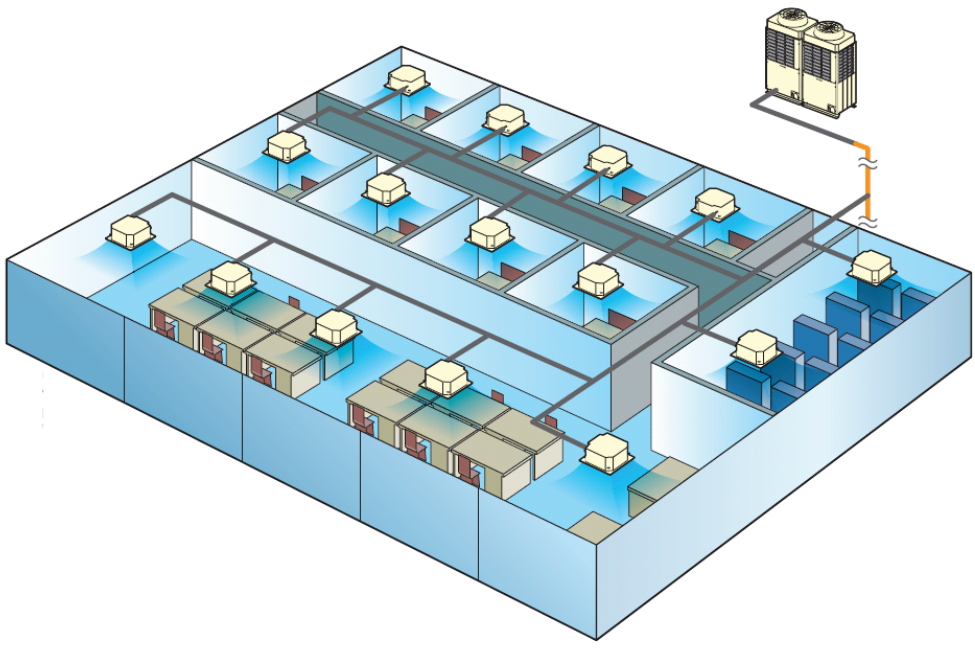
TOSHIBA

E19-311-2

APPLICATION CONTROL MANUAL

Model name:

Super Modular Multi System-e (SMMS-e)
Super Heat Recovery Multi System-e (SHRM-e)
Super Modular Multi System 7 (SMMS-7)
MiNi-SMMS-e
Super Digital Inverter
Digital Inverter



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Outline of system

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1-1 List of models and outline

Remote controller

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Wired remote controller		RBC-AMT32E	Standard type	Indoor unit	Individual control Group control Two remote control
		RBC-AMS55E-ES/EN	With LCD display and backlight		
		RBC-ASC11E	Compact Wired Remote Controller		
		RBC-AMS41E	With schedule timer		
		RBC-AS41E	With simplified control Start/stop, temperature setting, air flow setting, check code display only		
		NRC-01HE	For Air to Air Heat Exchanger with DX coil unit		
Wireless remote controller kit		RBC-AX32U(W/WS)-E	For 4-way Air Discharge Cassette	Indoor unit	Individual control Two remote control (wired & wireless)
		RBC-AX32UM(W)-E	For Compact 4-way Cassette 7 series (VRF, LC), 1 series (DI (R32), SDI (R32))		
		RBC-AX32UW(W)-E	For 2-way Air Discharge Casette		
		RBC-AX33CE	For Under Ceiling, 1-way Air Discharge Cassette SH		
		TCB-AX32E2	For All other units (Except AC fan motor unit)		
		RBC-AX41U(W)-E	For Smart 4-way Cassette	SDI(R32(1)) Indoor unit	

Schedule timer and central remote controller

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Schedule timer		TCB-EXS21TLE	Max. 64 indoor units Weekly timer mode 7 types of weekly schedule and 3 cycles / day, can program off mode a minute unit.		Wired remote controller 4p terminal connected with TCB-EXS21TLE
Centeral remote controller		TCB-SC643TLE	Max. 64 indoor units. (1 TCC-LINK) (10 Zone/16 groups, 64 zone/64 groups) x 1ch, 4 types central setting Schedule timer mode. (+Schedule timer)		Central control wiring

Advanced central control

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Smart BMS manager		BMS-SM1280HTLE	Max. 128 indoor units (2 TCC-LINK) Full control/monitoring/Schedule from PC Web with Energy monitoring		Central control wiring Energy Monitoring Relay Interface Digital I/O Relay Interface
Smart BMS manager with data analyzer		BMS-SM1281ETLE	Max. 128 indoor units (2 TCC-LINK) Full control/monitoring/Schedule from PC Web with Energy monitoring, Data analysis		Central control wiring Energy Monitoring Relay Interface Digital I/O Relay Interface
Touch Screen Controller		BMS-CT1280E	Max. 128 indoor units (2 TCC-LINK) Full control/monitoring/Schedule from PC Web with Energy monitoring, Direct DI/DO or Power mater I/P		Central control wiring
		BMS-CT5121E	Max. 512 indoor units Full control/monitoring/Schedule without Energy monitoring, PC web access		Central control wiring Relay Interface Energy Monitoring Relay Interface Digital I/O Relay Interface
Smart device control interface		BMS-IWF0320E	Max. 32 indoor units		By connecting the smartphone/Tablet and wireless router via WiFi

Open network

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Lon Interface		TCB-IFLN642TLE	Central control by LonWorks Max 64 indoor units/groups Compliant to LonWorks EIA/ANSI 709.1 (FT-X1 transceiver)		Central control wiring
Modbus Interface		TCB-IFMB640TLE	Central control by Modbus Max 64 indoor units/groups Compliant to RS485 Modbus RTU mode		Central control wiring
BN Interface		BMS-IFBN640TLE	Central control by BACnet Max 64 indoor units BACnet server Compliant to ANSI / ASHRAE Standard 135-2008 BACnet IP		Central control wiring
Analog Interface		TCB-IFCB640TLE	Max. 64 indoor units Control by DC input voltages		Central control wiring

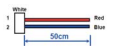
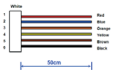
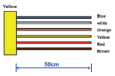
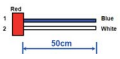
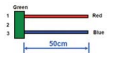
Open network optional devices

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Relay I/F		BMS-IFLSV4E	Max. 64 indoor units	512 TSC	Central control wiring (RS485)
Energy monitoring Relay I/F		BMS-IFWH5E	Max. 8	512TSC 128TSC Smart BMS manager	Central control wiring (RS485)
Digital I/O Relay I/F		BMS-IFDD03E	Max. 8	512TSC 128TSC Smart BMS manager	Central control wiring (RS485)

Indoor unit optional devices

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Remote sensor		TCB-TC41LE	Remote sensing of indoor air temperature	Indoor unit	
Occupancy Sensor *1		TCB-SIR41UM-E		For VRF/LC Compact 4-way cassette	
		TCB-SIR41U-E		For LC Smart 4-way cassette	
Remote location ON/ OFF Control box		TCB-IFCB-4E2	Monitoring from outside ON/OFF command from external signals	Indoor unit	
General Purpose Interface		TCB-IFCG1TLE	8 inputs for sensors, 4 outputs for actuators and 64 indoor units/groups. HA terminal connectable. On site programming by 2 Analog, 5 Digital inputs, 12 patterns	Indoor unit	Central control wiring
GSM Phone Control Interface		TCB-IFGSM1E	Control and monitor ON/OFF, alarm status by GSM SMS mail system	Indoor unit	
Central control with "1:1 model"		TCB-PCNT30TLE2	Central control with "1:1 model"	DI/SDI Indoor unit *High wall don't need it	
Connection Interface Kit		TCB-PX30MUE		For 4-way cassette (RAV-RM___1UTP-E)	For TCB-PCNT30TLE2
		TCB-PX40MUME		For Compact 4-way cassette (RAV-RM___1MUT-E)	For TCB-PCNT30TLE2

*1 Compact 4-way cassette 4 series for VRF/LC cannot use it.

Application control kit		TCB-PCUC2E	External Input / Output connecting	**VRF:** Ceiling (8), Compact 4-way (7), Floor Standing (6), High static Duct 8-10HP (6)	
				LC: Compact 4-way (RAV-RM__1MUT-E), Ceiling (RAV-RM__1CTP-E), Smart 4-way (RAV-GM__1UT-E), H-Duct(RAV-RM___1DTP-E)	
				A2A: VN-M___HE1	
Connectors		TCB-KBCN32VEE	Ventilation fan control from Remote controller	Indoor unit	CN32 on indoor unit
		TCB-KBCN60OPE	Operation status signal output	Indoor unit	CN60 on indoor unit
		TCB-KBCN61HAE	Leaving-ON prevention control by key sw Operation Input / Output	Indoor unit	CN61 on indoor unit
		TCB-KBCN70OAE	Option error input	Indoor unit	CN70 on indoor unit
		TCB-KBCN73DEE	Demand input	Indoor unit	CN73 on indoor unit
		TCB-KBCN80EXE	Outside error input	Indoor unit	CN80 on indoor unit

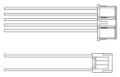
Individual gateway

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Modbus Interface		BMS-IFMB0TLR-E	Central control by Modbus	Indoor unit	Remote control wiring
KNX Interface		BMS-IFKX1TLR-E	Central control by KNX	Indoor unit	Remote control wiring
Modbus Interface		BMS-IFMB0AWR-E	Central control by Modbus	Hydro-unit (For Air to Water)	Remote control wiring
KNX Interface		BMS-IFKX0AWR-E	Central control by KNX	Hydro-unit (For Air to Water)	Remote control wiring

Outdoor unit optional devices for VRF

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Power peak-cut control board		TCB-PCDM4E	Power peak-cut (Standard function)	Outdoor unit	Header outdoor unit CN513 on outdoor unit
			Power peak-cut (Expansion function)		
External master ON/OFF control board		TCB-PCMO4E	Snowfall fan control	Outdoor unit	CN509 on outdoor unit
			External master ON/OFF control.		CN512 on outdoor unit
			Night operation (Sound reduction) control		CN508 on outdoor unit
			Operation mode selection control board		CN510 on outdoor unit
Output control board		TCB-PCIN4E	Error/operation output control	Outdoor unit	CN511 on outdoor unit (CN513 MINI-SMMS)
			Compressor operation status		CN514 on outdoor unit
			Operation output ratio board		

Outdoor unit optional devices for DI/SDI

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Application Control		TCB-PCOS1E2	Peak-cut control / night operation / Compressor ON status output	DI-1phase (R410A), SDI-1phase, 1.5-5HP (R410A), SDI (R32(1))	
Optional Connector Cable		TCB-KBOS4E	Peak-cut control / night operation / Compressor ON status output	DI-3phase(4)(6), SDI-1phase 3-5HP(4), SDI-3phase(4) Outdoor unit	CN610 on outdoor unit CN704 on outdoor unit

Optional devices for Air to Water

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
External output board		TCB-PCIN3E	Boiler-linked output, Alarm output Defrost signal output, compressor operation signal output Up to two boards (according to applications)	For Air to Water	
External input board		TCB-PCMO3E	Cooling/heating thermostat input Forced-stop signal input Up to two boards (according to applications)	For Air to Water	
Second Remote Controller		HWS-AMS54E	Wired Remote Controller for Room air temperature control	For Air to Water	

Indoor unit controls

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Function change of indoor unit	-		Setting functions necessary to perform applied control at the local site.	Indoor unit	Item code (DN) setting from wired remote controller
Ventilation fan control from remote controller	-		Ventilation fan start/stop operation from wired remote controller	Indoor unit	Setting from wired remote controller and relay wiring(local supply)
Leaving-ON prevention control	-		Control to prevent Leaving-ON of indoor unit	Indoor unit	
Demand control from indoor unit	-		Thermo-OFF operation by relay signal	Indoor unit	Relay wiring (local supply)

Outdoor unit controls for VRF

Appliance name	Appearance	Model name	Explanation	Connecting unit	Connecting device or setting method
Outdoor fan high static pressure shift	-		Control standard air volume of outdoor unit	Outdoor unit	SW10 on outdoor unit
Cooling priority, heating priority control	-		Cooling priority or heating priority can be selected. (Setup at shipment:heating priority)	Outdoor unit	SW11 on outdoor unit
Specific indoor unit priority control	-		Only one indoor unit can be set as priority for changeover of operation mode.	Outdoor unit	SW11 on outdoor unit + Item code (DN) setting from wired remote controller
PMV-Kit control (MINI-SMMS only)	-		Set SW08 in this case, also when using the indoor unit under high humidity.	Outdoor unit	SW08 on outdoor unit

Outdoor unit controls for DI/SDI

Appliance name	Appearance	Model name	Explanation	Connecting unit	Setting method
High static pressure shift		-	Control standard air volume of outdoor unit	SDI(4) Outdoor unit	SW802 on outdoor unit
Existing piping usage		-	Ø19.1 is used for existing pipe. Follow the re-use existing pipe application procedure.	DI(3,4), SDI(4) Outdoor unit	
Power saving control		-	Power saving by reducing the compressor frequency 10%	DI(4), SDI(4) Outdoor unit	
Snow-proof Fan control		-	When snow enters, the control to prevent generation of motor lock is validated.	Outdoor unit	SW802 on outdoor unit
Defrost time change		-	The defrost interval is shortened than the standard status. (Min 30 minutes)	Outdoor unit	J805, 806 on outdoor unit
Max frequency change		-	Max frequency of compressor at cooling/heating is lowered. But max capacity decreases.	Outdoor unit	J807 on outdoor unit
Cooling operation mode only		-	DN “0F” also can set.	Outdoor unit	J808 or SW801 sub PCB on outdoor unit

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Remote controller

2-1 Line Up & Function – Remote controller

Wired Remote Controller

Model Name	RBC-AMT32E	RBC-AMS55E-ES/EN	RBC-ASC11E	RBC-AMS41E	NRC-01HE	RBC-AS41E
Appearance						
On / Off	✓	✓	✓	✓	✓	✓
Mode	✓	✓	✓	✓	✓	✓
Temperature Setting	✓	✓	✓	✓	✓	✓
Fan Speed Setting	✓	✓	✓	✓	✓	✓
Timer Function	✓	✓	✓	✓	✓	-
Schedule Function	-	✓	-	✓	-	-
Multi language	-	✓	-	-	-	-
Energy Save Function	✓	✓	-	✓	✓	-
Permit/Prohibit function	-	-	-	-	-	-
Filter sign	✓	✓	-	✓	✓	✓
Error Display	✓	✓	✓	✓	✓	✓

Wireless Remote Controller

Model Name	RBC-AX32U(W/WS)-E	RBC-AX32UM(W)-E	RBC-AX32UW(W)-E	RBC-AX33CE	TCB-AX32E2	RBC-AX41U(W)-E
Appearance						
On / Off	✓	✓	✓	✓	✓	✓
Mode	✓	✓	✓	✓	✓	✓
Temperature Setting	✓	✓	✓	✓	✓	✓
Fan Speed Setting	✓	✓	✓	✓	✓	✓
Timer Function	✓	✓	✓	✓	✓	✓
Schedule Function	-	-	-	-	-	-
Multi language	-	-	-	-	-	-
Energy Save Function	-	-	-	-	-	-
Permit/Prohibit function	-	-	-	-	-	-
Filter sign	-	-	-	-	-	-
Error Display	✓ (*)	✓ (*)	✓ (*)	✓ (*)	✓ (*)	✓ (*)

