

TOSHIBA

DYNA-KIT

Owner's Manual

COMMUNICATION ADAPTER

Model name:

TCB-DK01SS-E

[Important]

- Install the dedicated USB driver in PC which Dyna-kit will be connected to before start using Dyna-kit. For the further details, refer to "7 USB DRIVER INSTALLATION" on page 9 of the Owner's Manual.

[For service engineer]

- Thank you very much for purchasing this TOSHIBA DYNA-KIT.
- Please read this Owner's manual carefully before using DYNA-KIT.
- Keep this Owner's Manual at accessible place for future reference.

[Important]

- Install the dedicated USB driver in PC which Dyna-kit will be connected to before start using Dyna-kit. For the further details, refer to "7 USB DRIVER INSTALLATION" on page 9 of the Owner's Manual.

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PRECAUTIONS FOR SAFETY

- Read these "Precautions for Safety" carefully before installation.
- The precautions described below include important items regarding safety. Observe them without fail. Understand the following details (indications and symbols) before reading the body text, and follow the instructions.
- Keep this Owner's Manual at accessible place for future reference.

Indication	Meaning of Indication
 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.

Symbols	Meaning of Symbols
	<p>“” Indicates prohibited items. The actual contents of the prohibition are indicated by a picture or text placed inside or next to the graphic symbol.</p>
	<p>“” Indicates compulsory (mandatory) items. The actual contents of the obligation indicated by a picture or text placed inside or next to the graphic symbol.</p>

 **WARNING**


- **Only qualified professional must handle this product.**
Inappropriate handling may result in electric shock or fire.
- **Use this kit as it is stored in the connected air conditioner unit.**
Hazardous voltage may be ingenerated in the DYNA-KIT by connecting to air conditioner unit.(There is a risk of electrical shock)
Confirm that power supply of the air conditioner unit is turned off before connect the kit to the air conditioner unit.
Confirm that the electric voltage of charger is sufficiently decreased, If the air conditioner unit has a charger for condenser or other parts.
Turn off the power supply of the air conditioner and confirm that the electric voltage of the air conditioner unit is sufficiently decreased to remove DYNA-KIT from the air conditioner unit.
- **Do not install this kit where may be high or low temperature or humid. Do not use this kit when atmospheric moisture is condensed in the kit.**
It may cause an electric shock, fire or malfunction
For the operating temperature and humidity range, refer to the specifications.
- **Prevent any dust, foreign substances or moisture from getting inside when carrying or storing this kit.**
It may cause an electric shock, fire or malfunction.
- **This is a class A product.**
In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.



- **Do not modify the unit.**
A fire or an electric shock may occur.

 **CAUTION**


- **Do not install this kit where flammable gas may leak.**
If gas leaks and accumulates around the kit, it may cause a fire.



- **Use predefined cable and connect them certainly. Keep the connecting terminal free from external force.**
It may cause an exothermic or a fire.

1 APPLICATION

DYNA-KIT is used to malfunction diagnosis and operation check of TOSHIBA air conditioner units.

