

Controls

Toshiba offers different control solutions to meet end users' and designers' expectations. From local individual control and settings to computer-based TCC-Link network, all indoor units can be programmed and set to suit the operational needs. Remote control systems offer a wide range of features including schedule timers, diagnostic functions, power meter, input/output signals, to name a few.

Toshiba offers a number of local control products that can be used to control a single indoor unit, or group of up to 8 indoor units, from a position adjacent to that indoor unit or group.

It is possible to install these local controllers up to 500 m from the connected indoor unit which allows greater flexibility when designing the installation. This also provides the opportunity to install the local controller in an area removed from the connected indoor unit, for example, common use areas where the indoor unit operation should not be changed by local users but may need to be monitored by a site engineer from a Control Room.

There are two different types of Local Remote Controller currently available from Toshiba, these are:

- The Wired Remote Controller which is the standard local control device suitable for most applications, and
- The Wireless Remote Controller which consists of a universal handset that can be purchased with a choice of 4 different wireless receiver units that are specifically designed to suit different indoor unit model types.



CONTROLS

Local Network and Black Pear

The Local Network

There are three different methods that can be used to connect the Local Control Device to the indoor unit, or group of indoor units.

1-to-1 connection

This method is for the connection of a single Wired Remote Controller, or Wireless Receiver Unit, to a single indoor unit.

Group connection

This method enables the connection of up to 8 indoor units to a single Wired Remote Controller, or Wireless Receiver Unit. In this configuration, up to 8 indoor units can be controlled simultaneously (all indoor units follow the same setting parameters) from a single Local Control Device.

Multiple controller connection

This method enables the connection of up to 2 Local Control Devices (Wireless Receiver Unit or Wired Controller) to a single indoor unit, or a group of up to 8 indoor units. In this configuration, Main/Sub settings must be configured for each of the connected Local Control Devices.



Infra-red



Wired Simplified



Wired Standard

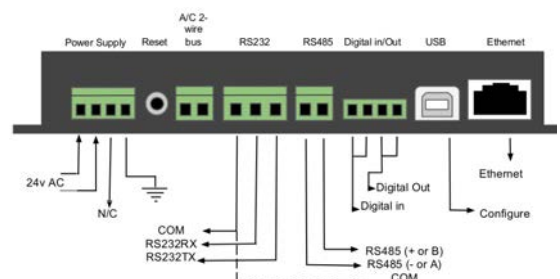


Wired Controller

Black Pear

The Black Pear Toshiba HVAC controller is the most versatile on the market, connecting directly to the 2-wire TCC-Link network and will control RAV 64 groups of up to 8 indoor units per group and VRF up to 64 indoor units.

The integrated LCD display provides an engineer's interface for local control, removing the need for a central controller and separate interface. The result saves time and space, and commissioning is made simple with free USB-based configuration software. The units will operate on systems with or without a central controller and supports Modbus, BACnet or Trend protocols. The device is easily configured to communicate with units in the same way that a standard central controller communicates with connected units. When the controller is powered it scans the entire network for all connected indoor units. The keypad controller can be used to operate all indoor units. This feature is very useful in the event of a BMS failure in providing and enabling continuous communication. The controller can be configured by a PC interface to group units and name zones.



There are 3 models providing different protocol solutions:

- | | |
|----------|---|
| RBC-BPB1 | BACnet/IP |
| RBC-BPM1 | Modbus RTU via RS232/RS485 and Modbus TCP |
| RBC-BPT1 | Trend via Ethernet (requires an IQ3/4 outstation with spare memory) |

CONTROLS

Touch Screen Controller and BACnet

Touch Screen Controller

RBC-TBPTS

Our latest generation Toshiba Touch Screen Controller provides a modern compact approach to management control technology utilising easy-to-use icons and simple intuitive navigation to deliver sophisticated strategies that provide precise control and data analysis.

The Toshiba Touch Screen Controller is simple to install and configure and offers three levels of operation: general user, building manager and engineering - all password-protectable. The Toshiba Touch Screen Controller features a built-in web browser interface, air conditioning status, unit enable and disable, time and alarm management control and fault indication.

TCS Net Relay Interface BMS-IFLSV4E

The Relay Interface connects to the Touch Screen Controller via the RS485 Network using connections A & B. The air conditioning network connects to terminals U1 & U2 (U3 & U4 at the outdoor unit) and a maximum of 64 indoor units may be served. The relay interface requires a 240 V 3 A mains power supply.

BACnet

The BACnet solution allows Toshiba indoor units to be connected to a BACnet over IP-based BMS. The gateway uses all standard BACnet objects for the control and monitoring of each indoor unit. The BACnet solution is intended for use on systems where control of the air conditioning is being carried out by another system that is part of the wider BMS for a large building. BACnet is a standard protocol adopted by many BMS companies as a standard network protocol they support.



Energy-Monitoring Relay Interface BMS-IFWH5E

The Energy-Monitoring Relay Interface connects to the RS485 Network and provides a means of interface to the pulse power meters. Up to eight power meters can be connected to each Relay Interface.

Digital Input/Output Relay Interface BMS-IFDD03E

The D/I module connects to the RS485 Network and provides 8 inputs and 4 outputs, which could be used to interface a fire alarm system or a room occupancy sensor. The D/I module output could be used as a means of remote fault indication to another system.

Intelligent Server BMS-LSV9E

The intelligent server connects to the BACnet system by a network connection, usually to a local hub. The relay interfaces connect to the server by the RS485 Network. Two relay interfaces may be connected, with a maximum of 128 indoor units. The Intelligent Server requires a 240 V 3 A mains supply.

BACnet Software BMS-STBN10E

The BACnet software is contained on a standard Compact Flash Card, which plugs directly into the Intelligent Server.

TCS Net Relay Interface BMS-IFLSV4E

The Relay Interface connects to the Touch Screen Controller via the RS485 Network (A & B connections). The air conditioner network connects to the U1 & U2 connections, with a maximum of 64 indoor units served. The Relay Interface requires a 240 V 3 A mains supply.

CONTROLS

Windows Package and Smart Manager Controller

Windows Package

RBC-WP1-PE

The RBC-WP1-PE is a front-end software package that controls all aspects of the air conditioning systems installed on a site. The software is installed on a PC, which then connects to a TCB-IFLN642TLE LonWorks gateway for connection to the indoor units. The software allows all of the unit's operating parameters to be adjusted from the one PC. It allows faults to be reported and re-transmitted via email, fax or text message. The software can be accessed remotely either by telephone or via the Internet. The software can log data and provide graphical representation of data. It has a schedule built-in for time control and it can also be used to reset set points or modes of operation.

Energy-monitoring software

RBC-EM1-PE

The energy-monitoring software can be included to calculate the running costs of individual indoor units. This data can then be provided in structured bills for the building tenants. This data is calculated from the demand given from the indoor units and the power consumed by the system. The RBC-EM1-PE power meter is required for this function (one for each system).