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

2-2 Remote controller comparison table

Wired Remote Controller

Model Name		RBC-AMT32E	RBC-AMS41E	RBC-AMS55E-ES/EN	NRC-01HE	RBC-ASC11E	RBC-AS41E
Part name		Standard	With schedule timer	With LCD display and backlight	For Air to Air Heat Exchanger with DX coil unit	Compact	Simple
Dimension	handset	120 x 120 x 16 mm	120 x 120 x 16 mm	120 × 120 × 20 mm	120 x 120 x 16 mm	86 x 86 x 16 mm	120 x 70 x 16 mm
Installation place		Wall	Wall	Wall	Wall	Wall	Wall
Max wired length [Note.8]		500 m	500 m	500 m	500 m	500 m	500 m
ON/OFF		✓	✓	✓	✓	✓	✓
Mode	Auto [Note.3]	✓	✓	✓	✓	✓	✓
	cool	✓	✓	✓	✓	✓	✓
	heat	✓	✓	✓	✓	✓	✓
	dry [Note.1]	✓	✓	✓	✓	✓	✓
	fan	✓	✓	✓	✓	✓	✓
Temperature setting range	Auto [Note.3]	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	✓	✓	✓	✓	✓	✓
Louver position [Note.2]		✓	✓	✓	✓	✓	✓
Ventilation control		✓	✓	✓	✓		✓
Filter sign/reset		✓	✓	✓	✓	-	-
Return back		✓	✓	✓	✓	-	-
Power Save [Note.7] Individual louver [Note.7] Frost protection (heating at 8 °C) [Note.7] Self cleaning mode [Note.7]		✓	✓	✓	✓	-	-
CLOCK		-	-	✓	-	-	-
ECO/HI-POWER/MEMO/AUTO		-	-	-	-	-	-
Grille up/down [Note.7]		-	✓	✓	-	-	-
Function setting (DN code)		✓	✓	✓	✓	-	-
Temperature sensor [Note.4]		✓	✓	✓	✓	✓	✓ [Note.5]
Header/follower	Header	✓	✓	✓	✓	✓	✓
	Follower	✓	✓	✓	✓	✓	✓
Multiple control [Note.6]		Max 2 /1 indoor or 1group	Max 2 /1 indoor or 1group	Max 2 /1 indoor or 1group	Max 2 /1 indoor or 1group	Max 2 /1 indoor or 1group	Max 2 /1 indoor or 1group
Timer		Off/repeat off/on	Off/repeat off/on	Off/repeat off/on	Off/repeat off/on	Only "Off Timer"	-
Weekly schedule		-	✓ 7 day timer, 8 functions for each day of the week	✓ 8 programs/day, Holiday setting	-	-	-
Connectivity to Schedule Timer (TCB-EXS21TLE)		✓	-	-	✓	-	-
Error output		✓	✓	✓	✓	✓	✓
Error history		✓ 4 history	✓ 4 history	✓ 10 history	✓ 4 history	✓ 4 history	-
Air to Air Heat Exchanger with DX coil unit	On / Off	✓	✓	✓ [Note 9]	✓	-	-
	Mode	-	-	✓ [Note 9]	✓	-	-
	Fan Speed	-	-	✓ [Note 9]	✓	-	-

Wireless Remote Controller

Model Name		RBC-AX32U (W/WS)-E (WH-L11SE)	RBC-AX33CE (WH-L11SE)	RBC-AX32UM(W)-E (WH-L11SE)	RBC-AX32UW(W)-E (WH-L11SE)	TCB-AX32E2 (WH-L11SE)	RBC-AX41U(W)-E (WH-L11SE)	WH-H2UE	WH-TA09NE
Part name		For 4-way Air Discharge Cassette	For Under Ceiling 8series, 1-way Air Discharge Cassette SH	For Compact 4-way Cassette 7series	For 2-way Air Discharge Casette	For Compact 4-way Cassette 4series, 1-way Air Discharge Cassette YH, Concealed Duct Standard, Slim Duct, Floor Standing Cabinet, Floor Standing	For 4-way Air Discharge Cassette	For Hi-wall 6series	For Hi-wall 7 series
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	157 x 56 x 19 mm	157 x 56 x 19 mm	56 x 150 x 19 mm	
	Receiver	-	-	-	-	120 × 70 × 18.2 mm	-	Receiver included	Receiver included
Installation place		Inside Indoor (receiver)	Inside Indoor (receiver)	Inside Indoor (receiver)	Inside Indoor (receiver)	Wall (receiver)	Inside Indoor (receiver)	-	-
Max wired length [Note.8]		400 m	400 m	400 m	400 m	400 m	400 m	-	-
ON/OFF		✓	✓	✓	✓	✓	✓	✓	✓
Mode	Auto [Note.3]	✓	✓	✓	✓	✓	✓	✓	✓
	cool	✓	✓	✓	✓	✓	✓	✓	✓
	heat	✓	✓	✓	✓	✓	✓	✓	✓
	dry [Note.1]	✓	✓	✓	✓	✓	✓	✓	✓
	fan	✓	✓	✓	✓	✓	✓	✓	✓
Temperature setting range	Auto [Note.3]	17 - 30 °C	17 - 30 °C	17 - 30 °C	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	17 - 30 °C	17 - 30 °C	17 - 30 °C
	heat	17 - 30 °C	17 - 30 °C	17 - 30 °C	16 - 30 °C	17 - 30 °C	17 - 30 °C	17 - 30 °C	17 - 30 °C
	dry	17 - 30°C	17 - 30 °C	17 - 30 °C	18 - 30 °C	17 - 30 °C	17 - 30 °C	17 - 30 °C	17 - 30 °C
FAN	auto/low/med/ high	✓	✓	✓	✓	✓	✓	✓	✓
Louver position [Note.2]		✓	✓	✓	✓	✓	✓	✓	✓
Ventilation control		-	-	-	-	-	-	-	-
Filter sign/reset		- / ✓	- / ✓	- / ✓	- / ✓	- / ✓	- / ✓	- / ✓	- / ✓
Return back		-	-	-	-	-	-	-	-
Power Save [Note.7] Individual louver [Note.7] Frost protection (heating at 8 °C) [Note.7] Self cleaning mode [Note.7]		-	-	-	-	-	-	-	-
CLOCK		✓	✓	✓	✓	✓	✓	✓	✓
ECO/HI-POWER/MEMO/AUTO		✓	✓	✓	✓	✓	✓	✓	✓
Grille up/down [Note.7]		-	-	-	-	-	-	-	-
Function setting (DN code)		-	-	-	-	-	-	-	-
Temperature sensor [Note.4]		-	-	-	-	-	-	-	-
Header/follower	Header	✓	✓	✓	✓	✓	✓	✓	✓
	Follower	✓	✓	✓	✓	✓	✓	✓	-
Multiple control [Note.6]		Max2/1 indoor or 1group	Max2/1 indoor or 1group	Max2/1 indoor or 1group	Max2/1 indoor or 1group	Max2/1 indoor or 1group	Max2/1 indoor or 1group	- (one wireless only)	- (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	Off/on/on-off/ daily	Off/on/on-off/ daily
Weekly schedule		-	-	-	-	-	-	-	-
Connectivity to Schedule Timer (TCB-EXS21TLE)		-	-	-	-	-	-	-	-
Error output		✓ LED on receiver	✓ LED on receiver	✓ LED on receiver	✓ LED on receiver	✓ LED on receiver	✓ LED on receiver	-	-
Error history		-	-	-	-	-	-	-	-
Air to Air Heat Exchanger with DX coil unit	On / Off	-	-	-	-	-	-	-	-
	Mode	-	-	-	-	-	-	-	-
	Fan Speed	-	-	-	-	-	-	-	-

[Note 1] Not provided on the concealed duct high static pressure type 8-10HP.

[Note 2] No function for concealed duct standard type, high static pressure type, floor standing cabinet type, floor standing concealed type, and slim duct type.

[Note 3] •The Automatic operation is not available for SMMS series units other than Super Heat Recovery Multi types. The receiving unit lamp blinks, and the alarm sound is emitted. Change to another operation mode.

•The alarm sound is also emitted on the Cooling only models, and the Automatic operation is not available.

[Note 4] • 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 through 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 5] Select the remote sensor switch on the controller.

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

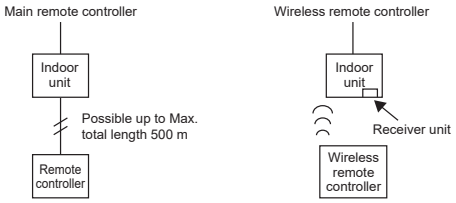
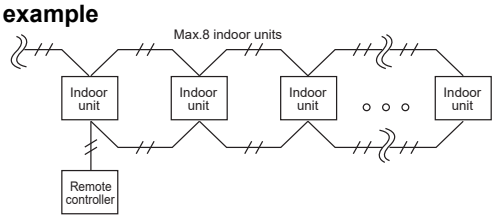
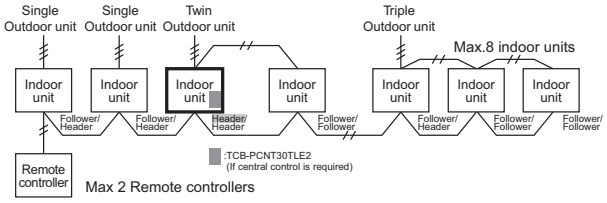
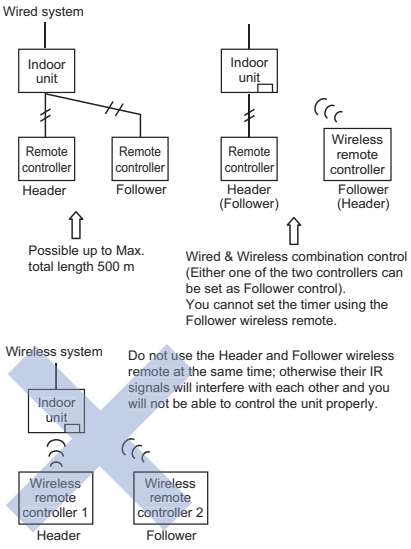
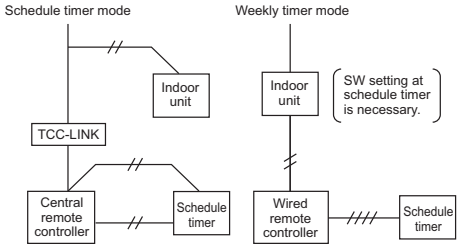
[Note 7] The actual functions depend on the air-conditioner.

[Note 8] Another 200 m for Indoor to Indoor wiring.

[Note 9] For settings, refer to the installation manual of RBC-AMS55E-ES/EN.

2-3 Application controls for remote controller

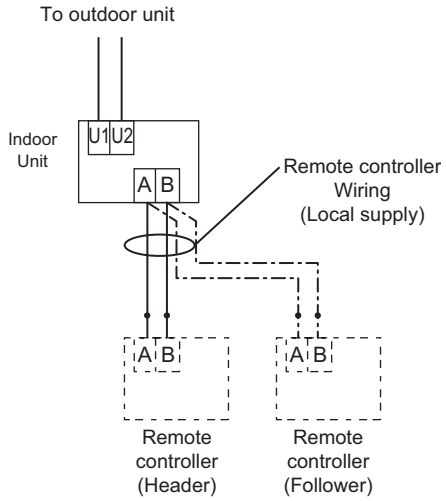
2-3-1 Applications for indoor remote controller

	Basic function	System diagram
1	**Individual control** Air conditioner is individually operated at a distance.	
2	**GROUP control** One remote controller can control a group of up to a maximum of 8 indoor units. Operating on the same setting.	**VRF example**  **DI/SDI example** 
3	**Two remote controller** Air conditioner is controlled by two remote controllers in two locations.	
4	**Control by schedule timer** Schedule timer mode and Weekly timer mode	

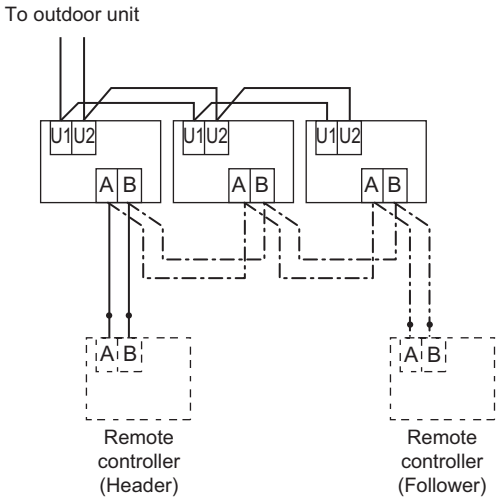
2-3-2 Two remote controllers

This control is for one or more indoor units that are controlled by two separate remote controllers.
(Max. two remote controllers can be connected.)

One indoor unit operated by two remote controllers



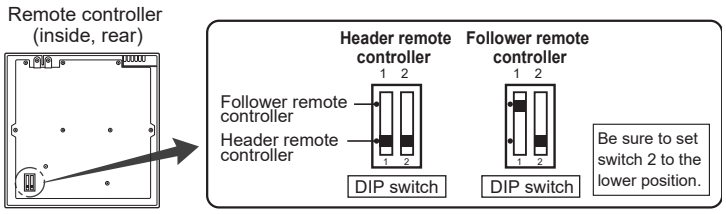
Group control operated by two remote controllers



(Setting method for Follower remote controller)

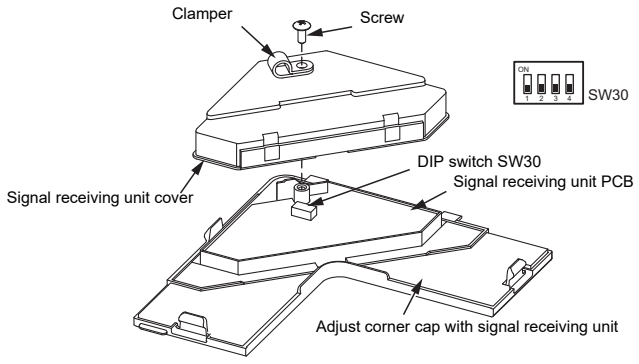
In case of wired remote controller (RBC-AMT32E, NRC-01HE)

Change the remote controller address connector on the side of the remote controller on the PCB.



In case of wireless remote controller (RBC-AX32U(W)-E, RBC-AX32U(WS)-E)

To use the wireless remote controller as a follower, set bit 4 (Follower side) of DIP switch SW30 on the signal receiving unit PCB to ON.



For details, refer to the installation manual of each controller.

(Operation)

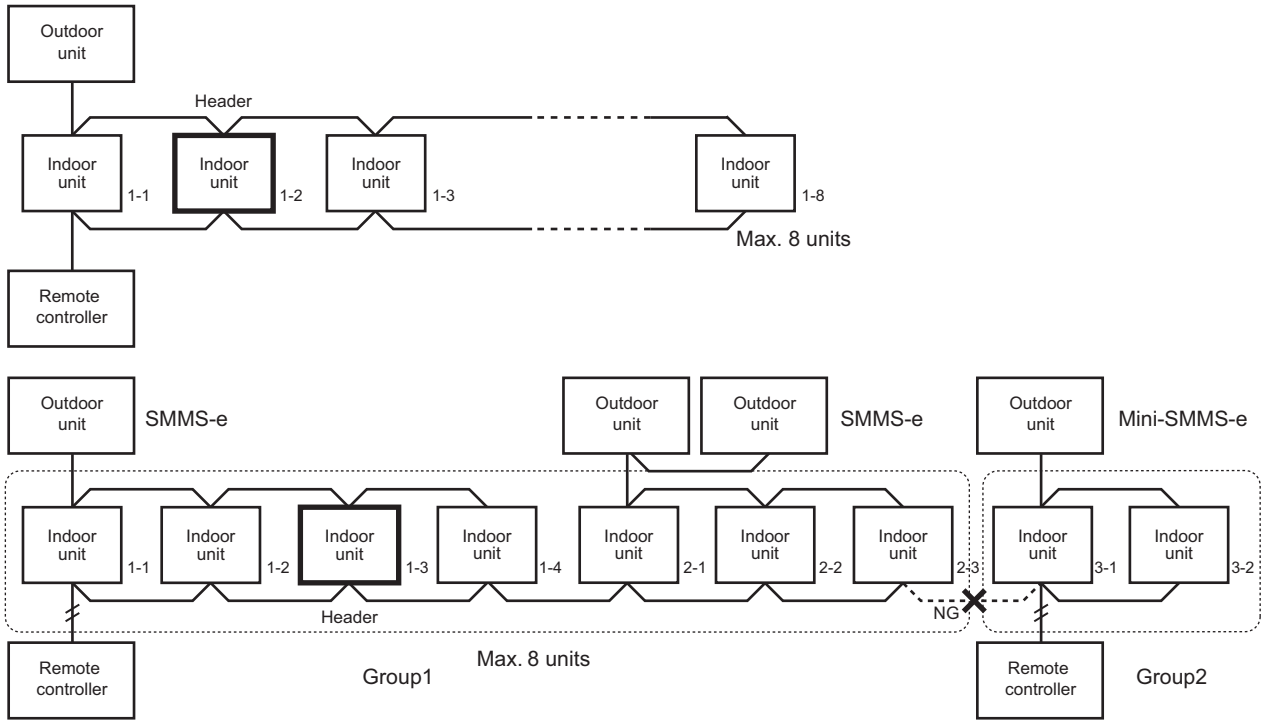
1) Operation items can be changed by “last push priority”.
2) In case of using a timer, connect the timer to either remote controller.

