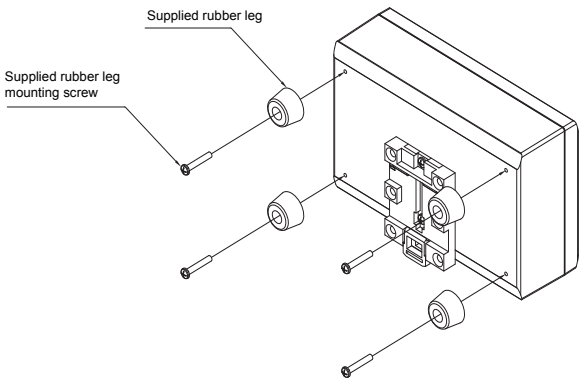
Wall mount C



(3) Surface mount

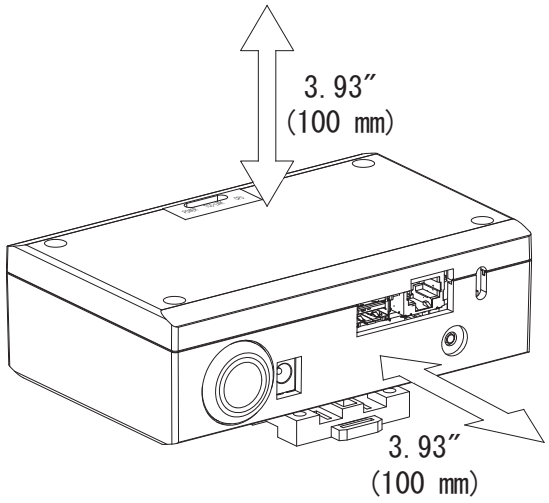
Use screws to secure the supplied rubber legs to the interface before surface mounting it.





■ 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.



2 Power and signal line connections

■ Cables

Use the following cable for signal line connections. (Procured locally)

No.	Line	Description	
1	For TCC-LINK	Type	2-core shielded wires
		Wire size	1.25 mm², 3200 ft (1000 m) max. (total length including air conditioner wiring length)
		Length	2.00 mm², 6500 ft (2000 m) max.
2	For Ethernet®	Type	LAN cable (higher than Category 5, UTP)
			The appropriate use of straight cable/cross cable should be done depending on your system used
		Length	320 ft (100 m) max.

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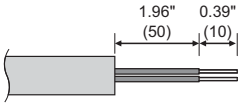
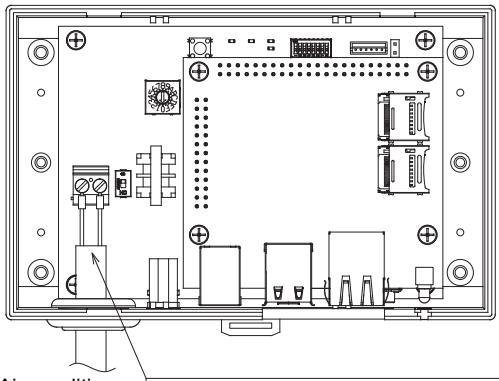
■ Cable Connections

Connect the cables to the specified connectors.

Length of stripped TCC-LINK communication cable

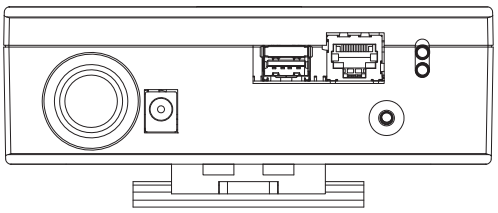


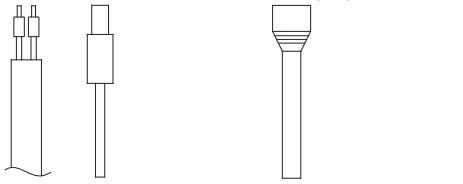
Connect the supplied pin terminal to the TCC-LINK communication cable as necessary.



Air conditioner

The TCC-LINK communication cable must be earthed on the air conditioner.
Do not connect the shield wire to the connector. It should be open and insulated.