Smart Manager Controller

Smart Manager Data Analyser

BMS-SM1280ETLE

The Smart Manager is a product that is capable of controlling 128 indoor units from a single location. The device has the facility to set all of the operating parameters for individual or zoned indoor units, whether they are VRF or individual split systems. It is also capable of displaying individual fault codes for any units on the network.

The Smart Manager can be remotely connected via a PC and all functions can be controlled via Internet Explorer. This controller can also be linked to energy-monitoring relay interfaces for the collection of data for energy billing. The controller can also be linked to the digital input/output module for the interface to other systems.

The Smart Manager has some advanced functions for different users which can be configured to give restricted access. The controller has an advanced time clock function to give the building owner flexibility. The controller has a return back function, which returns the unit settings to a predetermined setting after a period of time. All of these functions are accessed via the web interface.

Control of other devices

RBC-DI1-PE

The Digital Input/Output module that is used to control other plant systems. For example, we can enable boilers or other air handling units. The module can accept inputs also; examples would be an input from a fire alarm where the air conditioners are shut down or an input to switch on the air conditioners from an external source.



Energy-Monitoring Relay Interface

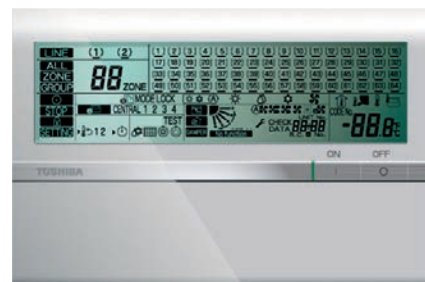
BMS-IFWH5E

The energy-monitoring Relay Interface connects to the RS485 Network and provides a means of interface to the pulse power meters. Up to eight power meters can be connected to each Relay Interface.

Digital Input/Output Relay Interface

BMS-IFDD03E

The D/I module connects to the RS485 Network and provides 8 inputs and 4 outputs, which can be used to interface a fire alarm system or a room occupancy sensor. The D/I module output can be used as a means of remote fault indication to another system.



CONTROLS

LonWorks Gateway and BMS Interface

LonWorks Gateway

LonWorks Gateway TCB-IFLN642TLE

The LonWorks Gateway is a device that allows the Toshiba indoor units to be connected to a LonWorks-based BMS. The gateway uses all standard network variables contained in individual function blocks for each indoor unit. The gateway can communicate with up to 64 indoor units on a U1/U2 Network. The device is used to connect to a LonWorks Network, with which many BMS companies are able to communicate (open network protocol).

All of the data for each indoor unit is available on the LonWorks Network; there are twenty-nine standard network variables for each indoor unit, all of which are available on the gateway.

The gateway connects to the air conditioner network via the U1 & U2 connections, with a maximum of 64 indoor units served. The gateway requires a 240 V 3 A mains supply.



BMS Interface

BMS Interface RBC-TS11

The RBC-TS11 is a versatile interface for Toshiba air conditioning units, offering a wide range of external control facilities.

The unit attaches to the TCC-NET A/B network. It is network powered and may be used with or without a remote controller being present.

Up to eight indoor units may be monitored and controlled as a group by a single RBC-TS11.

Hardware Interface:

Six analogue control inputs selectable as resistance or 0-10 V DC. Two relay outputs for 'Run' and 'Error' rated 24 V 0.1 A.

Serial Interface:

RS485 serial Modbus connection with slave addresses from 1 to 254 and configurable baud rates and parity. Modbus may be used for monitoring and control or to allow the operation of up to sixteen units in a 'Master/Slave' configuration.



Operating Modes:

Several modes of operation are available including special modes for energy saving and hotel applications. Modes are selected by a link and bit switches.








Available modes:

1. Standard operation with the facility to interconnect up to 16 units as a 'Master/Slave' group
2. As (1) for VN units
3. Preset mode operation
4. Local/Restore mode
5. Duty/Standby operation
6. Eco-1 (Timed Fan)
7. Eco-2 (Fan Band)
8. Hotel mode
9. AHU mode





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Remote controllers for use with RAV and VRF indoor units

Wired Remote Controller

Accessory	RBC-AMT32E	RBC-AMS41E	RBC-AMS55E-ES	NRC-01HE	RBC-AS41E	RBC-ASC11E	RBC-MTSC1
							
ON/OFF	✓	✓	✓	✓	✓	✓	✓
Mode	✓	✓	✓	✓	-	✓	✓* [Note 12]
Setting Temperature	✓	✓	✓	✓	✓	✓	✓
Fan Speed	✓	✓	✓	✓	✓	✓	✓
Timer Function	✓	✓	✓	✓	-	✓	-
Schedule Function	-	✓	✓	-	-	-	-
Multi language	-	-	✓	-	-	✓	-
Energy Save Function	✓	✓	✓	✓	-	-	-
Filter dirty indicator	✓	✓	✓	✓	✓	✓	-
Error Display	✓	✓	✓	✓	✓	✓	✓
Dual automatic mode	-	-	✓	-	-	-	-
Soft cooling	-	-	✓	-	-	-	-

Wireless Remote Controller

Accessory	RBC-AX32U(W/WS)-E	RBC-AX33CE	TCB-AX32E2	RBC-AX32UW(W)-E
				
ON/OFF	✓	✓	✓	✓
Mode	✓	✓	✓	✓
Setting Temperature	✓	✓	✓	✓
Fan Speed	✓	✓	✓	✓
Timer Function	✓	✓	✓	✓
Schedule Function	-	-	-	-
Multi language	-	-	-	-
Energy Save Function	-	-	-	-
Filter dirty indicator	-	-	-	-
Error Display	✓ (*)	✓ (*)	✓ (*)	✓ (*)
Dual automatic mode	-	-	-	-
Soft cooling	-	-	-	-

(*):The error indication is displayed with LED of the receiver unit

Notes for comparison table opposite:

[Note 1] Not provided on the high-static ducted unit.

[Note 2] On the high-static ducted unit, high only displayed and no selection.

[Note 3] No function for standard ducted unit, high-static ducted unit, floor-standing cabinet unit, floor-standing concealed unit and slim ducted unit.

[Note 4] SHRM-e only except DI/SDI.

[Note 5] • DN code 32 setting is necessary for remote controller sensor.

• Be careful that the surrounding air flow of the remote temperature sensor is not poor.

• When using 2 remote controllers, the Header controller is recognized as remote sensor although the temperature can be set from either Header or Follower remote controller.

• Do not use remote sensor in case of group control except DI/SDI.

[Note 6] Select the remote sensor switch on the controller.

[Note 7] Wireless type max. 6 address setting. The address switch position on both receiver and controller shall be selected.

[Note 8] The actual functions depend on the air conditioner.

[Note 9] Another 200 m for indoor to indoor wiring.

[Note 10] SDI units operating with R32 only.

[Note 11] For settings, refer to the installation manual of RBC-AMS55E-ES.