2-3-3 Group control

Maximum of 8 indoor units can be controlled by one remote controller within a group control.
Twin change or triple control of a 1 by 1 model (Toshiba Digital inverter, Super digital inverter) corresponds to one group control.
The Header indoor unit controls the indoor air temperature based on the setting temperature of the remote controller.

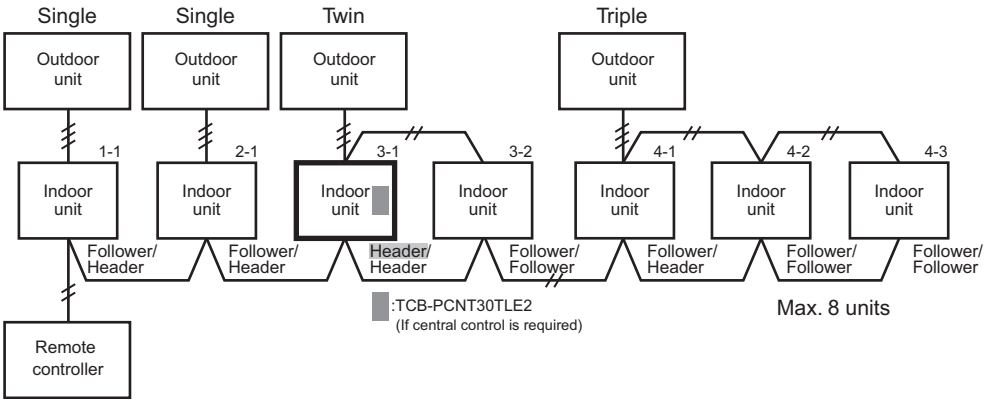
VRF example

System sample



In case of DI/SDI, each Header indoor unit connected with outdoor unit controls room temperature according to setting on the remote controller. The Header indoor unit in the group is the representative of multiple indoor units and sends/receives signals to/from the remote controller and other indoor units in the group.

DI/SDI example



[NOTE]	**Be sure to supply the power to all indoor units under the group control.** If the power isn't supplied to the header indoor unit, communication between indoor units and remote controller can't be performed. "Do not make any groups containing two or more types of units (any two or more from VRF and DI/SDI)."

[1]The number of indoor units and remote controls

1. Maximum amount of devices in a group:

Indoor unit: up to 8 units, remote control: up to 2 units (1 Header and 1 Follower unit), special remote sensor (TCB-TC41LE):
1 unit (Remote controller must be one when the sensor is used.)

2. The number of indoor units recognized by the upper central management device when they are grouped:

You cannot regard the group number as that of the recognized indoor units even if they are controlled on a group basis. The number varies depending on type of the system:

- In a VRF system: total number of indoor units
- In a DI/SDI system: number of indoor units equipped with TCC-LINK adaptors. Normally one Header unit in a group
- In a system managed using central control addresses only*: number of indoor units which have a central control address regardless of whether the unit type is VRF or DI/SDI. Normally one Header unit in a group

[NOTE] Systems managed using 64/128 Central Control, ON/OFF Control, Modbus, LonWorks, etc.

[2]Remote location control (HA)

Both header and follower indoor units can respond by remote location control (HA) signals.
Master ON/OFF control can be conducted for all indoor units within the same group.

[NOTE] Don't input two or more HA signals to one group.

[3]Room temperature data

For collecting room temperature data for control purposes, you can choose the body TA sensor or a remote sensor. You can use the special sensor TCB-TC41LE or the sensor built in to the remote controller. When you use group control, the sensor option varies as shown on the following table, depending on the system you use (VRF or DI/SDI).

Category	Group Control	Room temperature for control		
		Body TA sensor	TCB-TC41LE	Sensor in Remote controller
VRF	Group	yes(each)	prohibited	prohibited
	Individual	yes(each)	yes(each)	yes(each)
DI/SDI	Group/Twin/Triple	yes(Header)	yes(Header)	yes(Header)
	Single	yes(each)	yes(each)	yes(each)
DN code=32 TA sensor selection setting		Body TA sensor	Body TA sensor [Note 1]	Remote controller sensor. [Note 2]

[Note 1] Switched automatically upon the detection of communication between an indoor unit and the remote sensor. Body TA sensor is used if the remote sensor is detached. Remote controller must be one. Able to use with another sensor at the same time if set to do so in the Header settings.

[Note 2] If two remote controllers are used, the sensor in the Header remote controller is selected by making the switch setting “Header” on the Header remote. However, if the sensor in the wireless remote controller is set as Header, cancelling the selection of the sensor in the remote controller on the wireless remote with its remote controller sensor switch changes the sensor to be used into the body TA sensor.
The sensor in the wireless remote controller is only used when the wireless remote controller operation has been activated with the Start/Stop button operation.

[5]Address setting

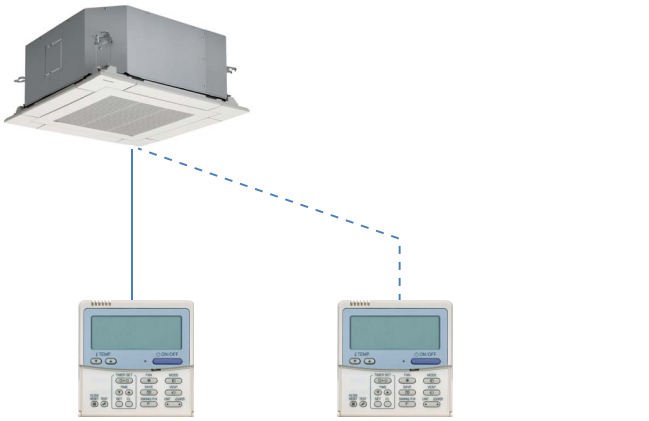
When performing automatic addressing of DI/SDI units, turn on all the indoor units of the group to be addressed. Addresses are not distributed to units which have not been turned on within 3 minutes from starting the automatic addressing.

After setting addresses, check the addresses of lines, indoor units and groups, and the central control addresses one by one regardless of the system type (VRF or DI/SDI). In particular, for groups on different refrigerant lines in a VRF system and groups in a DI/SDI system, confirm that each Header unit has a unique address and specify which indoor units are Header ones.

2-4 Wired remote controller

The standard remote controller can control an individual indoor unit or a group of 8 indoor units.
The remote control allows the operating parameters to be set for the indoor unit.
It also allows faults to be displayed and unit configurations to be set up.
The weekly timer can be fitted to this remote control.

Outline

Appearance	Application
	 Wired remote controller Wired remote controller (In case of control by 2 remote controller)

Specifications

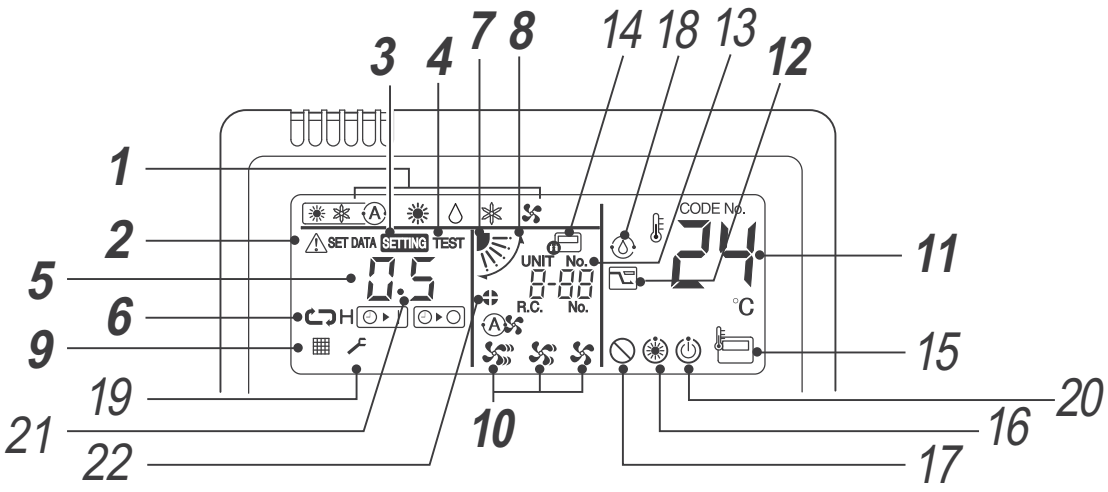
Part name	Wired remote controller
Model Name	RBC-AMT32E
Power supply	No external power supply is required
Dimension	120 × 120 × 16 mm

Main functions

Function	Operation	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29°C	✓
Fan Speed	Auto, Low, Med., High	✓
Louver position	Swing, Fix	✓
Schedule Function	- (Scheduled timer required)	-
Multi language	-	-
Energy Save Function	✓	-
Permit/Prohibit function	-	-
Filter sign	Reset	✓
Error Display	Reset	Hexadecimal fault code
Dual automatic mode	-	-
Soft cooling	-	-
Air flow changing	✓	✓
Power Save mode	✓	✓
Individual louver setting	✓	✓
Frost protection setting	✓	-
Filter sign flashes	✓	✓
Control by 2 remote controllers	✓	-

Functions

Parts Name of Remote Controller (Display section)



1 Operation mode
The selected operation mode is displayed.

2 Error display
Displayed while the protective device works or an error occurs.

3 SETTING display
Displayed during setup of the timer or other settings.

4 TEST run display
Displayed during a test run.

5 Timer display
When an error occurs, error code is displayed.

6 Timer mode display
The selected timer mode is displayed.

7 Louver position display
Displays louver position.

8 Swing display
Displayed during up / down movement of the louver.

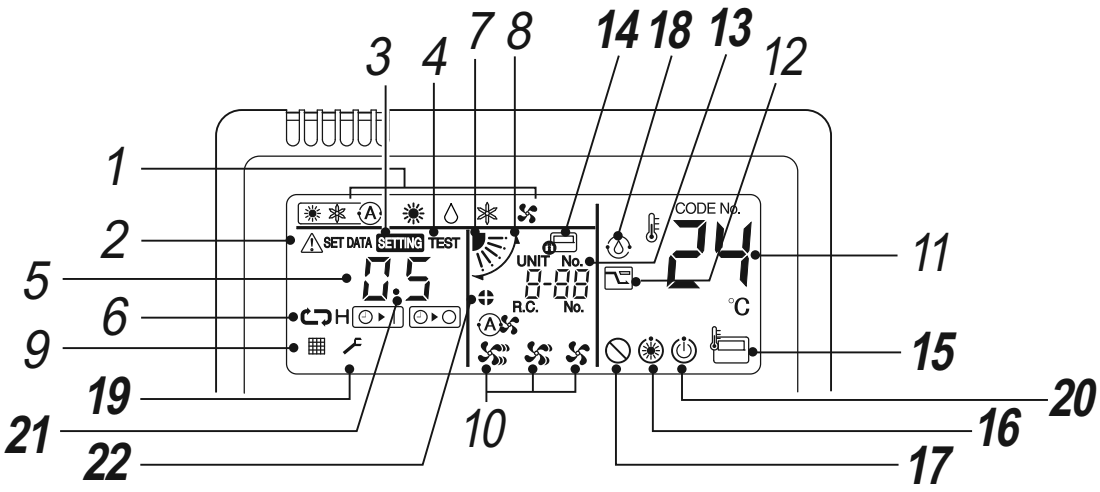
9 Filter display
Reminder to clean the air filter.

10 Fan speed display
The selected fan speed mode is displayed.

(Auto)
(High)
(Med.)
(Low)

11 Set temperature display
The selected set temperature is displayed.

12 Power saving mode display
Limits compressor speed (capacity) to save energy.



13 UNIT No. display

Displays the number of the indoor unit selected.
Also displays error code of indoor and outdoor units.

14 Central control display

Displayed when the air conditioner is used under the central control in combination with a central control remote controller.

In case the remote controller is disabled by the central control system, flashes.
The button operation is not accepted.

Even when ON / OFF, MODE, or TEMP. button is pushed, and the button operation is not accepted.
(Settings made by the remote controller vary with the central control mode. For details, refer to the Owner's Manual of the central control remote controller.)

15 Remote controller sensor display

Displayed while the sensor of the remote controller is used.

16 Pre-heat display

Displayed when the heating mode is energized or defrost cycle is initiated.
While this icon is displayed, the indoor fan stops.

17 No function display

Displayed when the function requested is not available on that model.

18 Self clean operation display

Displayed during self clean operation to dry the indoor heat exchanger.

19 Service display

20 Operation ready display

This display appears on some models.

21 Louver Number display. (exapmle:01, 02, 03, 04)

22 Louver lock display

Displayed when there is a louver-locked unit in the group (including 1 indoor unit by 1 outdoor unit).

2-5 Wired remote controller

This is the local remote controller with a built in 7-Day Timer-featuring a multi-language LCD display with backlight, Energy Saving Options and a Return back function.
Possibility to set and display the room name to easily set-up and monitor the working parameters.
Modern and desirable controller design with menu driven display.
Save mode by schedule timer to optimize energy consumption.
Room temperature display always available.
Two “Hot Keys” (F1, F2) for easy operation of air conditioner functions.
Easy to read layout including display of Indoor Unit Model Name and serial number.
New temperature display that can show the Indoor Unit settings in increments of 0.5 °C.
Built-in backup power. Settings are kept in memories up to 48 hours in case of power failure.
Remote TA sensor available in controller.
Power consumption analysis embedded when combined with compatible indoor and outdoor units.
Setting for the summer time.(Daylight saving time)
Can be connected to a single Indoor Unit or a group of up to 8 Indoor Units.

Outline

Appearance	Application
	

Specifications

Part name	Wired remote controller	
Model Name	RBC-AMS55E-ES/EN	
Power supply	No external power supply is required	
Dimension	120 × 120 × 20 mm	
Multilingual language	-EN	English, Italian, Polish, Greece, Russian, Turkish
	-ES	English, Spanish, Portuguese, French, Dutch, German

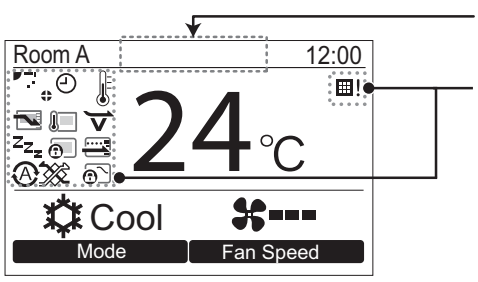
* 2 remote controller by RBC-AMS55E-EN/ES are not available with air to air heat exchanger indoor unit (VN-M****HE) and air to air heat exchanger with Dx-coil indoor unit (MMD-VN****, MMD-VNK****).
But Air to air heat exchanger indoor unit (VN-M****HE1) indoor unit can combine with 2 remote controller by RBC-AMS55E-EN/ES.