2 FUNCTION

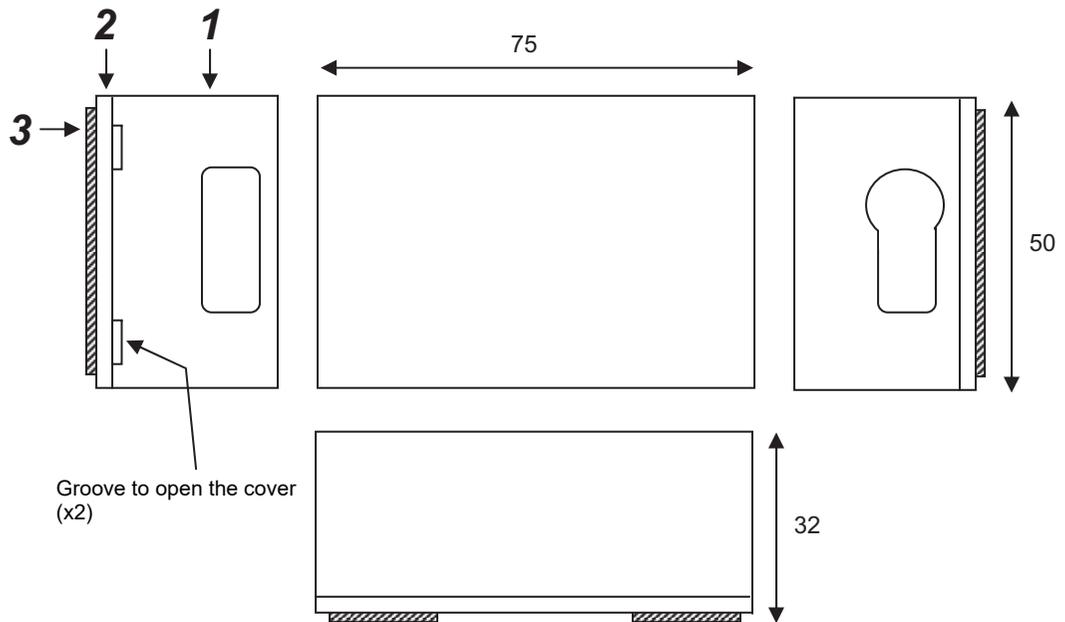
DYNA-KIT converts communication signal from air conditioner unit into communication signal for PC.

3 SPECIFICATION

Part	Unit
Power source	DC 5 V (USB connector)
Current	100 mA
Power	500 mW
Operating temperature range	-25°C to 60°C, less than 85%RH (without dew)
Restore temperature range	-25°C to 60°C
Chassis material	ABS 2.0 t
Dimension	(W) 50 x (H) 32 x (D)75 mm
Weight	approx. 85 g
Conformable operating system of personal computer	Microsoft® Windows® 10 operating system Microsoft® Windows® 11 operating system

- “Windows 10” and “Windows 11” are trademarks or registered trademarks of Microsoft Corporation in the United States and in other countries.
- All company names and product names appearing in this manual are trademarks or registered trademarks of their respective holders.

4 DIMENSIONAL DRAWING



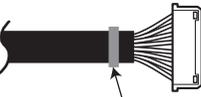
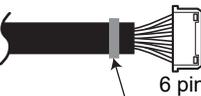
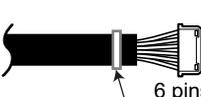
	Name	Specification
1	Chassis	Flame-resistant ABS (UL94V-0)
2	Cover	Flame-resistant ABS (UL94V-0)
3	Magnet	Ferrite

5 ACCESSORY PARTS

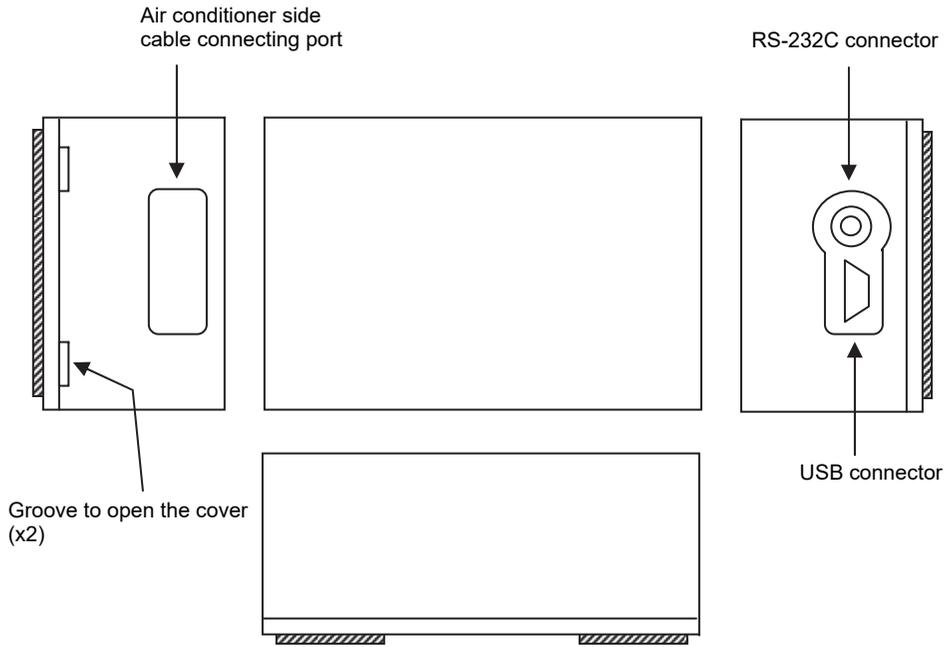
Confirm that all the parts listed below are included in the package before start using the kit.