[Note 12] Configurable for multiple screen background setting. Use CN61 connection to set back for energy saving for unoccupied space (✓* preliminary data).



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Controller Comparison Table



Wired Remote Controller

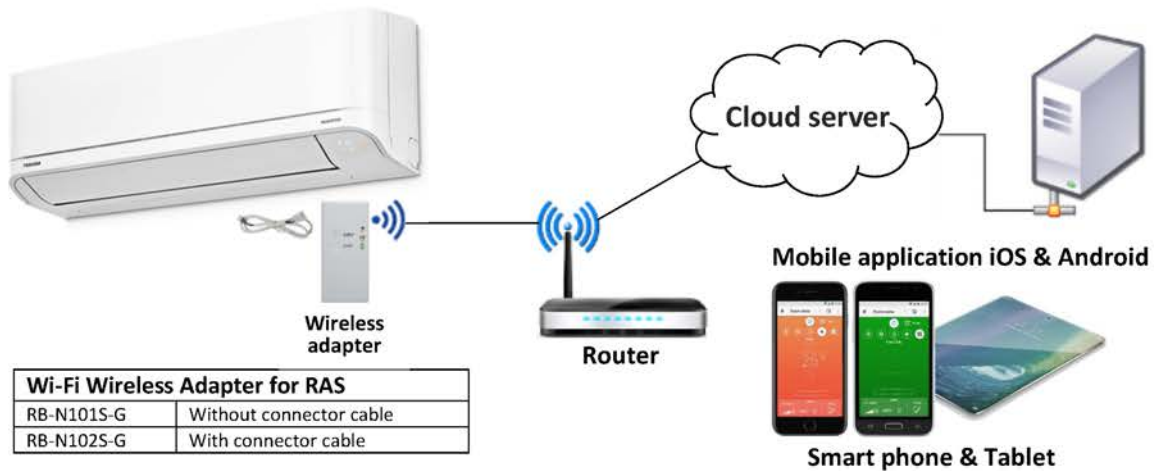
Accessory	RBC-AMT32E	RBC-AMS41E	RBC-AMS55E-ES	NRC-01HE	RBC-AS41E	RBC-ASC11E	RBC-MTSC1
Type	Standard	With schedule timer	With LCD display and backlight	Air-to-air heat exchanger with DX coil unit	Simple wired remote controller	Compact simple wired remote controller	Compact simple wired touch screen controller
Dimensions	120 x 120 x 16 mm	120 x 120 x 16 mm	120 x 120 x 20 mm	120 x 120 x 16 mm	120 x 70 x 16 mm	86 x 86 x 16 mm	141 x 74 x 15 mm
Installation Place	Wall	Wall	Wall	Wall	Wall	Wall	Wall
Max. Wired Length [Note 9]	500 m	500 m	500 m	500 m	500 m	500 m	500 m
ON/OFF	✓	✓	✓	✓	✓	✓	✓
Mode	Auto [Note 4]	✓	✓	✓	✓	✓	✓
	Cool	✓	✓	✓	✓	✓	✓
	Heat	✓	✓	✓	✓	✓	✓
	Dry [Note 1]	✓	✓	✓	✓	✓	✓
	Fan	✓	✓	✓	✓	✓	✓
Temperature Setting Range	Auto [Note 4]	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C
	Cool	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C
	Heat	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C
	Dry [Note 1]	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C	18-29°C
Fan Auto/Low/Med/High [Note 2]	✓	✓	✓	✓	✓	✓	✓
Louvre Position [Note 3]	✓	✓	✓	✓	✓	✓	✓
Ventilation Control	✓	✓	✓	✓	✓	✓	✓
Filter Sign/Reset	✓	✓	✓	✓	✓	-	-
Return Back	-	-	✓	✓	-	-	-
Power Save [Note 8]	✓	✓	✓	✓	-	-	-
Individual louvre [Note 8]	-	-	-	-	-	-	-
Frost protection (heating at 8°C) [Note 8]	✓	✓	✓	✓	-	-	-
Self-cleaning mode [Note 8]	-	-	-	-	-	-	-
Energy Monitoring	-	-	✓ [Note 10]	-	-	-	-
Clock	-	✓	✓	-	-	-	-
ECO/HI-POWER/MEMO/AUTO	-	-	-	-	-	-	-
Grille Up/Down [Note 8]	-	✓	✓	✓	-	-	-
Function Setting (DN Code)	✓	✓	✓	✓	-	-	✓
Temperature Sensor [Note. 5]	✓	✓	✓	✓	✓ [Note 6]	✓ [Note 6]	✓* [Note. 12]
Header/Follower	Header	✓	✓	✓	✓	✓	✓* [Note. 12]
	Follower	✓	✓	✓	✓	✓	✓* [Note. 12]
Multiple Control [Note 7]	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 1 indoor
Timer	Off/repeat off/on	Off/repeat off/on	Off/repeat off/on	Off/repeat off/on	-	Only Off	-
Weekly Schedule	-	✓ 7-day timer, 8 functions for each day of the week	✓ 8 programs/day, holiday setting, 3 patterns	-	-	-	-
Connectivity to Schedule Timer (TCB-EXS21TLE)	✓	-	-	✓	-	-	-
Error Output	✓	✓	✓	✓	✓	✓	✓
Error History	✓ 4 history	✓ 4 history	✓ 10 history	✓ 4 history	-	-	-
Air-to-Air Heat Exchanger With DX Coil Unit	ON/OFF	✓	✓	✓ [Note 11]	-	-	-
	Mode	-	-	✓ [Note 11]	-	-	-
	Fan Speed	-	-	✓ [Note 11]	-	-	-