Main functions

Function	Operation	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cooling, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Low+, Med., Med.+, High	✓
Louver position	Swing, Fix	✓
Schedule Function	8 programs per day, Holiday setting	✓
Multi language	✓(11 languages) -EN:English, Italian, Polish, Greece, Russian, Turkish -ES :English, Spanish, Portuguese, French, Dutch, German	✓
Energy Save Function	✓	-
Permit/Prohibit function	-	-
Filter sign	Reset	✓
Error Display	Reset	Hexadecimal fault code
Dual automatic mode	✓	-
Soft cooling	✓	-
Air flow changing	✓	✓
Power Save mode	✓	✓
Individual louver setting	✓	✓
Frost protection setting	✓	-
Filter sign flashes	✓	✓
Control by 2 remote controllers	✓	-
Night operation mode	✓	-
Key Lock	✓	-
Saving operation	expand function for LC model	-
Return back	Setting range 10 to 120 min	-
Power consumption analysis	✓ Indoor unit:RAV-GM/RM series Outdoor unit: RAV-GP series	✓
Summer time	✓	-

Functions

Detailed display mode



Icons appear on the screen when the detailed display mode is selected.

*1 • The " Preparing to heat" icon appears when the heating operation starts or when defrosting operation.
The indoor fan stops or the operation becomes the blowing operation when it is displayed.
• It may be displayed depending on the model when " Preparing to operate" is displayed.

▼Icon list

	Shows the Energy saving operation is activated.		Shows a timer function is activated.
	Shows the remote sensor is activated. (*2)		Shows the Louver lock is activated.
	Shows the Night operation is activated.		Shows the setting of the louver.
	Shows the central control device prohibits the use of the remote controller		Shows the filter needs to be cleaned.
	Shows the saving operation is activated.		Shows soft cooling is activated.
			Shows operation switching control is in progress.

*2 Normally the temperature sensor of the indoor unit senses the temperature. The temperature around the remote control can also be sensed. For details, contact the dealer where you purchased the air conditioner. * Do not use the function when the air conditioner is controlled in a group.

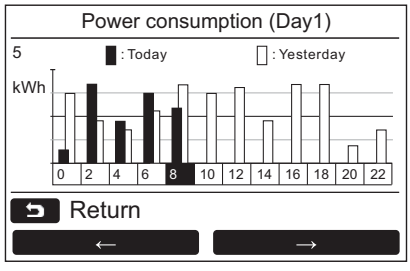
▼Ventilation icon list

- Ventilation icons appear on the display only when a ventilation unit is connected.
- Refer to the Owner's Manual supplied with the Air to Air Heat Exchanger for details about the ventilation icons.

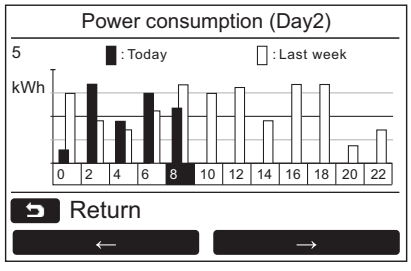
	Automatic mode		24-hour ventilation mode
	Bypass mode		Nighttime heat purge mode
	Total heat exchange mode		

▼Power consumption

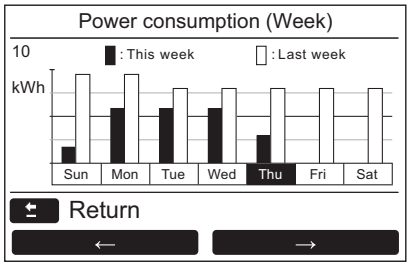
• The power consumption is displayed in a graph. (It may not be displayed depending on the models.)



Day1 mode
Today and Yesterday data



Day2 mode
Today and last week data



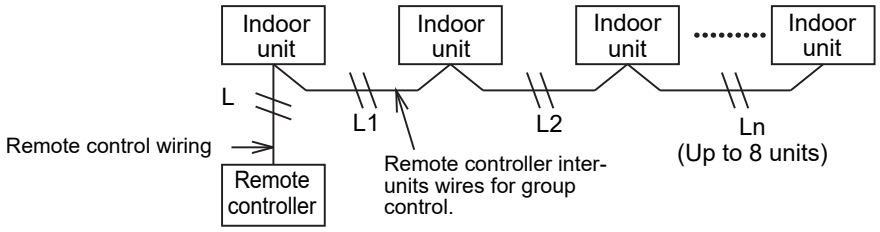
Week mode
This week and last week data

Requirement

◆ Remote control wiring and inter-unit wiring between remote controllers

Do not allow the wire for the remote controller (communication wire) and the wire for AC220-240 V to come into contact or put them together in one electrical conduit; otherwise, the control system may have trouble due to noise.
* Varies depending on the type of remote controller used.

Wiring type	VCTF: 0.5 mm^2 to 2.0 mm^2 × 2		
Total length of remote control wiring and inter-wiring between remote controllers (L+L1+L2+...Ln)	1 remote controller	2 remote controllers	2 remote controllers including a wireless remote controller
	Up to 500 m	Up to 300 m	Up to 400 m
Total length of inter-wiring between remote controllers (L1+L2+...Ln)	Up to 200 m		



■ Requirements for wiring of group control

- To make wiring of group control for indoor units of 4-way cassette type and other types, set the 4-way cassette type as the header unit; otherwise, some settings such as the individual louver setting are not available.
- To make wiring of group control for the indoor unit with the automatic grille-up / down function and the one without the function, set the indoor unit with the automatic grille-up / down function as the header unit; otherwise, the automatic grille-up / down function is not available.

■ Requirements for installing two remote controllers

In the dual remote controller system, one or more units are operated from two remote controllers. (Up to two remote controllers can be installed.)

Set the follower remote controller

Set from “6. Header/Follower” in “Initial setting” on the MENU screen.

Install the remote controllers

For the dual remote controller system, install the remote controllers as follows:

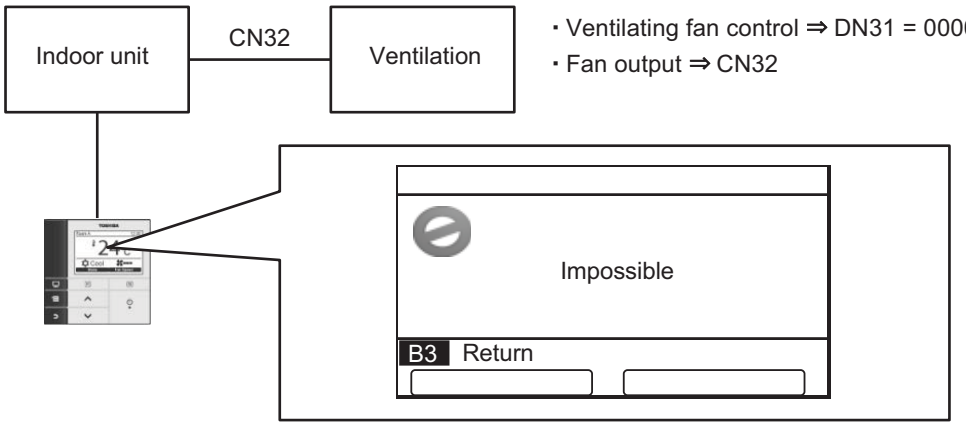
1 **Set one remote controller as the header remote controller.**
(The remote controllers are set as “Header remote controller” as factory default.)

2 **When the dual remote controller system is installed by using this remote controller (RBC-AMS55E-ES, RBC-AMS55E-EN) with the other type of remote controller, set this remote controller as the Header remote controller.**

Ventilation pattern

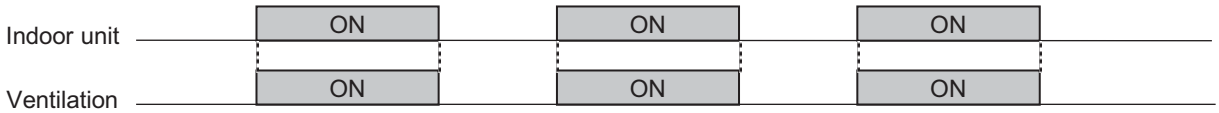
Item	Setting	Contents
Ventilating fan control	DN31	0000: Unavailable, 0001: Available
Fan output	CN32, Group	Connected to indoor unit

◆ Pattern 1

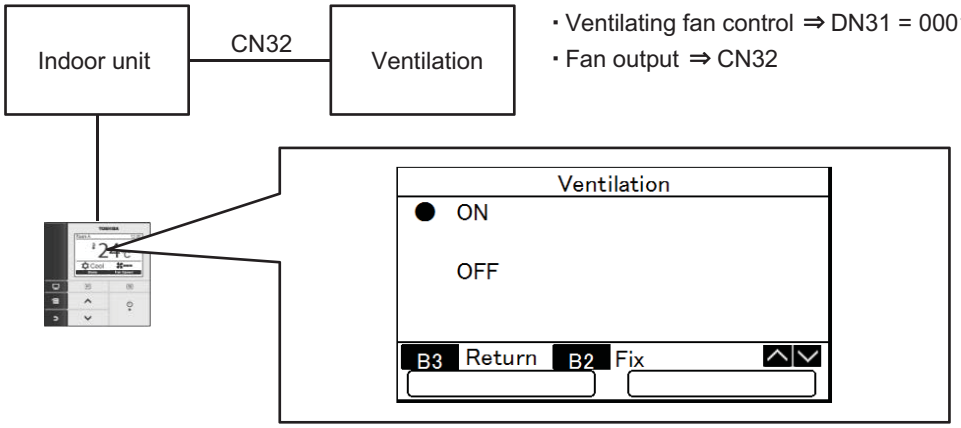


Menu item	Contents
1. ON/OFF	Unavailable
2. Fan speed	Unavailable
3. Mode	Unavailable
4. 24H ventilation off	Unavailable

Action

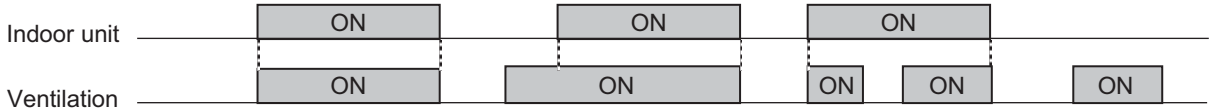


◆ Pattern 2

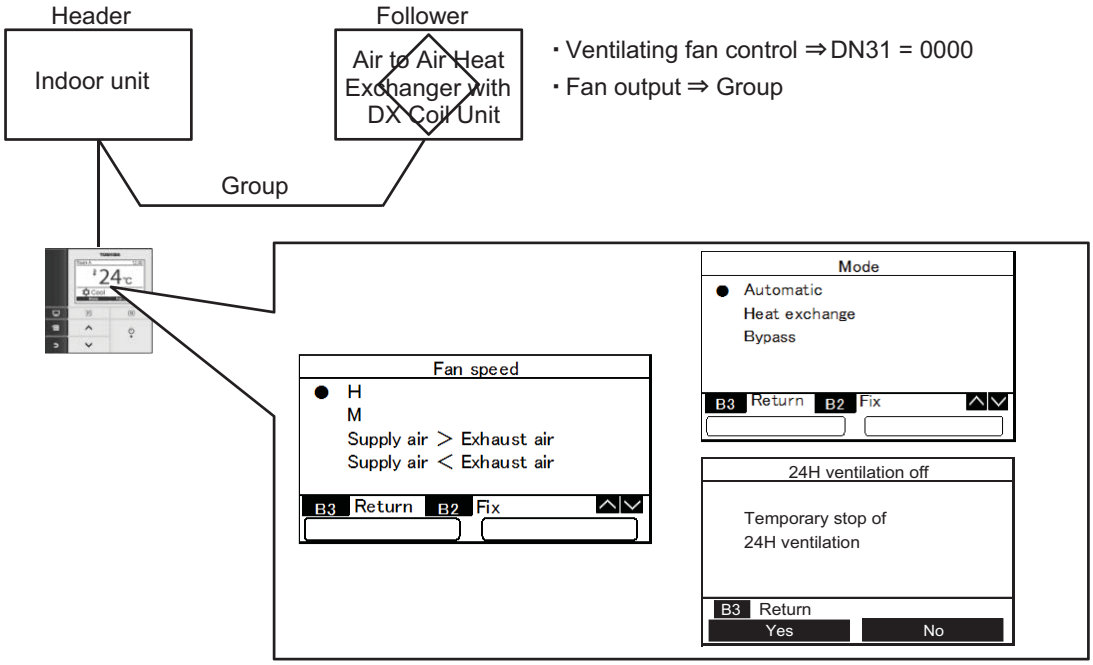


Menu item	Contents
1. ON/OFF	available
2. Fan speed	Unavailable
3. Mode	Unavailable
4. 24H ventilation off	Unavailable

Action

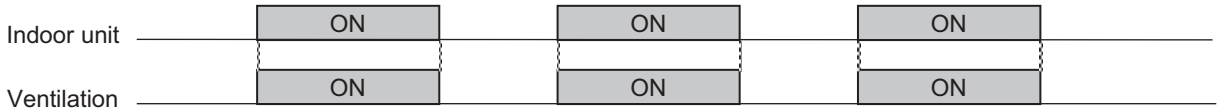


◆ Pattern 3



Menu item	Contents
1. ON/OFF	Unavailable
2. Fan speed	available
3. Mode	available
4. 24H ventilation off	available

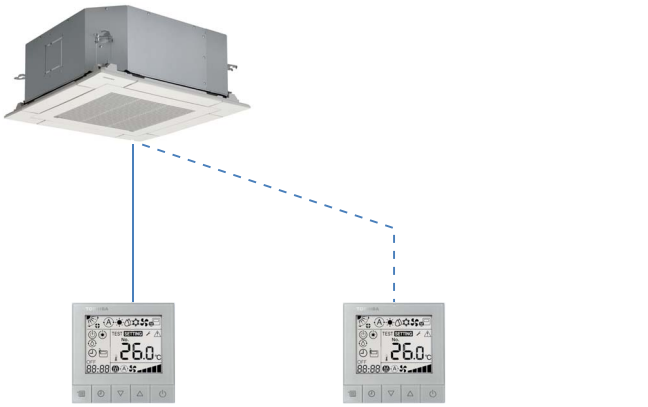
Action



2-6 Compact wired remote controller

The standard remote controller can control an individual indoor unit or a group of 8 indoor units.
The remote control allows the operating parameters to be set for the indoor unit.
It also allows faults to be displayed and unit configurations to be set up.
The weekly timer can be fitted to this remote control.

Outline

Appearance	Application
	 Wired remote controller Wired remote controller (In case of control by 2 remote controller)

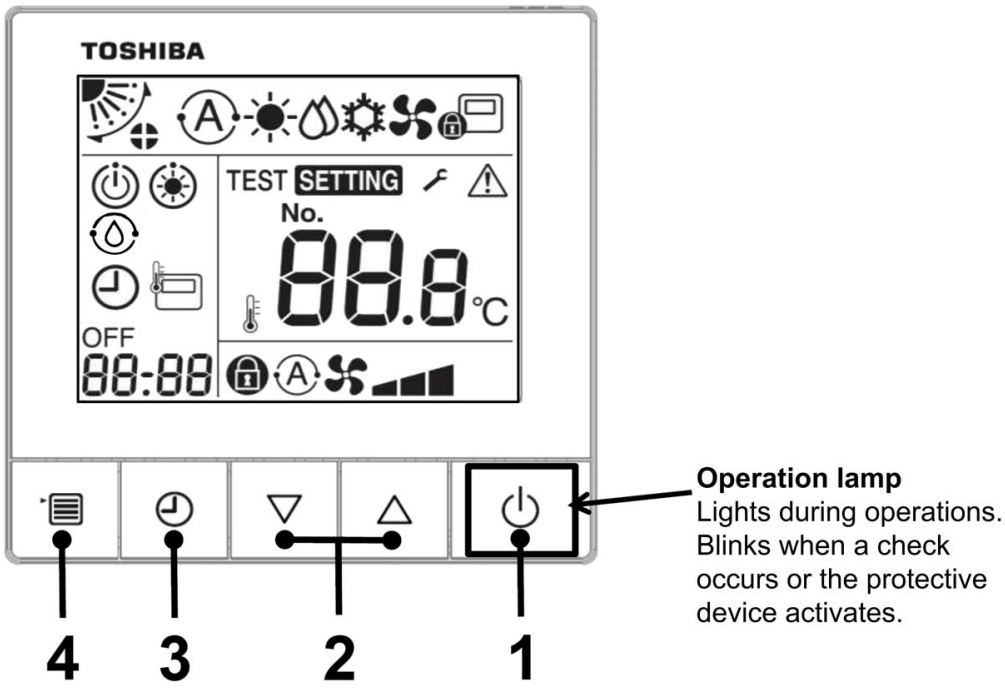
Specifications

Part name	Compact wired remote controller
Model Name	RBC-ASC11E
Power supply	No external power supply is required
Dimension	86 × 86 × 16 mm
Notes	This model cannot connect with Hot Water Module.