Connection of TCC-LINK Communication Cables

Connect the supplied power adapter

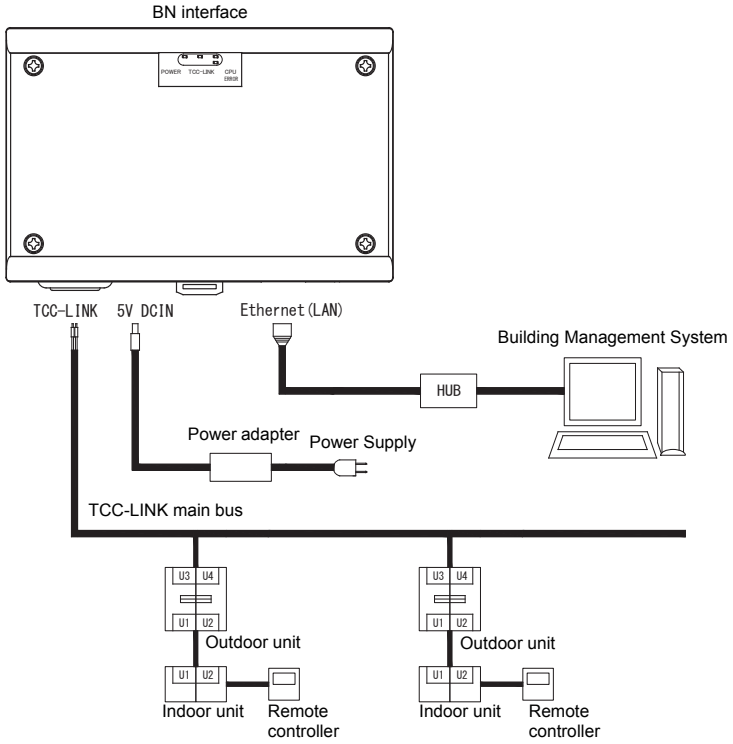
Connect the LAN cable

CAUTION

The TCC-LINK communication cable have no polarity.

* Secure the TCC-LINK communication cable and power cable to the switchboard etc. using the supplied cable tie to ensure that no excess load is placed on the power cable connection and TCC-LINK communication cable connection.

■ Example of System Wiring Connections



3 Settings

3-1. Switch setting

SW300 Not used

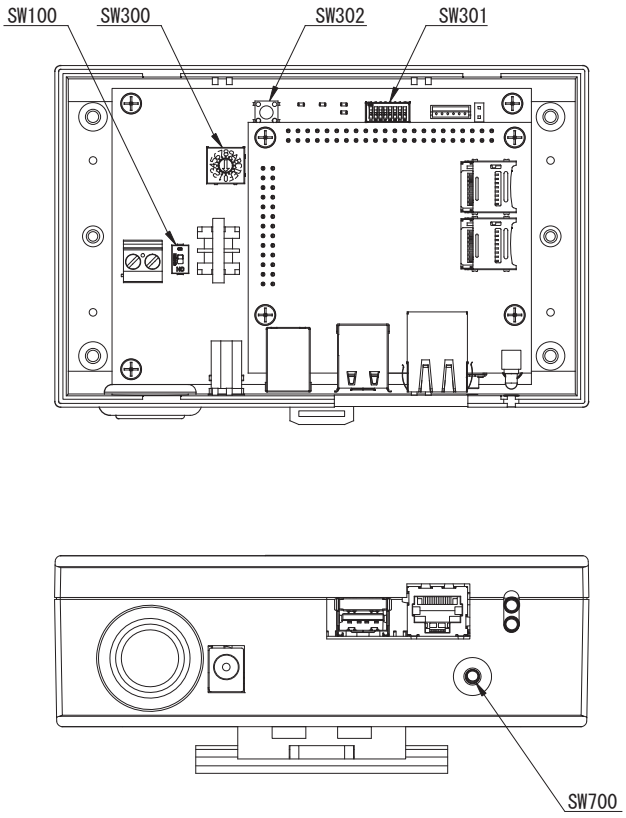
SW301 Test switch
Set all bits to "OFF".

SW302 Test button
Not used during normal operation.

SW100 TCC-LINK terminator resistor setting switch
Set the TCC-LINK terminator resistor on the air conditioner side. Set SW100 to "OFF".

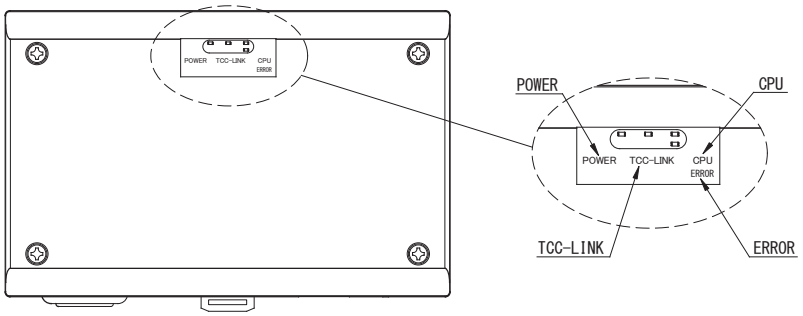
SW700 Shutdown function / air-conditioning search mode function button
Use this button to stop BACnet process and network process of the BN interface or to start up in the air-conditioning search mode. Note that button operation changes depending on how long it is depressed.