Wireless Remote Controller

Accessory	RBC-AX32U(W)-E (WH-L11SE)	RBC-AX33CE (WH-L11SE)	TCB-AX32E2 (WH-L11SE)	RBC-AX32U(W)-E (WH-L11SE)	WH-L11SE	WH-H2UE
Indoor Type	For 4-way air discharge cassette	For under-ceiling and 1-way air discharge cassette (SH)	For compact 4-way cassette, 1-way air discharge cassette (YH), concealed duct standard, slim duct floor-standing cabinet, floor standing	For 2-way air discharge cassette	For high-wall 3 series (VRF), high-wall 6 series (LC), console	For high-wall 4 series (VRF)
Dimension	Handset	157 x 56 x 19 mm	157 x 56 x 19 mm	157 x 56 x 19 mm	157 x 56 x 19 mm	56 x 150 x 19 mm
	Receiver	163 x 163 x 24 mm	130 x 65 mm	120 x 70 x 18.2 mm	162 x 65 mm	Receiver included
Installation Place	Inside indoor (receiver)	Inside indoor (receiver)	Wall (receiver)	Inside indoor (receiver)	-	-
Max. Wired Length [Note 9]	400 m	400 m	400 m	400 m	-	-
ON/OFF	✓	✓	✓	✓	✓	✓
Mode	Auto [Note 4]	✓	✓	✓	✓	✓
	Cool	✓	✓	✓	✓	✓
	Heat	✓	✓	✓	✓	✓
	Dry [Note 1]	✓	✓	✓	✓	✓
	Fan	✓	✓	✓	✓	✓
Temperature Setting Range	Auto [Note 4]	17-30°C	17-30°C	17-30°C	17-30°C	17-30°C
	Cool	17-30°C	17-30°C	17-30°C	18-30°C	17-30°C
	Heat	17-30°C	17-30°C	17-30°C	16-30°C	17-30°C
	Dry [Note.1]	17-30°C	17-30°C	17-30°C	18-30°C	17-30°C
Fan Auto/Low/Med/High [Note 2]	✓	✓	✓	✓	✓	✓
Louvre Position [Note 3]	✓	✓	✓	✓	✓	✓
Filter Sign/Reset	-/✓	-/✓	-/✓	-/✓	-/✓	-/✓
Clock	✓	✓	✓	✓	✓	✓
ECO/HI-POWER/MEMO/AUTO	✓	✓	✓	✓	✓	✓
Header/Follower	Header	✓	✓	✓	✓	✓
	Follower	✓	✓	✓	✓	✓
Multiple Control [Note 7]	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	Max. 2/1 indoor or 1 group	One wireless only
Timer	Off/on/on-off/daily	Off/on/on-off/daily	Off/on/on-off/daily	Off/on/on-off/daily	Off/on/on-off/daily	Off/on/on-off/daily
Error Output	✓ LED on receiver	✓ LED on receiver	✓ LED on receiver	✓ LED on receiver	✓ LED on receiver	-

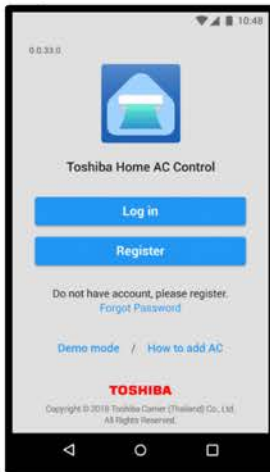
CONTROLS

New Toshiba Home AC Control

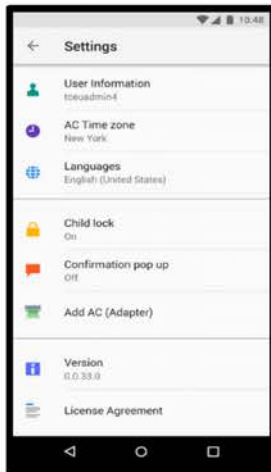


Users can download the mobile application from App Store or Google Play with the name "Toshiba Home AC Control". Apps will be available from end of November 2018.

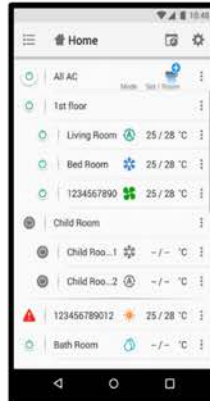
Login



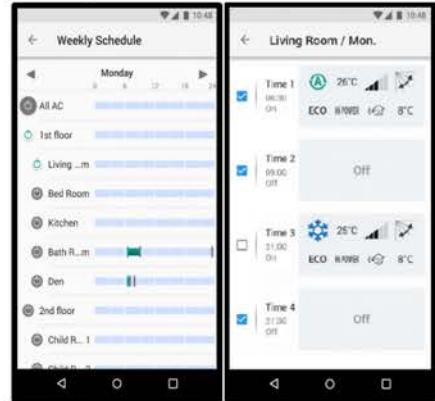
Settings



Home



Weekly Schedule



Operation Mode (Auto, Cool, Heat, Fan Only, Dry Off)



Wireless Adapter Specification		
Dimensions L x W x H	(mm)	110 x 50 x 15.5
Cable connector length	(mm)	650 (used with RB-N102S-G only)
Weight	(kg)	0.05
Operating temperature	(°C)	0 to +40
Power input	(DC v)	5
Power consumption	(watts)	0.05
Casing		High Impact Polystyrene UL94-HB
Wi-Fi Bands	(GHz)	2.4
Radio Protocol	(IEEE)	802.11b/g/n/d/e/i
Control and Connection		
Number of AC units per wireless adapter		1
Number of users per wireless adapter		5
Maximum number of AC units per user		10
Maximum number of groups/zones		3