Main functions

Function	Operation	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Low+, Med., Med.+, High	✓
Louver position	Swing, Fix	✓
Schedule Function	-	-
Multi language	-	-
Energy Save Function	-	-
Permit/Prohibit function	-	-
Filter sign	-	-
Error Display	Reset	Hexadecimal fault code
Dual automatic mode	-	-
Soft cooling	-	-
Air flow changing	-	-
Power Save mode	-	-
Individual louver setting	-	-
Frost protection setting	-	-
Filter sign	-	-
Control by 2 remote controllers	✓	-

Functions



1 ON/OFF button

Press the button to turn on the air conditioner, and press the button again to turn off the air conditioner.

2 Setting button

It is used for temperature setting in general conditions. In running mode, fan speed mode and wind direction mode, it is used for the change of respective settings.

3 Timer off button

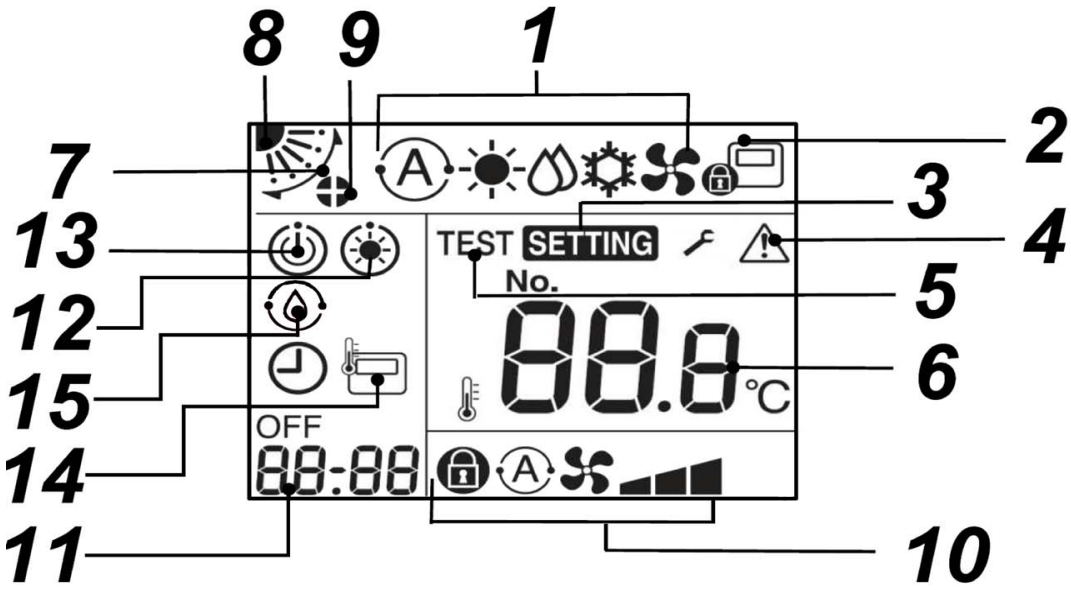
Set the timer off.

4 Menu button

It is used for the selection of the running mode, fan speed and wind direction.
Press of the button each time, then it will switch in the following order.

■ Indication icon

All the icons shown on the display are for illustrative purposes only. Cooling only model do not show heating-related icons. When “SETTING” flickers, the operation will not be accepted.



1 Running mode indication icon
Indicate the selected running mode.

2 Central control indication icon
It will be displayed when the air conditioner is centrally controlled and used by a central remote controller and other central control devices. If the central control prohibits using the remote controller, will flash when pressing the ON/OFF, mode or temperature button on the remote controller, indicating that these buttons do not work. (The settings that can be configured on the remote controller will vary depending on the central control mode. For details, please read the Owner's Manual of the central remote controller.)

3 Setting indication icon
Indicate that the system is checking automatically after the circuit breaker has been disconnected or other conditions have occurred.

4 Repair indication icon
Display when performing an inspection or the protective device is running.

5 Test run indication icon
Display during the test run period.

6 Temperature setting indication icon
Display the selected setting temperature.

7 Wind direction indication icon
Display when the louver moves up and down.

8 Louver position indication icon
Indicate the louver position.

9 Louver locking indication icon
Display when there is a louver locking device. (4-Way cassette type only)

10 Fan speed indication icon

- Indicate the selected fan speed. (Three-speed models)

- Indicate the selected fan speed. (Five-speed models)

11 Timer off indication icon

When an error occurs, display the error code. In normal state, display the time of timer off.

12 Preheating indication icon

Display when the heating mode or the defrosting cycle starts. When this indication icon is displayed, the indoor unit stops the air supply or runs in the fan mode.

13 Running standby indication icon

Indicate that if another indoor unit is under heating/cooling, Toshiba Super Smart multi-connection system cannot cool/heat; Moreover, the super heat recovery multi-connection system cannot heat or cool because the outside temperature exceeds the operating temperature range.

14 Remote controller sensor indication icon

Display when using the remote controller sensor.

15 Self-cleaning operation display

Display when the indoor unit heat exchanger is dehumidified by the self-cleaning operation.

Operation

When you use the air conditioner for the first time or change the settings, please follow the steps below.
From then on, press the On/Off button to run the air conditioner with the selected settings.

■ Standby

When “SETTING” flickers, the operation will not be accepted by system.

Requirements

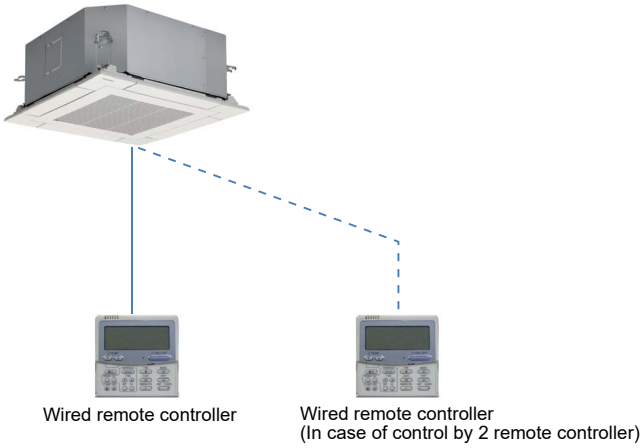
- During use, keep the power switch in open state.
- When you use it again after a long time, please turn on the power switch at least 12 hours in advance.
- About 1 minute after the power is turned on, the remote controller can work. This is not a fault.

2-7 Remote controller with weekly timer

This controller is based on the standard wired controller but has the additional control provided by a built-in 7-day timer function making it an ideal solution for any light commercial or VRF application that requires schedule timer operations or Night set-back control.
The 7-Day timer function can set multiple Indoor Unit parameters and can control:
Operation ON/OFF, Operation Mode, Set Temperature, Energy Saving Function*, Frost Protection Function*, button restrictions.
Restriction on button operation.

* Specific Unit Combinations only.

Outline

Appearance	Application
	

Specifications

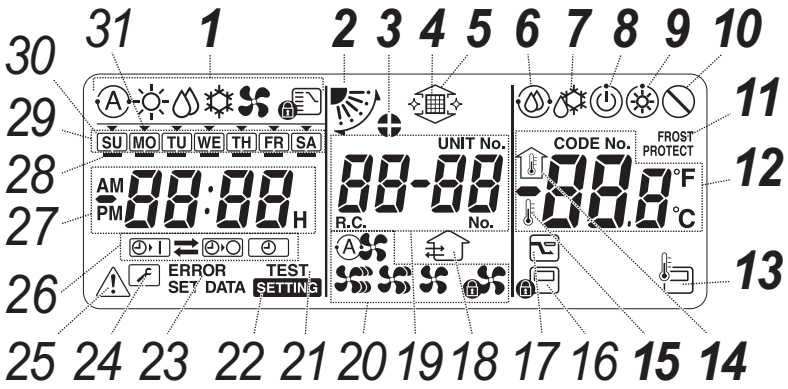
Part name	Remote controller with weekly timer
Model Name	RBC-AMS41E
Power supply	No external power supply is required
Dimension	120 × 120 × 16 mm

Main functions

Function	Operation	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Med., High	✓
Louver position	Swing, Fix	✓
Schedule Function	7 day timer, 8 functions for each day of the week	-
Multi language	-	-
Energy Save Function	✓	-
Permit/Prohibit function	-	-
Filter sign	Reset	✓
Error Display	Reset	Hexadecimal fault code
Dual automatic mode	-	-
Soft cooling	-	-
Air flow changing	✓	✓
Power Save mode	✓	✓
Individual louver setting	✓	✓
Frost protection setting	✓	-
Filter sign	✓	✓
Self-diagnosis function	✓	-
Self cleaning mode	✓	-
Grill up/down	✓	-
Clock display	✓	✓
Control by 2 remote controllers	✓	-

Functions

Parts Name of Remote Controller (Display section)



1 Operation mode display

This indicates the mode of operation which is currently selected.

2 Air direction

This indicates the air direction which has been selected.

3 Fixed louvers

This appears when the louvers are fixed.

*It also appears when the remote controller function has been selected.

4 Filter

This appears when it is time to inspect the filter.

5 Grille up/down

This appears when the grille is goes up or goes down.

6 Self-cleaning operation

This appears while self-cleaning is underway.

7 Defrosting

This appears while defrosting is underway during a heating operation.

8 Ready

This display appears on some models.

9 Heating ready (indoor fan stops while this is displayed)

This appears before a heating operation starts or while defrosting.

10 No function

This appears when a button is pushed but there is no corresponding function.

11 FROST PROTECT operation

This appears during a frost protection operation.

12 Numeric display

This displays the numeric value of the temperature, the numerical order of the trouble history events or the code numbers when the functions are set.

13 Remote controller sensor

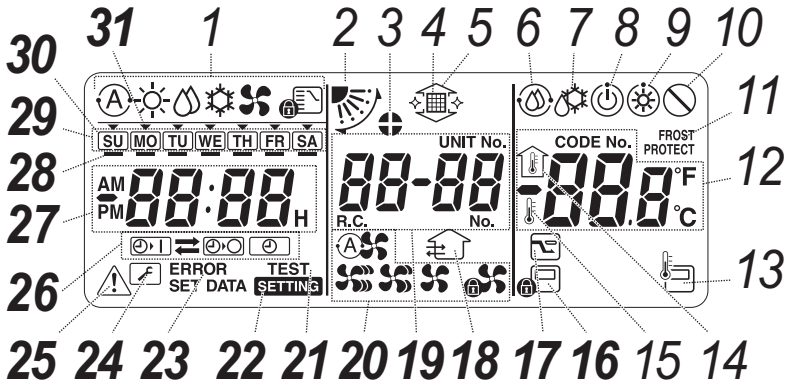
This appears when the remote controller sensor is used.

14 Indoor temperature

This appears when the intake temperature is displayed on the numeric display.

15 Set temperature

This appears when the set temperature is displayed on the numeric display.



16 Central control

This appears when key operation limits are being enforced by the central controller or other unit or when key operation limits have been set in the program for the scheduled operation currently being executed.

17 Save operation

This appears while a save operation is being set or executed.

18 Ventilation operation

This appears while the ventilation fan is operating.

19 Numeric display

The numbers of the indoor units or numbers of the scheduled operation programs are displayed here.

20 Air speed display

This indicates the selected air speed.

21 TEST

This appears while a test run operation is being performed.

22 SETTING

This appears when the clock time, a program or the timer is being set.

23 ERROR

This appears when there is an error in the program setting input.

24 Servicing

This appears during servicing.

25 Inspect

This appears when trouble has occurred.

26 Timer function display

This indicates the function whose operation has been scheduled when a scheduled operation or timer operation has been set.

27 Numeric display

This indicates the present clock time, program operation time or timer execution time.

28 Operation reservation —

This appears for the days of the week on which programs have been set.

29 Days of the week display

30 Special holiday ▢

This appears for a day of the week which has been set as a special holiday.

31 Day arrow ▼

This indicates the current day of the week or day on which a program is set.

2-8 Simple wired remote controller

The standard remote controller can control an individual indoor unit or a group of 8 indoor units.
The remote control allows the operating parameters to be set for the indoor unit.
It also allows faults to be displayed and unit configurations to be set up.
The weekly timer can be fitted to this remote control.

Outline

Appearance	Application
	 Simple remote controller

Specifications

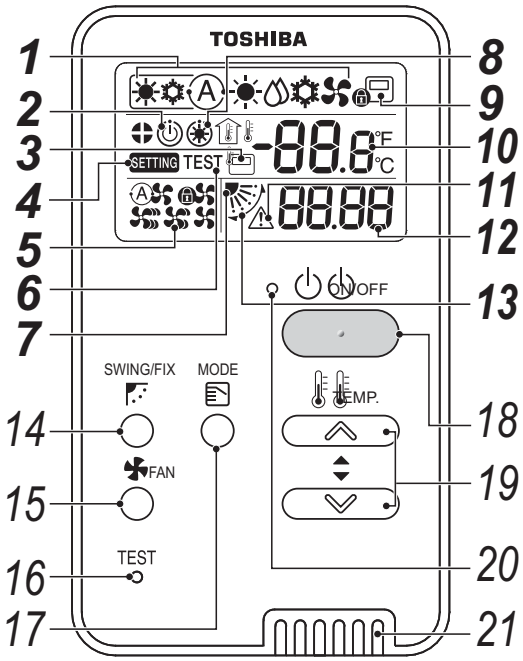
Part name	Simple wired remote controller
Model Name	RBC-AS41E
Power supply	No external power supply is required
Dimension	120 × 70 × 16 mm

Main functions

Function	Operation	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Med., High	✓
Louver position	Swing, Fix	✓
Schedule Function	-	-
Multi language	-	-
Energy Save Function	-	-
Permit/Prohibit function	-	-
Filter sign	-	-
Error Display	Reset	Hexadecimal fault code
Dual automatic mode	-	-
Soft cooling	-	-
Air flow changing	-	-
Power Save mode	-	-
Individual louver setting	-	-
Frost protection setting	-	-
Filter sign flashes	-	-
Control by 2 remote controllers	-	-

Functions

Parts Name of Remote Controller (Display section)



■ Indicators

All icons on the display are shown for this explanation. Icons related to heating do not appear for cooling only models.
Operations are not accepted when “SETTING” is flashing.

1 Operation mode indicator

Indicates the operation mode selected.

2 Operation standby indicator

Indicates that the Super Modular Multi System-e cannot cool if a different indoor unit is heating or cannot heat if one is cooling; and that the Super Heat Recovery Multi System-e cannot heat or cool because the outside temperature is outside the operating range.

3 Remote controller sensor indicator

Displayed when the remote controller sensor is used.

4 Setting indicator

Indicates that the model is being checked automatically after a breaker is thrown or some other occurrence.

5 Fan speed indicator

Indicates the selected fan speed:
“Ⓐ Auto”, “ High”, “ Medium”, “ Low” or “ Fix”.

6 Test run indicator

Displayed during test run.

7 Louver position indicator

Indicates the louver position.

8 Pre-heat indicator

Displayed when the heating mode is energized or defrost cycle is initiated.
While this indication is displayed, the indoor fan stops or operate in fan mode.

9 Central control indicator

Displayed when the air conditioner is controlled centrally and used with central control devices such as the central remote controller.
If the use of the remote controller is prohibited by the central control, blinks when the ON/OFF, MODE, or TEMP. button on the remote controller is pushed, and the buttons do not function.
(Settings that can be configured on the remote controller differ depending on the mode of the central control. For details, read the Owner’s Manual of the central remote controller.)

10 Temperature setting indicator

The selected set temperature is displayed.

11 Service display

Displayed while the protective device works or a check occurs.