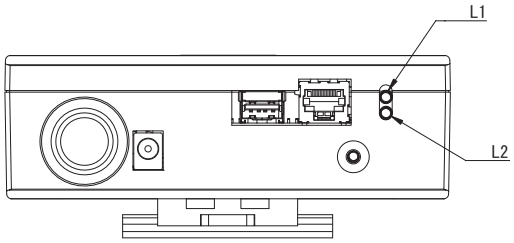
Time duration button is depressed	Operation
Less than 4 seconds	Stop BACnet process and network process of the BN interface.
4 seconds or more	Starts air-conditioning in the air-conditioning search mode. Use the air-conditioning search mode to set up equipment data in the indoor unit.



3-2. LED

LED	LED color	Use
POWER	Red	Power indicator
TCC-LINK	Orange	TCC-LINK communication status indicator
ERROR	Red	TCC-LINK communication error indicator
CPU	Green	Communication status indicator in the BN interface
L1	Green	BACnet communication status indicator
L2	Red	BACnet communication status indicator, setting error indicator





4 Factory default settings

No.	Item	Factory default setting
1	IP address	IP address 192.168.1.100 Subnet mask 255.255.255.0
2	UDP port	47808 (0xBAC0)
3	Device object instance number	100
4	Address setting switch	1
5	Test switch	All OFF
6	TCC-LINK terminator resistor select switch	OFF

5 Test run

To perform test run of the BN interface, BACnet communication settings and the equipment data of the connected indoor units are required.

5-1. BACnet communication settings

Set the IP address of the BN interface and the device object instance number of the BACnet communications. These setting can set from Setting File Creation Software for North America. For details, contact your dealer.

5-2. Setting up equipment data in the indoor unit

Obtain the equipment data of the indoor unit that is controlled by the BN interface from the indoor unit via the TCC-LINK communication cable.

Preparing to set up equipment data in the indoor unit

- Central Control address must be set in the indoor unit you want to control.
  For information on how to set the address, refer to the installation manual of each indoor unit.
- Turn on all indoor and outdoor units. Set up as follows, waiting 10 minutes after turning on all the units.

Setup work

- Turn on the BN interface.
- When 10 minutes has elapsed since turning on the BN interface, hold down the shutdown button for 4 seconds or longer. L1 LED goes on.
- When the BN interface has started up normally, start reading the equipment data of the interface unit. During this operation L1 LED will be on while L2 LED will be blinking on the BN interface.
- When reading of equipment data in the indoor unit ends normally, the BN interface will automatically start preparing for BACnet communication. L1 LED on the BN interface is blinking.
- When the preparations for BACnet communications end normally, L1 LED and L2 LED of the BN interface will start blinking.
- If an error occurs during reading of equipment data from the indoor unit or when preparing for BACnet communications, L1 LED and L2 LED of the BN interface will go on.
  Determining the cause of such an error will require the use of engineering tools. For details, contact your dealer.

5-3. Cause of problem occurring during setup

Cause of problem	Cause	Action
The indoor unit cannot be found.	The indoor and outdoor units have not been turned on.	Make sure that indoor and outdoor units are turned on.
	The indoor and outdoor units are being initialized and it is not possible to communicate with them. TCC-LINK LED does not blink at all	Make sure that indoor and outdoor units are turned on. Make sure they have been on for at least 10 minutes.
	The TCC-LINK cables have been incorrectly connected.	Connect the cables correctly.
	The centralized control address has not been set in the indoor units.	Make sure that the centralized control address has been set in the indoor units.
The central control address set in the indoor units are not unique.	The same centralized control address has been set in a number of indoor units.	Make sure that the centralized control address has been correctly set in the indoor units.

6 Turning off the BN interface

Press the shutdown button, then wait 5 minutes before turning it off.

CAUTION

As the air-conditioning search mode will be engaged if the shutdown button is pressed for 4 seconds or longer, do not hold down the button.

TOSHIBA CARRIER CORPORATION
336 TADEHARA, FUJI-SHI, SHIZUOKA-KEN 416-8521 JAPAN

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