TOSHIBA

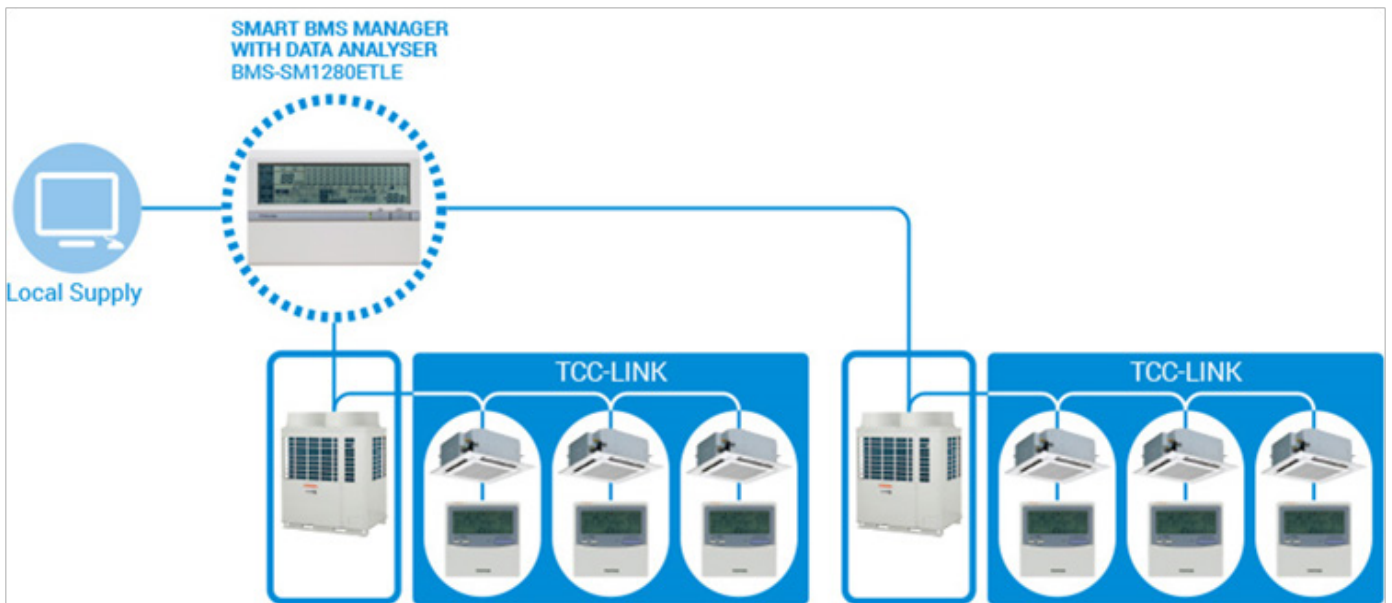
CONTROLS

Network Controls

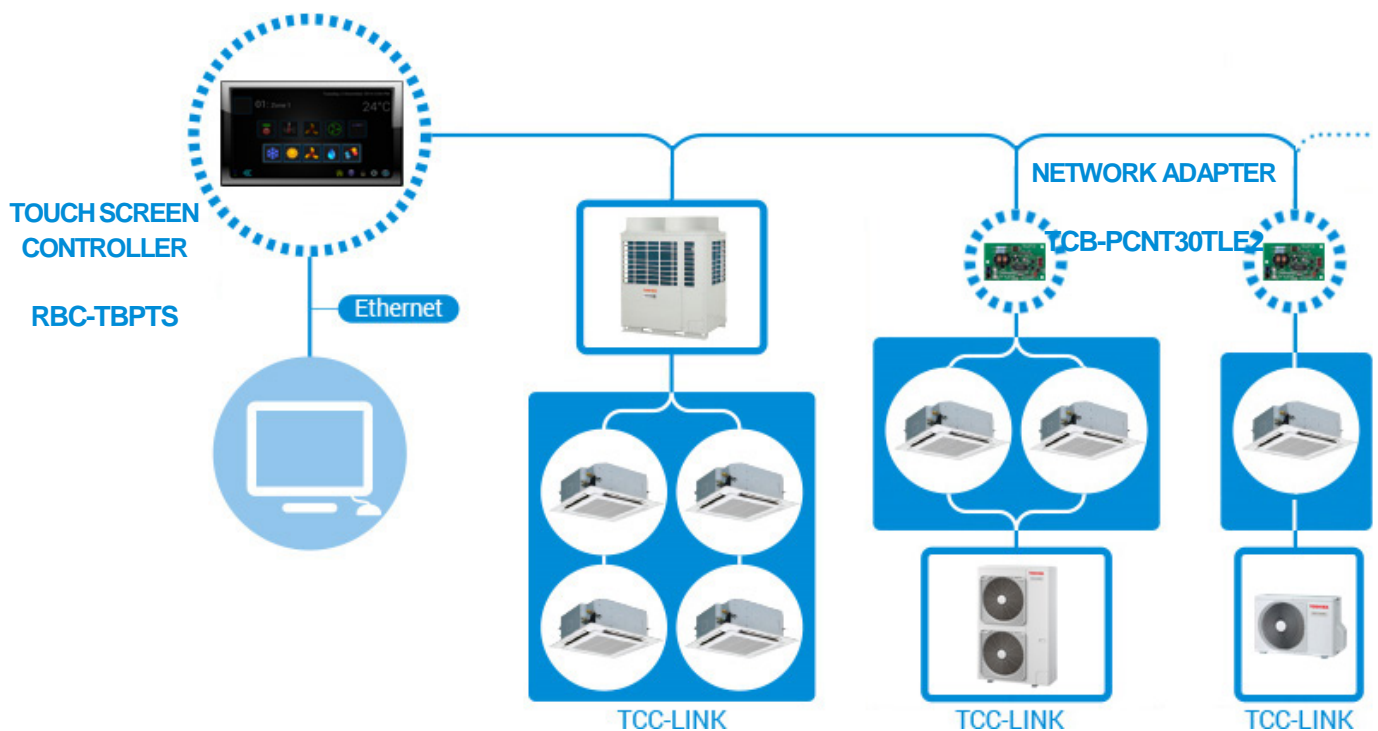
Toshiba offers a wide range of centralised network control solutions for a diverse range of building environmental management needs, such as remote network control, energy monitoring, report generation, advanced scheduling and others. What's more, comprehensive interface solutions provide easy installation and integration with leading building management systems.