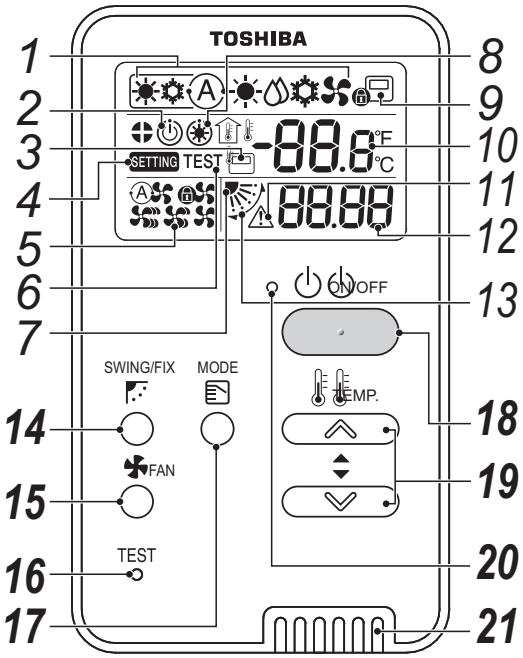
12 Check code indicator

When a check occurs, alternately indicates the indoor unit number and the check code.

13 Swing indicator

Displayed during up/down movement of the louver.

■ Operations



14 Set louver and swing button
Set automatic swing or the angle of the louvers.

15 Fan speed button
Selects the desired fan speed.

16 Test button
Used for test runs and for servicing.
* Not normally used.

17 Mode select button
Selects desired operation mode.

18 ON/OFF button
Turns on the unit when pushed, and turns off when pushed again.

19 Temperature setting button
Adjusts the set temperature.
Select the desired set point by pushing temperature button.

20 Operation lamp
Lights during operations. Blinks when a check occurs or the protective device activates.

21 Remote controller sensor
Normally, the indoor unit's temperature sensor detects the temperature, but it can also detect the temperature near the remote controller. For details, contact your dealer.
* Do not set during group control.

2-9 Wired remote controller for Air to Air Heat Exchanger with DX coil unit

This controller is based on the standard wired controller but has the additional control provided by a built-in 7-day timer function making it an ideal solution for any light commercial or VRF application that requires schedule timer operations or Night set-back control.
The 7-Day timer function can set multiple Indoor Unit parameters and can control:
Operation ON/OFF, Operation Mode, Set Temperature, Energy Saving Function*, Frost Protection Function*, button restrictions.
Restriction on button operation.

* Specific Unit Combinations only.

Outline

Appearance	Application
	 Wired remote controller Wired remote controller NRC-01HE When all A2A HEXs with DX-coil or group operation with standard indoor units, use NRC-01HE

Specifications

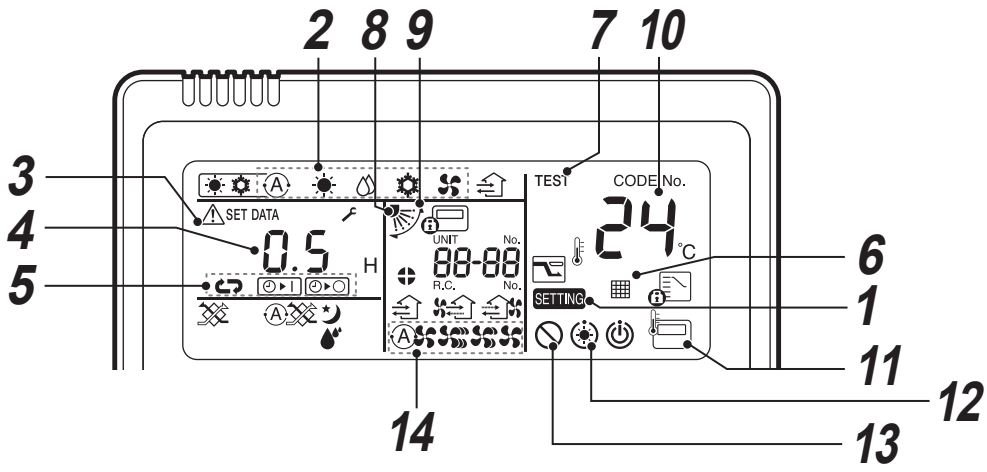
Part name	Remote controller with weekly timer
Model Name	NRC-01HE
Power supply	No external power supply is required
Dimension	120 × 120 × 16 mm

Main functions

Function		Operation	Monitoring
ON/OFF		✓	✓
Mode		Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature		18 - 29 ˚C	✓
Fan Speed		Auto, Low, Med., High	✓
Louver position		Swing, Fix	✓
Schedule Function		7 days timer, 8 functions for each day of the week	-
Multi language		-	-
Energy Save Function		✓	-
Permit/Prohibit function		-	-
Filter sign		Reset	✓
Error Display		Reset	Hexadecimal fault code
Dual automatic mode		-	-
Soft cooling		-	-
Air flow changing		✓	✓
Power Save mode		-	-
Individual louver setting		✓	✓
Frost protection setting		-	-
Filter sign		✓	✓
Self-diagnosis function		-	-
Self cleaning mode		-	-
Grill up/down		-	-
Clock display		-	-
Control by 2 remote controllers		-	-
Air to Air Heat Exchanger	ON/OFF	✓	✓
	Mode	Automatic, Heat exchanger	✓
	Fan speed	High, Low, SA > EA (SA < EA)	✓

Functions

Parts Name of Remote Controller (Display section)



1 SETTING indicator

Displayed when setting the timer or other functions.

2 Operation mode indicator

Indicates the operation mode selected.

3 Error indicator

Displayed when the protective device activates or an error occurs.

4 Time indicator

Indicates time concerning the timer.
(Indicates an error code when an error occurs.)

5 Timer mode indicator

Each time you press the TIMER SET button, the indication changes as follows: , , , and no timer indication.

6 Filter indicator

Reminder to clean the air filter.

7 Test run indicator

Displayed during a test run.

8 Louver position display (*1)

9 Swing indicator (*1)

10 Set temperature display

The selected set temperature is displayed.

11 Remote controller sensor indicator

Displayed when the remote controller sensor is used.

12 Pre-heat indicator

Displayed when the heating mode is energized or defrost cycle is initiated.
While this indication is displayed, the indoor fan stops or operate in fan mode.

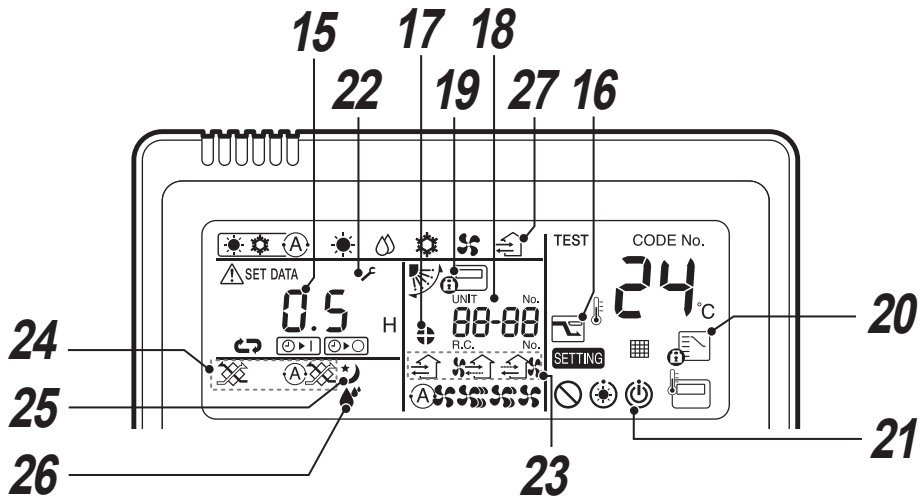
13 No function indicator

Displayed when the function requested is not available on that model.

14 Fan speed indicator (*1)

Indicates the selected fan speed:

(Auto)	
(High)	
(Medium)	
(Low)	



15 Louver Number display. (*1)

16 Power saving mode display
Displayed during capacity saving mode.

17 Louver lock indicator (*1)

18 UNIT No. indicator
The number of the Air to Air Heat Exchanger with DX Coil Unit selected using the UNIT button or that of the unit in which an error has occurred.

19 Central control indicator
Displayed when a central control device such as a central controller is also used. If the central control device prohibits the use of local remote controllers, blinks when any of the ON / OFF, MODE or TEMP. buttons are pressed and the operation is rejected. The items controllable with the remote differ depending on the mode of central control. Refer to the owner's manual of the central control device you are using for more information

20 Operation mode controlled indicator
Displayed when MODE button is pushed while operation mode is fixed to cool or heat by the air conditioner administrator.

21 Operation ready display (*1)
This display appears on some models.

22 Service display
Displayed while the protective device works or a trouble occurs.

23 Ventilation fan speed indicator
Indicates the ventilation fan's speed. , , or is indicated.
When the remote is used to control air conditioners together with the Air to Air Heat Exchanger with DX Coil Unit as a group, VENT FAN indicator appears (blinks) only when the button is pressed.

(High)		
(Low)		
(SA > EA)	(*2)	* Displayed when the setting is activated.
(SA < EA)	(*2)	

24 Ventilation mode indicator
Indicates the selected ventilation mode. or is indicated.

(Automatic mode)	
(Heat exchange mode)	

25 Nighttime heat purge indicator
Displayed during the nighttime heat purge operation. (*2)

26 Humidification indicator (VNK type only)
Displayed during humidifying.

27 Ventilation indicator
If the remote is used to control the Air to Air Heat Exchanger with DX Coil Unit in a system linked with air conditioners, and separate operation of the unit is set to available, the indicator is displayed while the unit is running.
* The indicator is not displayed when the unit is running in a system equipped with only the Air to Air Heat Exchanger with DX Coil Unit.

(*1):
Not displayed. These functions are not available for Air to Air Heat Exchanger with DX Coil Unit.

(*2):
Displayed when these operation modes are activated.

2-10Wireless remote controller kit

The wireless controller is available with a series of receiver unit designs.
These receivers are specially designed to fit into different Indoor Unit models to provide a high standard of finish.
The wireless controller features an easy to use and compact button layout, standard control buttons immediately available and display screen to show all the main operating parameters.

Outline

Appearance		Application
Handset	Receiver	
	 RBC-AX32U(W)-E	 
	 RBC-AX32UM(W)-E	
	 RBC-AX23UW(W)-E	
	 RBC-AX33CE	
	 TCB-AX32E2	
	 RBC-AX41U(W)-E	

Specifications

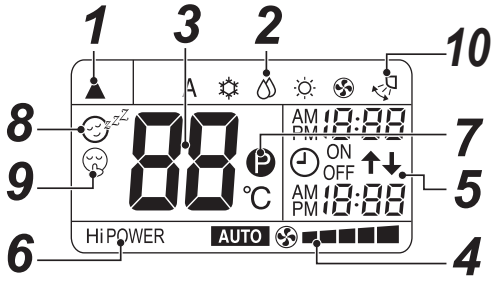
Part name	Wireless remote controller kit		
Model Name	RBC-AX32U(W/WS)-E	For 4-way cassette	
	RBC-AX32UM(W)-E	For Compact 4-way cassette (VRF: From Series 7, LC: From RM series 1)	
	RBC-AX32UW(W)-E	For 2-way cassette	
	RBC-AX33CE	For Ceiling, 1-way cassette 4SH	
	TCB-AX32E2	For all other units	
	RBC-AX41U(W)-E	For Smart 4-way cassette (with SDI only)	
Power supply	No external power supply is required		
Dimension		Handset	177 × 61 × 19.5 mm
	RBC-AX32U(W/WS)-E	-	-
	RBC-AX32UM(W)-E	-	-
	RBC-AX32UW(W)-E	-	-
	RBC-AX33CE	-	-
	TCB-AX32E2	**Receiver**	120 × 70 × 18.2 mm
	RBC-AX41U(W)-E	-	-

Main functions

Function	Operation	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	17 - 30 °C	✓
Fan Speed	Auto, Low, Low+, Med., Med.+, High	✓
Louver position	Swing, Fix	✓
Schedule Function	-	-
Multi language	-	-
Energy Save Function	-	-
Permit/Prohibit function	-	-
Filter sign	Reset	-
Error Display	Reset	LED on receiver unit
Dual automatic mode	-	-
Soft cooling	-	-
Air flow changing	-	-
Power Save mode	-	-
Individual louver setting	-	-
Frost protection setting	-	-
Filter sign flashes	-	-
Control by 2 remote controllers	-	-

Parts Name of Remote Controller (Display section)

▼WH-L11SE (RBC-AX32U(W)-E, RBC-AX32U(WS)-E, RBC-AX33CE, TCB-AX32E2, RBC-AX32UW (W)-E, RBC-AX32UM (W)-E, RBC-AX41U (W)-E



• In the illustration, all indications are indicated for explanation.
During operation, only the relevant indications will be indicated on the remote controller.

1 Transmission mark

This transmission mark (▲) indicates when the remote controller transmits signals to the indoor unit.

2 Mode display

Indicates the current operation mode.
(A : Auto changeover control, ☼ : Cool, 💧 : Dry, ☀ : Heat, 🌀 : Fan only)

3 Temperature display

Indicates the temperature setting (17 °C to 30 °C).
When you set the operating mode to 🌀 : Fan only, no temperature setting is indicated.

4 FAN speed display

Indicates the selected fan speed. AUTO or one of five fan speed levels (LOW ▪ , LOW$^+$ ▪▪ , MED ▪▪▪ , MED$^+$ ▪▪▪▪ , HIGH ▪▪▪▪▪) can be indicated.
Indicates AUTO when the operating mode is 💧 : Dry.
* Five patterns are displayed. but the actual fan speed varies depending on the indoor unit type.

5 TIMER and clock time display

The time set for timer operation or clock time is indicated.
The present time is always indicated except for TIMER operation.

6 Hi POWER display

Indicates when the high power operation starts.
Push the Hi-POWER button to start and push it again to stop the operation.

7 Ⓟ (PRESET) display

Indicated when memorizing the preferred operation mode or when it has been memorized.
Also, this icon is indicated when the memorized preferred operation is displayed.

8 (COMFORT SLEEP) display

Indicated during the OFF timer operation that automatically adjusts the room temperature and the fan speed. Each time you push the COMFORT SLEEP button, the display changes in the sequence of 1h, 3h, 5h, and 9h.

9 (QUIET) display

Indicated during the quiet operation.

10 Swing display

Indicated during the swinging operation where the horizontal louver automatically moves up and down.

NOTE

When both wired remote controller or central controller and wireless remote controller are used, display on the screen of wireless remote controller may differ from the actual operation in some cases.

3

Schedule timer and central remote controller

3-1 Line Up & Function - Schedule timer and central remote controller

Type	Schedule Timer	Central Remote Controller
Model Name	**TCB-EXS21TLE**	**TCB-SC643TLE**
Appearance		
ON/OFF	✓	✓
Mode	-	✓
Setting Temperature	-	✓
Fan Speed	-	✓
Timer Function	✓	✓ (*2)
Schedule Function	✓	✓ (*2)
Multi language	-	-
Energy Save Function	-	-
Permit/Prohibit function	✓	✓
Filter sign	-	✓
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.

3-2 Central remote controller Comparison Table

Part name		Schedule timer	Central remote controller
Model Name		**TCB-EXS21TLE**	**TCB-SC643TLE**
Power supply		No external power supply is required	220 - 240 VAC 50/60 Hz
Dimension		120 × 120 × 16 mm	120 × 120 × 20 (+50.6) mm
Display		✓	✓
Max number per one controller [Note1]	Indoor unit	64	64
	TCC-link bus	1	1
Indoor view classification		1 fixed timer group	1 to 10 zones
		4 fixed timer group	-
		8 fixed timer group	-
Monitoring [Note2]	ON/OFF	-	✓
	Operation mode	-	✓
	Set temperature	-	✓
	Fan speed	-	✓
	Swing / Direction	-	✓
	Filter sign	-	✓
	Child lock (Unit operation prohibited)	-	✓
	Power saving mode	-	✓
	Return back	-	✓
	Central control	-	✓
	Operation switch control	-	✓
	Ventilation	-	✓
Operation [Note2]	ON/OFF	✓	✓
	Operation mode setting	-	✓
	Temperature setting	-	✓
	Fan speed setting	-	✓
	Swing / Direction	-	✓
	Filter sign reset	-	✓
	Child lock (Unit operation prohibited)	-	✓
	Power saving mode (Compatible models only)	-	✓
	Return back	-	✓
	Central / Individual (Operation prohibited)	✓	✓
	Ventilation	-	✓
Error Display	Unit No.	-	✓
	Error code	-	✓
Schedule Function [Note3]	Special day	✓	✓ [Note3]
	Daily	✓	✓ [Note3]
	Weekly	✓	✓ [Note3]
Digital input / output	Alarm output	-	✓
	Run output	-	✓
	All stop input	-	✓
	All start input	-	✓
	Fire alarm input	-	✓

[Note 1] Restriction by TCC-Link specification:

1.Max 64 indoors, max 16*1 header outdoor with max 3 followers per 1 TCC-Link main bus, Max 48 indoors per 1 VRF refrigerant system.