No.	Parts name	Quantity	Remarks
1	DYNA-KIT	1	
2	Connecting cable A for air conditioner side.	1	For parallel, 8 pins (Molex Micro-Latch)
3	Connecting cable B for air conditioner side.	1	For serial, 6 pins (Molex Micro-Latch)
4	Connecting cable C for air conditioner side.	1	For serial, 6 pins (JST ZH)
5	USB cable	1	5 m
6	CD-R	1	Owner's manual
7	Booklet	1	Precautions for safety Accessory parts list

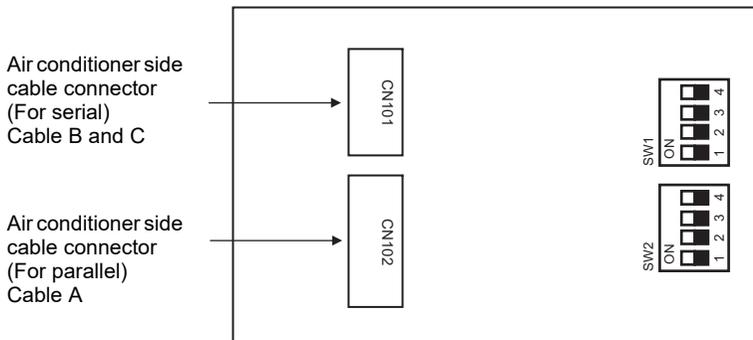
Representative combination example of air conditioner and connecting cable.

Cable type	Appearance		Representative Air conditioner
	DYNA-KIT side	Air conditioner side	
A	 <p>8 pins</p> <p>Cable tie white</p>	 <p>8 pins</p> <p>Cable tie Black</p>	<p>SDI Series (Outdoor unit) (*)</p> <p>DI Series (Outdoor unit) (*)</p> <p>IMS Series (Outdoor unit) (*)</p> <p>Air to Water Heat Pump (Hydro unit)</p> <p>*: Connector type may differ with some models.</p>
B	 <p>6 pins (Large)</p> <p>Cable tie white</p>	 <p>6 pins (Large)</p> <p>Cable tie Black</p>	<p>SDI Series (Outdoor unit) (*)</p> <p>DI Series (Outdoor unit) (*)</p> <p>IMS Series (Outdoor unit) (*)</p> <p>• For Japan</p> <p>SPE Series (Outdoor unit) (*)</p> <p>SME Series (Outdoor unit) (*)</p> <p>*: Connector type may differ with some models.</p>
C	 <p>6 pins (Large)</p> <p>Cable tie white</p>	 <p>6 pins (Small)</p> <p>Cable tie white</p>	<p>MiNi-SMMS (Outdoor unit)</p> <p>SMMS (Outdoor unit)</p> <p>SHRM (Outdoor unit)</p> <p>• For Japan</p> <p>SMMS (Outdoor unit)</p> <p>FLEX (Outdoor unit)</p>

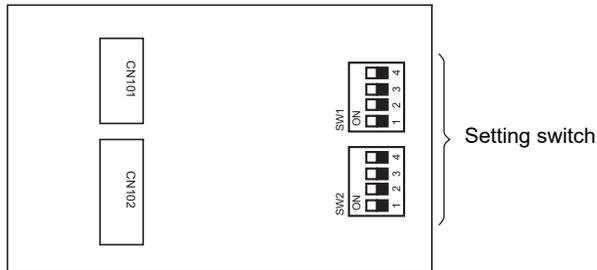
6 CONNECTION AND SETUP



Cable connection to the PC board in the chassis



Setting of the PC board in the chassis



SW1 	[SW1] Operation mode		
	Bit 1	Bit 2	
	OFF	OFF	General mode
	OFF	ON	Reserved (Test mode 1)
	ON	OFF	Reserved
	ON	ON	Reserved
	[SW1] Communication method with air conditioner unit		
	Bit 3		
	OFF	Serial communication	
	ON	Parallel communication	
[SW1] Communication method with PC			
Bit 4			
OFF	USB		
ON	RS-232C		