Building Management Systems

Smart BMS Manager with Data Analyser



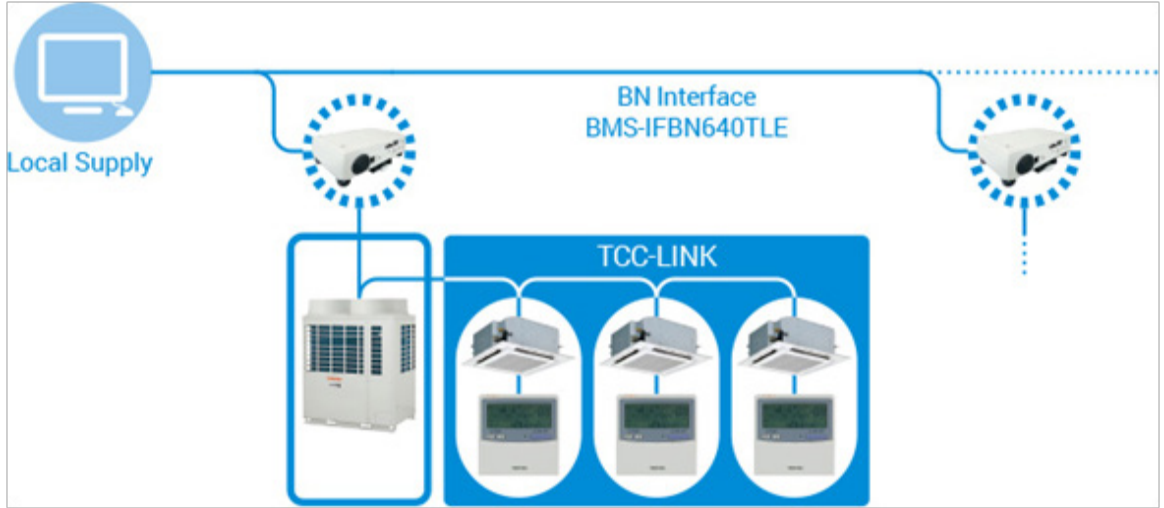
Touch Screen Controller



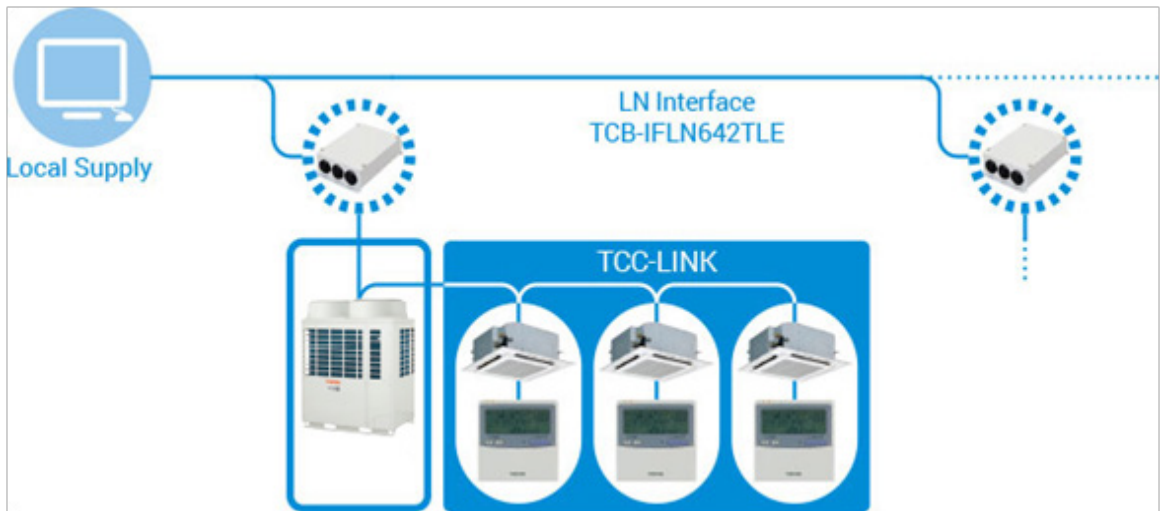
CONTROLS

Open Network Systems

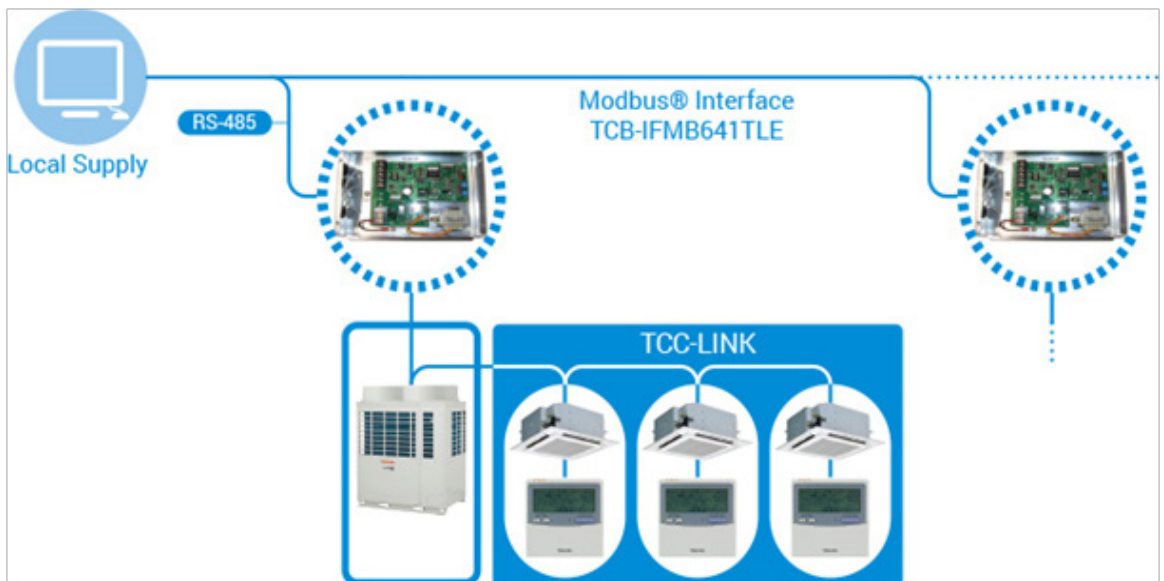
BACnet® System



LonWorks® System

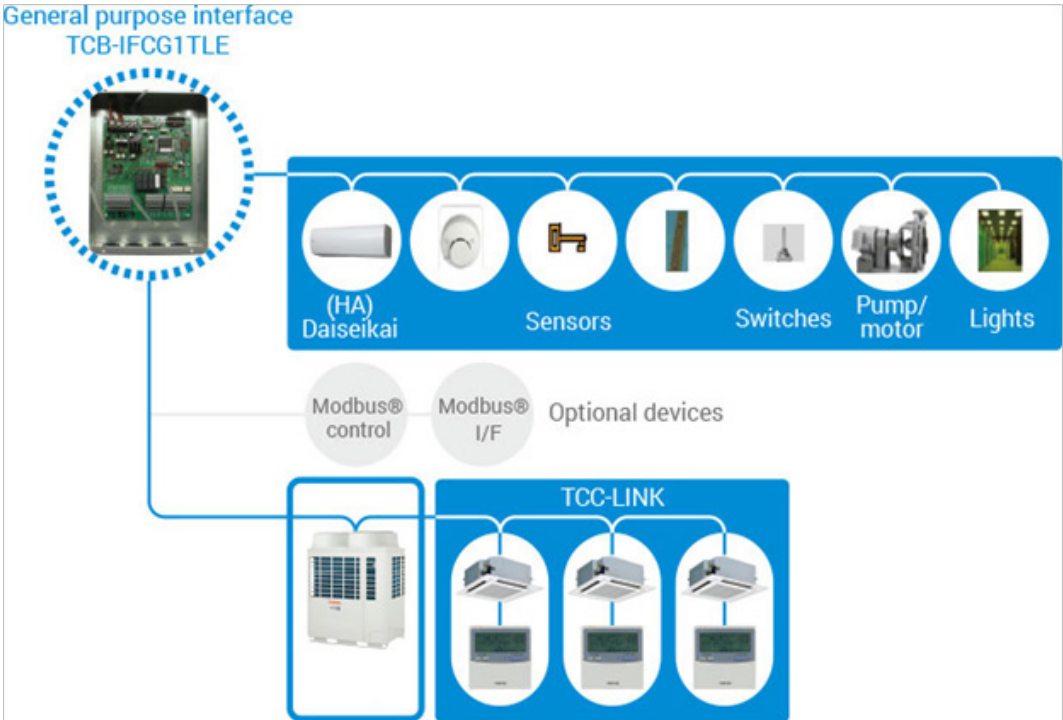


Modbus® System

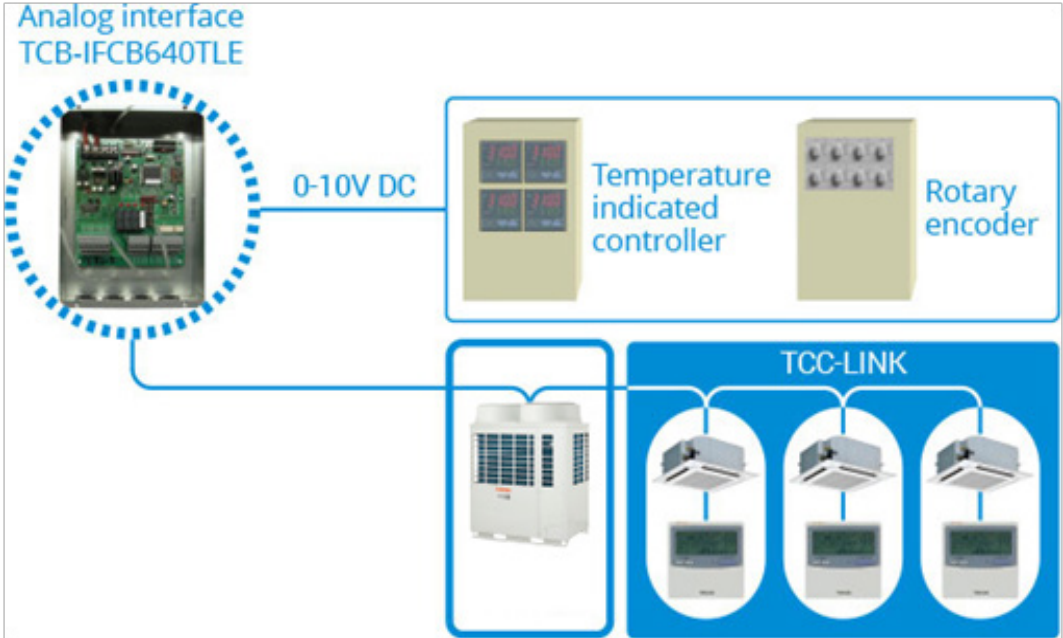


CONTROLS

General Purpose Interface







Analog Interface



CONTROLS





Central Remote Controllers and Schedule Timer

Accessory Type	RBC-TBPTS Touch Screen Control Central Remote Control	BMS-CT280E Touch Screen Control Central Remote Control	BMS-CM1280TLE Compliant Manager/ Central Control	TCB-SC643TLE2 Central Remote Control
				
ON/OFF	✓	✓	✓	✓
Mode	✓	✓	✓	✓
Setting Temperature	✓	✓	✓	✓
Fan Speed	✓	✓	✓	✓
Timer Function	✓	✓	✓ (*2)	✓
Schedule Function	✓	✓	✓ (*2)	✓
Multi-Language	✓	✓	-	-
Energy-Save Function	✓	✓	-	-
Permit/Prohibit Function	✓	✓	✓	✓
Filter Dirty Indicator	✓	✓	✓	✓
Error Display	✓	✓	✓	✓

(*1): Error can be recognized by blink of the button on the remote controller. However, error code is not displayed.

(*2): Schedule timer (TCB-EXS21TLE) needed.




Advanced Central Controllers

Accessory Type	RBC-BPB1 Black Pear BACnet	RBC-BPM1 Black Pear Modbus	RBC-BPT1 Black Pear Trend	BMS-SM1280ETLE Smart BMS Manager with Data Analyser
				
Start/Stop, Mode, Setting Temperature, Fan Speed	✓	✓	✓	✓
Filter Dirty Indicator, Error Display	✓	✓	✓	✓
Permit/Prohibit Function	✓	✓	✓	✓
Schedule Timer Connection	✓	✓	✓	✓
Schedule Function	✓	✓	✓	✓
WEB Connection	✓	✓	✓	✓
Option Interface Connection	-	-	-	✓ (*1)
Energy Monitoring	-	-	-	✓ (*2)
Multi-Language	-	-	-	✓
Demand Function	-	-	-	✓
Error Information Transfer Function by E-mail	✓	✓	✓	-


(*1) Digital I/O Relay Interface only.

(*2) Energy Monitoring Interface needed.

Additional Devices




Model Name	BMS-IFLSV4E	BMS-IFDDO3E	BMS-IFWH5E