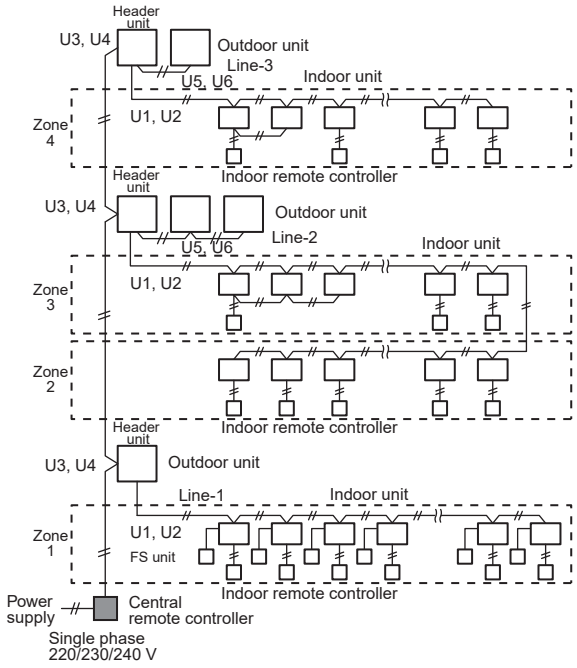
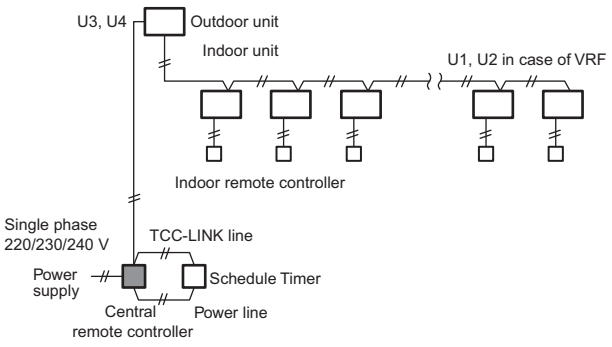
2.Number of indoor followers shall be counted for VRF, however in case of DI/SDI, number of TCC-link adaptor shall be counted.

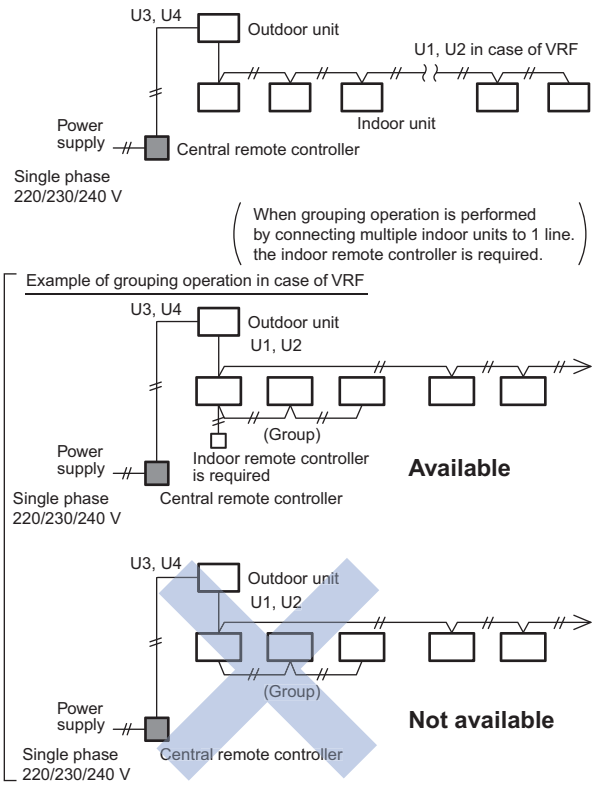
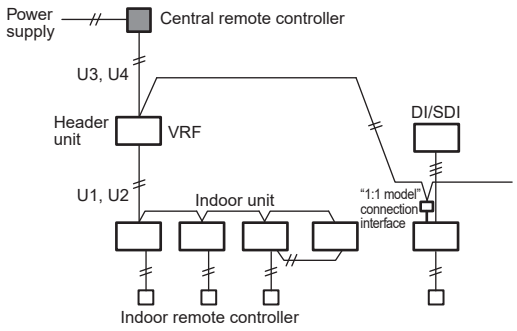
3.Confirm that max 16 refrigerant systems per 1 main bus for VRF, max 64 refrigerant systems per 1 main bus for only DI/SDI, max 64 total refrigerant systems and max 16 VRF refrigerant systems per 1 main bus for mixed VRF / DI/SDI.

[Note 2] Actual functions depend on each air conditioner.

[Note 3] Schedule timer (TCB-EXS21TLE) needed.

3-3 Application controls for central remote controller

	Basic function	System diagram
1	Central management controller for 64 units	 **Function of central remote controller** ■ TCB-SC643TLE • Individual control of up to (64 indoor units) × TCC-LINK buses • Individual control of up to (64 indoor units divided 1 to 10 zones) TCC-LINK buses (up to 64 indoor units for each zone) • Up to 16 outdoor header units are connectable per 1 TCC-LINK bus • Setting for (one of 1 to 10 zones) available • Setting for (one of 1 to 64 groups) available • Return-back setting ■ Can be used with other central control devices (Up to 10 central control devices with in one control circuit) ■ Central control 4 mode • 4 selectable settings to restrict individual operation of remote controller.
2	Central remote controller + Schedule Timer	

	Basic function	System diagram
3	Central remote controller without indoor remote controller (Please prepare a wired remote controller for operation confirming of indoor unit in advance.)	
4	Central management control with “1 : 1 model”	

3-4 Schedule timer

The Schedule Timer is an advanced control device that can be used to control Indoor Unit parameters based on a timed schedule, and has two possible modes of operation to choose from, these are:

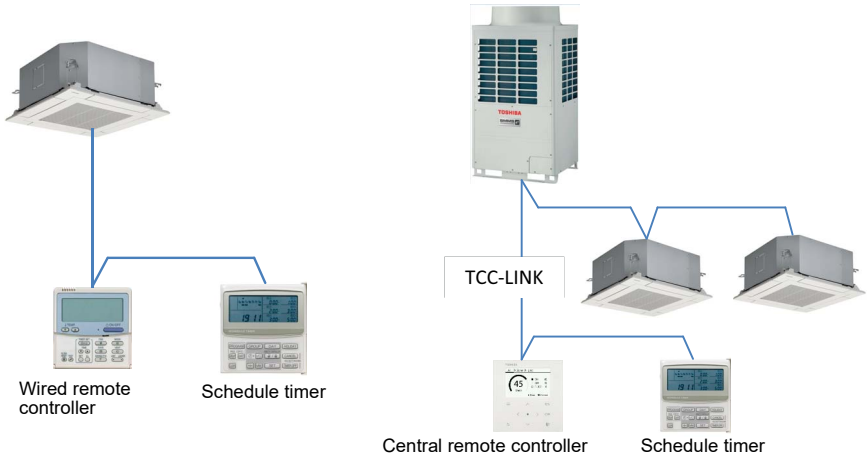
Weekly Timer Mode

The timer is connected to an Indoor Unit via a local or central remote controller.
Connected to central remote controller or wired remote controller

Schedule Timer Mode

The timer is connected directly to the TCC Link Central Control network and can set timer functions for up to 64 Indoor Units in up to 8 programmable control groups.

Outline

Appearance	Application
	

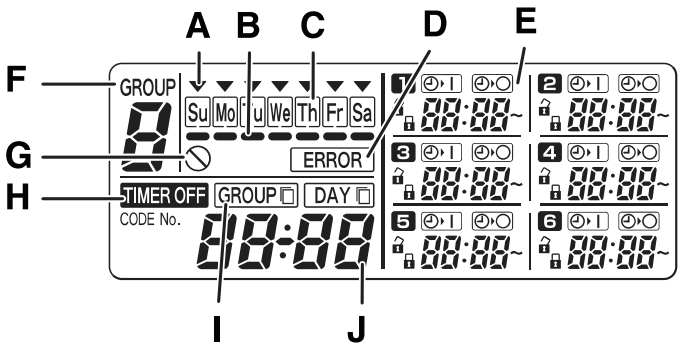
Specifications

Part name		Schedule Timer
Model Name		TCB-EXS21TLE
Power supply		No external power supply is required
Dimension		120 × 120 × 16 mm
Max number per one controller	Indoor unit	64
	TCC-link bus	1
Indoor view classification		• 1 fixed timer group (1 setting zone) (64 units together) • 4 fixed timer group (4 setting zone) (16 units together) • 8 fixed timer group (8 setting zone) (8 units together)

Main functions

Function		Operation	Monitoring
ON/OFF		✓	-
Mode		-	-
Setting Temperature		-	-
Fan Speed		-	-
Timer Function		✓	✓
Central / Individual(Operation prohibited)		✓	-
Weekly	Number of registrations	Equivalent to the number of indoor units	-
Timer Mode	Settable period	7 days, Up to 1 week later including current date	-
	Number of set points per day	3 settings	-
	Interval of set point	1 minute	-
	Settable parameters	ON/OFF	-
	Special day	Holiday setting : 1 pattern	-
Schedule	Number of registrations	Equivalent to the number of indoor units	-
Timer Mode	Settable period	7 days, Up to 1 week later including current date	-
	Number of set points per day	6 settings	-
	Interval of set point	1 minute	-
	Settable parameters	ON/OFF, Permit/Prohibit	-
	Special day	Holiday setting : 1 pattern	-

Parts Name of Remote Controller (Display section)



A: Today's day of the week (▼)	Indicates today's day of the week.
B: Program schedule indication (▬)	Appears under days that are scheduled for program operation.
C: Holiday schedule indication (▯)	Appears around scheduled holidays.
D: ERROR indication	Displayed when a mistake is made during timer setting.
E: Timer program	Displays set timer programs. Also, indicates the copy source/destination during group program copying.
F: Group No.	Up to 8 groups can be selected and displayed.
G: ⃠ (Disabled Feature) indication	Displayed if the selected feature was disabled during installation.
H: TIMER OFF indication	Displayed when the timer has been turned OFF.
I : Copy mode indication	Displayed when copying a program into a group or day of the schedule.
J: Present time	Displays the present time on a 24-hour clock. Also, displays settings in the various setting modes.

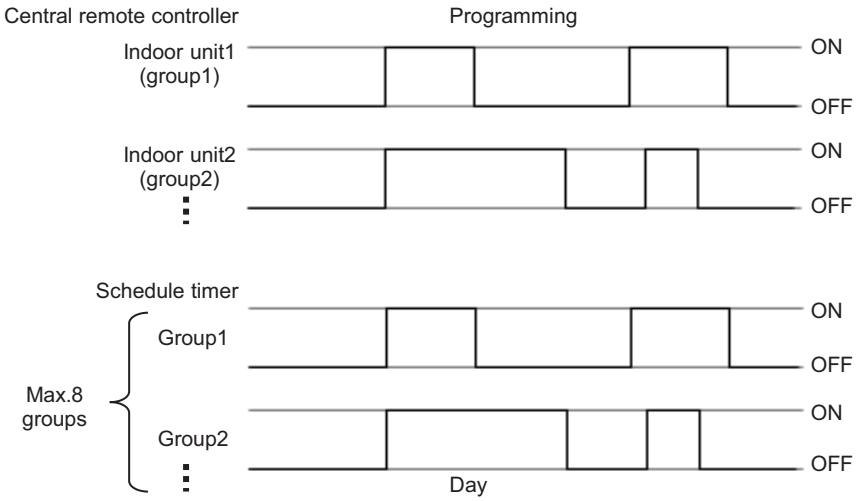
Permit/Prohibit operation selection

Mode	Remote controller disabled items	Central remote controller indication
0	Remote controller enable/disable not used	No indication
1	ON/OFF	Central 1
2	Operation mode	Central 4
3	Operation mode + ON/OFF	Central
4	Temperature setting	Central
5	Temperature setting + ON/OFF	Central
6	Temperature setting + ON/OFF	Central 3
7	Temperature setting + Operation mode + ON/OFF	Central

Mode select

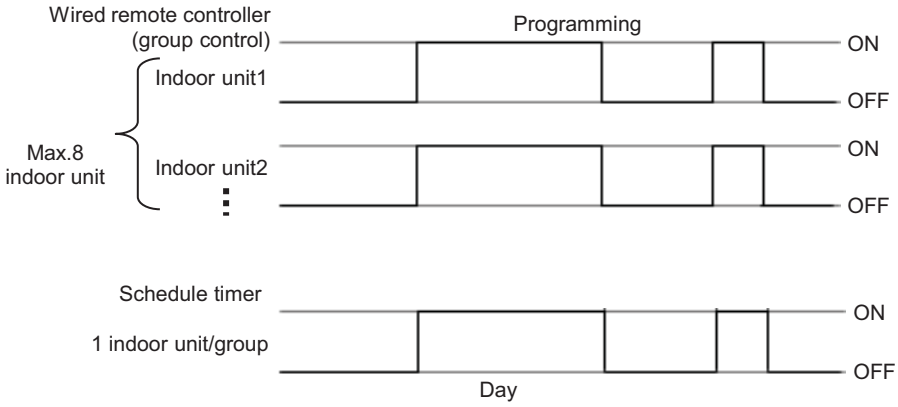
■ Schedule timer mode

- 6 programmings per day
- Enabling 8 groups to be programmed
- A maximum of 64 indoor units can be controlled
- A maximum of 100 hours back-up power supply



■ Weekly Timer Mode

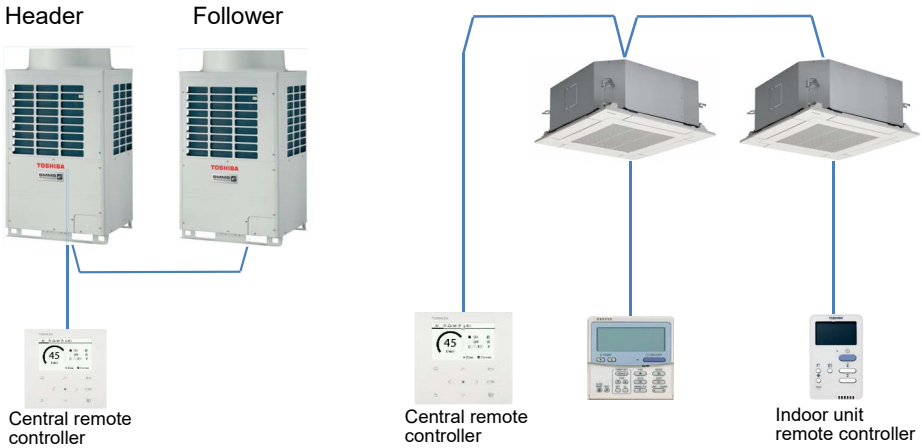
- 7 types of weekly schedule and 3 programmings per day
- Can set ON/OFF by one-minute interval



3-5 Central remote controller

The TCB-SC643TLE 64-Way central controller is TOSHIBA's standard central control solution and can be connected to up to 64 Indoor Units via the TCC-Link Central Control network.
Indoor Units can be controlled in terms of: Individual Indoor Unit/Group, all Units in a Zone, and all Units connected.
Additional features include 4-levels of remote controller permit/prohibit functions and the option of connecting an additional Schedule Timer.