SW2 	[SW2] Communication baud rate				
	Serial communication (SW1 Bit 3 : OFF)				
	Bit 1	Bit 2	Bit 3	Bit 4	
	OFF	OFF	OFF	OFF	Automatic judgment
	OFF	OFF	OFF	ON	Reserved (2.4k bps)
	OFF	OFF	ON	OFF	Reserved (9.6k bps)
	OFF	OFF	ON	ON	Reserved (19.2k bps)
	OFF	ON	OFF	OFF	Reserved (38.4k bps)
	OFF	ON	OFF	ON	Reserved (115.2k bps)
	OFF	ON	ON	OFF	Reserved (230.4k bps)
	OFF	ON	ON	ON	Reserved (460.8k bps)
	ON	OFF	OFF	OFF	Reserved (921.6k bps)
	Other				Reserved
	Parallel communication (SW1 Bit3 : ON)				
	Bit 1	Bit 2	Bit 3	Bit 4	
OFF	OFF	OFF	OFF	9.6k bps	
Other				Reserved	

SW1 and 2 are all OFF by default.

7 USB DRIVER INSTALLATION

Install the dedicated USB driver when DYNA-KIT is connected to the using PC for the first time.

1. Download a USB driver corresponding to the operating system of using PC from the website of FTDI (Future Technology Devices International Ltd.).
For the installation procedure, refer to the instruction of the website.
address: <http://www.ftdichip.com/Drivers/VCP.htm>
Device Name: FT232R
2. Connect DYNA-KIT and PC with USB cable when PC has started up.
3. Install the downloaded USB driver by following the instructions on PC screen.

8 USAGE

1 Open the DYNA-KIT cover.

Insert flat-blade screwdriver into a groove and push up the cover.

2 Set SW1 and SW2.

Operation mode	Set to "General mode".
Communication method with air conditioner unit	Set to "Serial communication" or "Parallel communication". Serial communication: When the air conditioner side cable connector has "6 pins". Parallel communication: When the air conditioner side cable connector has "8 pins".
Communication method with PC	Set to "USB" or "RS-232C".
Communication baud rate	In general, set all bit of SW2 to "OFF".

3 Put the air conditioner side cable which compliant to the air conditioner unit through the connecting port on the DYNA-KIT case and connect to the CN101 or CN102.

WARNING

Connect either CN101 or CN102 only.
Do not connect any cable to unused connector.
(There is a risk of unit destruction caused by a high voltage short circuit.)

4 Close the DYNA-KIT cover.

5 Connect DYNA-KIT to the air conditioner unit.

WARNING

Hazardous voltage may be ingenerated in the DYNA-KIT by connecting to air conditioner unit. Use this kit as it is stored in the connected air conditioner unit. (There is a risk of electrical shock)
Confirm that power supply of the air conditioner unit is turned off before connect the kit to the air conditioner unit.
Confirm that the electric voltage of charger is sufficiently decreased, If the air conditioner unit has a charger for condenser or other parts.

- 6** Connect only USB cable to DYNA-KIT for USB connection. Connect USB cable and RS-232C cable to DYNA-KIT for RS-232C connection.
- 7** Close the outside panel of the air conditioner unit. Do not turn on the power supply of the air conditioner unit yet.
- 8** Connect the RS-232C cable to PC to use RS-232C connection.
- 9** Boot PC.
- 10** Connect the USB cable to PC to use USB connection.
- 11** Connect the USB cable to PC or commercially-supplied USB - AC adapter to use RS-232C connection.
Supply DC5V power to DYNA-KIT.
- 12** Start up a air conditioner diagnosis software (separately provided for the object air conditioner unit). Turn on the power supply of the air conditioner.

 **WARNING**

Turn off the power supply of the air conditioner and confirm that the electric voltage of the air conditioner unit is sufficiently decreased to remove DYNA-KIT from the air conditioner unit.
(There is a risk of unit destruction caused by a high voltage short circuit.)

Carrier Japan Corporation