Type	Relay Interface	Digital Input/ Output Interface	Energy Monitoring Interface
			
TCC-Link Line	✓ (1 Line)	-	-
Option Interface Connection	-	✓	-
Energy Monitoring	-	-	✓
Digital Input/Output	-	8/4	8/-

Open Network Interface

Accessory Type	TCB-IFLN642TLE LN Interface	
		
Object	Command	Monitoring
ON/OFF Status	✓	✓
Operation Mode	✓	✓
Fan Speed	✓	✓
Louvre	✓	✓
Set Temperature	✓	✓
Filter Dirty Indicator	✓	✓
Room Temperature	-	✓
Permit/Prohibit of Local Operation	✓	✓
Error Status	-	✓
Error Code	-	✓

CONTROLS

Leak Detection and Containment - Panels

Leak Detection Panel		TCB-LD1	TCB-LD2	RBC-RP1
Repeater & Remote Indication Panels				
Standard Rating	IP	50	65	-
Enclosure		FRABS (UL 94-V0 Plastic)	Metal	Metal
Colour		Black	Light grey RAL 7035	Light grey RAL 7035
Height	mm	114	400	500
Width	mm	194	300	400
Depth	mm	62	155	150
Weight	kg	0.7	10	15
Isolating Gas Valve (Supplied Loose)	mm	-	Sold Separately TCB-AW#	-
Isolating Liquid Valve (Supplied Loose)	mm	-	Sold Separately TCB-AW#	-
Isolating Suction Valve (Supplied Loose)	mm	-	Sold Separately TCB-AW#	-
Sensor(s) Type (Supplied Loose)		-	-	-
Interface Cards (Supplied Loose)		-	*1 x TCB-PCMO4E *1 x TCB-PCIN4E	-
*Sold Separately				
Audible Alarm		-	Yes	Yes
Audible Alarm Sound Level	dB	-	80 (2300 Hz ±300)	-
Alarm Mute		-	Yes	Yes
Visual Indicator (Neon)		Alarm	Internal External CDU 7-segment	Live Healthy Alarm
Fault Code Generated To Local Remote Controller		L30	L30 or CDU P15 algorithm	-
Interconnecting Cable Max. Length	m	24	-	100
Interconnecting Cable Type	mm ²	1.00	-	3 core 1.5
Interconnecting Cable Type Remote Indication		-	-	2 core 0.75
Control Circuit Power	Volts	230	24	24
Power Supply	V/ph/Hz	220-240/1/50	220-240/1/50	220-240/1/50
Suggested Fused Supply	A	1	3	6
Interface Card(S) (Required Accessory)		-	-	*RBC-R11
*Max. 4 Circuits				
In Room Detector (Required Accessory)		TCB-LDS1 or TCB-LDS2	*TCB-LDS1/TCB-LDS2	*TCB-LDS1/TCB-LDS2
*Max. 10 per Circuit				

Isolation Valves For TCB-LD2	TCB-	AW17861	AW17862	AW17863	AW17864	AW17865	AW17866	AW17867
Model Series		I	I	I	I	II	II	II
Refrigerant Pipe Connection (In & Out)	inch	1/2	5/8	3/4	7/8	1-1/8	1-3/8	1-5/8
Weight	kg	1	1.08	1.09	1.1	1.41	2.51	3.15
Running Time (Open - Close)	Sec	125	125	125	125	150	150	150
Ambient Operation Limitations	°C	-32 to 55	-32 to 55	-32 to 55	-32 to 55	-32 to 55	-32 to 55	-32 to 55
Ambient Humidity Limitations	rh %	95	95	95	95	95	95	95
Power Consumption	VA	2.3	2.3	2.3	2.3	3	3	3
Operating Voltage	Vac	24 +20% or -15%	24 +20% or -15%	24 +20% or -15%	24 +20% or -15%	24 ±20%	24 ±20%	24 ±20%
Operation Frequency	Hz	50	50	50	50	50	50	50
IP Rating	IP	54	54	54	54	54	54	54
Model Group Cyclemaster		Actuated Ball Valves	Actuated Ball Valves	Actuated Ball Valves	Actuated Ball Valves	Actuated Ball Valves	Actuated Ball Valves	Actuated Ball Valves
Refrigerant Function (Gas & Liquid)		Isolation Pipework	Isolation Pipework	Isolation Pipework	Isolation Pipework	Isolation Pipework	Isolation Pipework	Isolation Pipework

CONTROLS

Leak Detection and Containment - Repeaters

Repeater & Remote Indication Panels		RBC-AIP1	RBC-AIP2	RBC-AIP3	RBC-AIP4	RBC-RI1
Leak Detection Room Indicator						
Refrigerant Leak Detector						
						
Enclosure		Metal	Metal	Metal	Plastic	Plastic
Colour		Light grey RAL 7035	Light grey RAL 7035	Light grey RAL 7035	White	White
Colour Cost Option Upgrade	Various	-	-	-	Fascia Plate	Fascia Plate
Height	mm	500	500	500	92	92
Width	mm	400	400	400	92	92
Depth	mm	150	150	150	60	60
Weight	kg	15	15	15	0.2	0.2
Audible Alarm		Yes	Yes	Yes	Yes	Yes
Audible Alarm Sound Level	dB	-	-	-	95 (3400 Hz ±500)	95 (3400 Hz ±500)
Alarm Mute		Yes (Key Switch)	Yes (Key Switch) & Remote	Yes (Key Switch)	Mute Button/Powered OFF	Mute Button/Powered OFF
Visual Indicator (Neon)		Live Healthy Alarm	Live Healthy Alarm	Live Healthy Alarm	Yes	Yes
Interconnecting Cable Max. Length	m	100	100	3	100	100
Interconnecting Cable Type	mm ²	3 core 1.5	3 core 1.5	USB	3 core 1.5	3 core 1.5
Interconnecting Cable Type Remote Indication		-	2 core 0.75	-	-	-
Control Circuit Power	Volts	24	24	24	24 (via RP1)	24 (via RP1)
Power Supply	V/ph/Hz	220-240/1/50	220-240/1/50	Battery Back-up	-	-
Suggested Fused Supply	A	6	6	-	(via RP1)	(via RP1)
Interface Card(S) (Required Accessory) *Max. 4 Circuits		inc. RBC-DI1	inc. RBC-DI1	-	-	-
On-site Commissioning Support		-	-	Half Day Included	-	-

CONTROLS

Leak Detection and Containment - Detectors

Refrigerant Leak Detector		TCB-LDS1	TCB-LDS2
			
Enclosure		Plastic	Steel
Colour		White	Stainless
Colour Cost Option Upgrade	Various	Fascia Plate	Fascia Plate
Height	mm	85	85
Width	mm	85	85
Depth	mm	32	32
Weight	kg	0.085	0.085
Audible Alarm		Yes	Yes
Audible Alarm Sound Level	dB	85 (2300 Hz ±300)	85 (2300 Hz ±300)
Alarm Mute		Powered OFF	Powered OFF
Visual Indicator (Neon)		3-coloured LED	3-coloured LED
Fault Code Generated To Local Remote Controller		L30	L30
Interconnecting Multi-core Cable Length/Fused	m	10/Yes	10/Yes
Interconnecting Cable Type Remote Indication	mm ²	0.75 multi-core	0.75 multi-core
Power Supply	volts	12-24 AC/DC	12-24 AC/DC
Power Consumption Min./Max.	mA	40/100	40/100
Circuit Protection Fuse Supplied With Cable	mA	125	125
Cable Link For Remote ON/OFF (Ving Card)		Yes	Yes
Screw Terminal Connections		5	5
Fail Safe Relay Operation		Yes	Yes
Mounting Height Above Floor Level	mm	150-250	150-250
Fixing Box Part Number (Sold Separately)		TCB-LDSBB1	TCB-LDSBB2
Fixing Method - (Type)		Flush dry lining - (Plastic)	Flush mount - (Metal)
Fixing Box Size H x W x D	mm	86 x 86 x 46	68.3 x 68.3 x 47
12 Volt Transformer Location		Remote	Remote

CONTROLS

MODBUS® RTU

Reliable and easy to use



TCB-IFMB641TLE

Directly connects up to 64 Toshiba Air Conditioning indoor units and up to 16 outdoor units to a Modbus® Building Management System. Maximum 15 Modbus I/F can be connected per Modbus Master Device.

Individual gateway



BMS-IFMBOTLR-E (RAV/VRF)
BMS-IFMBOAWR-E (Estia)

Connect easily one indoor unit or a group of 8 indoor units to a Modbus Building Management Control System.

LONWORKS®

12 input network variables



TCB-IFLN642TLE

Directly connect up to 64 Toshiba Air Conditioning indoor units and 16 up to 16 outdoor units to a Lonworks® Building Management Control System. Compatible with RBC-WP1-PE Lonworks Control software.

KNX®

ETS configuration



TO-AC-KNX-64 (RAV/VRF)
TO-AC-KNX-16 (RAV/VRF)
BMS-IFKX0TLR-E (RAV/VRF)
BMS-IFKX0AWR-E (Estia)

Directly connect up to 64, 16 or only one Toshiba Air Conditioning indoor units to a KNX® Building Management Control System.

BACNET® IP

Standard gateway



BMS-IFBN640TLE

Directly connect up to 64 Toshiba Air Conditioning indoor units to a BACnet® Building management Control System.

Network adaptor TCB-PCNT30TLE2 required for connection of DI/SDI Indoor Units (1 per Master Indoor Unit)

ANALOGUE INTERFACE

Analogue 0/10V control



TCB-IFCB640TLE

The Analogue Relay Interface is a device that can be connected directly to the TCC-Link Central Control network to provide Analogue & Digital Inputs & Outputs for control over Toshiba Air Conditioner products from non-Toshiba control systems.

GENERAL PURPOSE RELAY INTERFACE

Toshiba equipment control



TCB-IFCG1TLE

The General Purpose Relay Interface is a device that can be connected directly to the TCC-Link Central Control Network and addressed on the TCC-Link Network in order to provide control of non-Toshiba equipment from a Toshiba control system, and control of the Toshiba Air Conditioner from Digital & Analogue Inputs.

GSM INTERFACE

Control any time anywhere...



TCB-IFGSM1E

The TCB-IFGSM1E Interface is a device that allows control of the Toshiba Air Conditioner Equipment from a remote location using standard GSM (Global system for Mobile communications) Mobile phone SMS text messages.