Outline

Appearance	Application
	

Specifications

Part name		Central remote controller
Model Name		TCB-SC643TLE
Power supply		No external power supply is required
Dimension		120 × 120 × 20 (+50.6) mm
Max number per one controller	Indoor unit	64
	TCC-link bus	1
Indoor view classification		4 zone, 16 groups/zone
Notes		This model cannot connect with Hot Water Module.

Main functions

Function		Operation	Monitoring
ON/OFF		✓	✓
Mode		✓	✓
Setting Temperature		✓	✓
Fan Speed		Auto, Low, Med., High	✓
Louver position		Swing, Fix	✓
Schedule Function		Scheduled timer required	-
Multi language		-	-
Energy Save Function		-	-
Permit/Prohibit function		-	-
Filter sign		-	-
Error Display		Reset	Hexadecimal fault code
Dual automatic mode		-	-
Soft cooling		-	-
Air flow changing		-	-
Power Save mode		-	-
Individual louver setting		-	-
Frost protection setting		-	-
Filter sign flashes		✓	✓
Control by 2 remote controllers		-	-
Swing / Direction		✓	✓
Central / Individual (Operation prohibited)		✓	✓
Digital input / output	Alarm output	✓	-
	Run output	✓	-
	All stop input	✓	-
	All start input	✓	-
Ventilation		✓	✓
Connectable Central control devices	Up to 2 devices (Header/Follower)		
	In case of "zone fix mode", Up to 5 units (Header, zone 1, 2, 3, 4)		

4

Advanced central control

4-1 Line Up & Function – Advanced central control

Type		Smart BMS manager	Smart BMS manager with data analyzer	Touch Screen Controller	Touch Screen Controller	Smart device control interface
Model name		**BMS-SM1280HTLE**	**BMS-SM1281ETLE**	**BMS-CT1280E**	**BMS-CT5121E**	**BMS-IWF0320E**
Appearance						
Max number per one controller	Indoor unit	128	128	128	512	32
	TCC-link bus	2	2	2	Using relay interface	1
	Energy monitoring interface	4	4	4	8	-
	Digital Input / Output interface	4	4	4	8	-
Indoor view classification		(4 zone,16 groups/zone)	(4 zone,16 groups/zone)			-
		(64 zone, 64 groups/zone)	(64 zone, 64 groups/zone)			-
Start / Stop, Mode, Setting Temperature, Fan Speed		✓	✓	✓	✓	✓
Filter sign, Error Display		✓	✓	✓	✓	✓
Permit/Prohibit function		✓	✓	✓	✓	-
Schedule Timer Connection		✓	✓	-	-	-
Schedule function		✓	✓	✓	✓	✓
WEB Connection		✓	✓	-	-	✓
Option interface connection		✓(*1)	✓(*1)	✓	✓(*1)	-
Energy Monitoring		✓(*2)	✓(*2)	✓	✓(*2)	-
Multi Language		✓	✓	-	-	-
Demand Function		✓	✓	-	-	-
Error information transfer function by E-mail		-	✓	-	-	-

(*1) Digital I/O Relay interface only.
(*2) Energy Monitoring interface needed.

4-2 Central remote controller comparison table – Advanced central control

Type		Smart BMS manager		Smart BMS manager with data analyzer		Touch screen controller system		Touch screen controller system		Smart device control interface	
Model Name		**BMS-SM1280HTLE**		**BMS-SM1281ETLE**		**BMS-CT1280E**		**BMS-CT5121E**		**BMS-IWF0320E**	
Power supply		220 - 240 VAC 50/60 Hz		220 - 240 VAC 50/60 Hz		220-240 VAC* 50/60 Hz		220 - 240 VAC 50/60 Hz		220 - 240 VAC 50/60 Hz	
Dimension	Central Controller	120 × 180 × 64 mm		120 × 180 × 64 mm		136 × 205 × 10(+80) mm (Embedded dimensions shown in parenthesis)		323 × 256 × 49 mm		140 x 90 x 45 mm	
	Power Unit	114 × 177 × 50 mm		114 × 177 × 50 mm							
Display		✓ (B/W 157*42 mm)		✓ (B/W 157*42 mm)		✓ (12.1 inch / Capacitance touch panel method)		✓ (12.1 inch / Capacitance touch panel method)		-	
Max number per one controller [Note1] [Note2]	Indoor unit	128		128		128		512		32	
	TCC-link bus	2		2		2		12		1	
	Relay I/F	-		-		-		12		-	
	Energy monitoring I/F	4		4		4		8		-	
	Digital Input / Output I/F	4		4		4		8		-	
Communication port	TCC-link	2		2		2		- (RS485 via Relay I/F)		-	
	RS485	Energy monitoring I/F: 4 Digital Input / Output I/F: 4		Energy monitoring I/F: 4 Digital Input / Output I/F: 4		Energy monitoring I/F: 4 Digital Input / Output I/F: 4		Relay I/F: 12 Energy monitoring I/F: 8 Digital Input / Output I/F: 8		-	
	Ethernet	✓ (Web access / Monthly report PC)		✓ (Web access / Monthly report PC / Data analyzer)		✓ (Web access / Monthly report PC / Data analyzer)		✓ (Web access / Monthly report PC / Data analyzer)		-	
Indoor view classification		(4zone,16groups/zone)*2 (64zone, 64groups/zone)*2		(4zone,16groups/zone)*2 (64zone, 64groups/zone)*2		Floor/Tenant/area/group unit		Floor/Tenant/area/group unit		-	
Unit / Browser operation		Unit	Browser	Unit	Browser	Unit	Browser	Unit	Browser	Unit	Browser
Monitoring [Note3]	ON / OFF	✓	✓	✓	✓	✓	✓	✓	✓	-	-
	Operation mode	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Set temperature	✓	✓	✓	✓	✓	✓	✓	✓	-	-
	Fan speed	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Swing / Direction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Filter sign	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Child lock (Unit operation prohibited)	✓	-	✓	-	-	-	-	-	✓	✓
	Power saving mode	✓	-	✓	-	✓	✓	✓	✓	-	-
	Return back	✓	✓	✓	✓	✓	✓	✓	✓	-	-
	Central control	✓	-	✓	-	✓	✓	✓	✓	-	-
	Room temperature	-	✓	-	✓	✓	✓	✓	✓	✓	✓
	Ventilation	✓	-	✓	-	✓	✓	✓	✓	-	-

Operation [Note3]	ON / OFF	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Operation mode setting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Temperature setting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Fan speed setting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Swing / Direction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Filter sign reset	✓	✓	✓	✓	✓	✓	✓	✓		
	Child lock (Unit operation prohibited)	✓	-	✓	-	✓	-	✓	-	✓	✓
	Power saving mode (Compatible models only)	✓	-	✓	-	✓	✓	✓	✓		
	Return back	✓	✓	✓	✓	✓	✓	✓	✓		
	Central / Individual (Operation prohibited)	✓	✓	✓	✓	✓	✓	✓	✓		
	Ventilation	✓	-	✓	-	✓	✓	✓	✓		
Alarm display	Unit No.	✓	✓	✓	✓	✓	✓	✓	✓		
	Occurrence time	-	✓	-	✓	✓	✓	✓	✓		
	Alarm code	✓	✓	✓	✓	✓	✓	✓	✓		
	Alarm content	-	✓	-	✓	✓	✓	✓	✓		
	Alarm history	-	✓	-	✓	✓	✓	✓	✓		
Schedule Function	Master	-	✓ (32 patterns)	-	✓ (32 patterns)	✓ (32 patterns)	✓ (32 patterns)	✓ (32 patterns)	✓ (32 patterns)		
	Operation execute	-	✓	-	✓	✓	✓	✓	✓		
	Special day	-	✓	-	✓	-	-	✓	✓		
	Daily	-	✓ (10 operations)	-	✓ (10 operations)	✓ (20 operations)	✓ (20 operations)	✓ (10 operations)	✓ (10 operations)		
	Weekly	-	✓ (32 patterns)	-	✓ (32 patterns)	✓ (32 patterns)	✓ (32 patterns)	✓ (32 patterns)	✓ (32 patterns)		
	Monthly	-	✓	-	✓	✓	✓	✓	✓		
	Billing	-	✓	-	✓	✓ (by report creation software)	✓ (by report creation software)	✓	✓		
Alarm e-mail		-	-	-	✓	✓	-	✓	-		
Multilingual language		-	✓ (6 languages)	-	✓ (13 languages)	✓ (14 languages)	✓ (14 languages)	✓ (14 languages)	✓ (14 languages)		
Data analyzer		-	-	-	✓	-	✓	-	✓		
Digital input / output	Alarm output	✓	-	✓	-	✓	✓	✓	-		
	Run output	✓	-	✓	-	✓	✓	-	-		
	All stop input	✓	-	✓	-	✓	✓	-	-		
	All start input	✓	-	✓	-	✓	✓	-	-		
	Fire alarm input	✓	-	✓	-	✓	✓	✓	-		

[Note 1] Restriction by TCC-Link specification:
1.Max 64indoors, max16*1 header outdoor with max 3 followers per 1 TCC-Link main bus, Max 48 indoors per 1VRF refrigerant system.
2.Number of indoor followers shall be counted for VRF, however in case of DI/SDI, number of TCC-link adaptor shall be counted.
3.Confirm that max 16 refrigerant systems per 1 main bus for VRF, max 64 refrigerant systems per 1 main bus for only DI/SDI, max 64 total refrigerant systems and max 16 VRF refrigerant systems per 1 main bus for mixed VRF / DI/SDI.

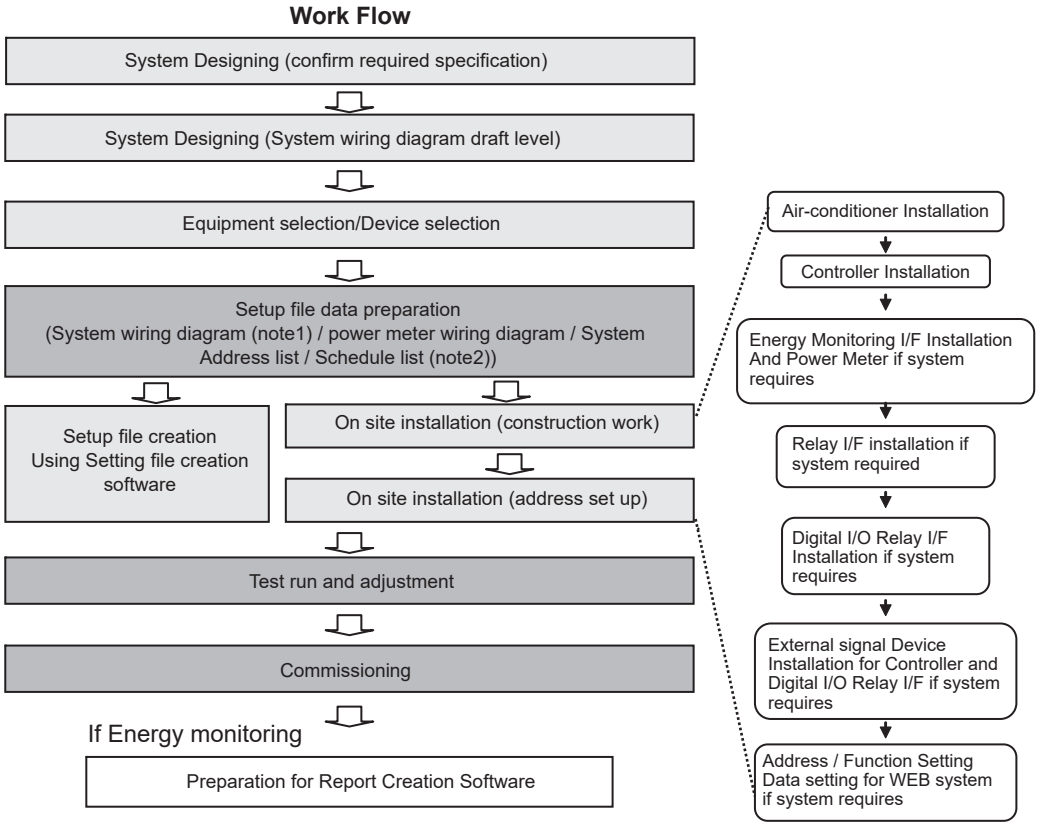
[Note 2] Restriction by Relay Interface specification:
1.Only 1 Relay I/F is connected to 1 TCC-Link main bus.
2.One Relay Interface covers, Max 64indoors under the condition of Note1 no2, max 16 refrigerant systems for VRF, max 64 refrigerant systems for only DI/SDI.

[Note 3] Actual functions depend on each air conditioner

[*] Power cord for 220-240 V power adapter is to be arranged on site.

4-3 Work flow

The BMS work flow (Touch screen/Smart BMS Manager) is shown below.
Documents to be referred to are prepared for each series or product.



Note1)
System wiring diagram
* All air-conditioners (FCU/CDU/controller) layout
* All system devices layout (include local equipment)
* Control Wiring diagram
* Refrigerant system piping information diagram

Note2)
System address list (see below table)
* All air-conditioners address information (line address, indoor unit address, group address, central control address)
* All system devices address information
* Control *classification for connection
* Model name

Building Name	Toshiba Building	IP Address	192.168.2.100

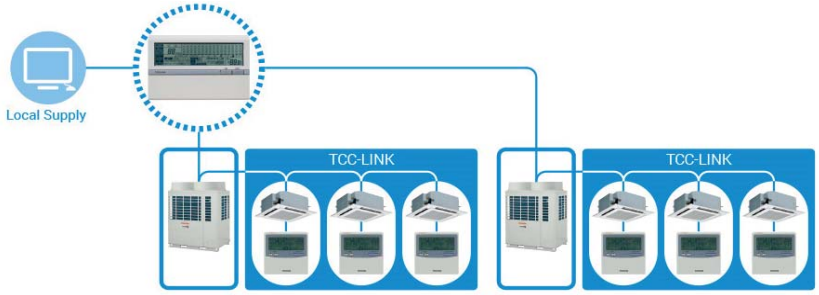
No	Air Conditioner List			Address Information						Display Name				Energy I/F Data	Digital I/F Data	
	Outdoor Refrigerant System	Outdoor unit Model Name	Indoor Unit Model Name	TCC-LINK Line No	Line Address	Indoor Unit Address	Group Address	Group Relation	Central Control Address	Floor Name	Tenant Name	Area Name	R.C. Unit/Group	Power Meter Address - Channel	Key Input Address - Channel	Fire Alarm Address - Channel
1	SYS-1	MMY-AP1401HT8	MMU-AP0181H	1	1	1	0	0	1	1F	TenantA	ShopA	RC-1	1-1	1-1	2-8
2			MMU-AP0091H			2	1	0	2				RC-2	1-1	1-2	2-8
3			MMU-AP0181H			3	2	2	2					1-1		2-8
4			MMU-AP0091H			4	2	2	2					1-1		2-8
5			MMK-AP0091H			5	0	0	3		TenantB	ShopB	RC-3	1-1	1-3	2-8
6			MMK-AP0181H			6	0	0	4			ShopC	RC-4	1-1	1-4	2-8
7			MMK-AP0181H			7	0	0	5			ShopD	RC-5	1-1	1-5	2-8
8			MMK-AP0181H			8	0	0	6				RC-6	1-1	1-6	2-8
9	SYS-2	MMY-AP0801HT8	MMU-AP0181H		2	1	1	0	7	2F	TenantC	ShopE	RC-7	1-2	1-7	2-8
10			MMU-AP0181H			2	2	9	7					1-2		2-8
11			MMK-AP0181H			3	1	0	8			ShopF	RC-8	1-2	1-8	2-8
12			MMK-AP0181H			4	2	11	8					1-2		2-8
13	SYS-3	MMY-AP1001HT8	MMU-AP0181H	2	1	1	0	0	9	3F	Office	CEO	RC-9	1-3	2-1	2-8
14			MMU-AP0181H			2	0	0	10				RC-10	1-3	2-2	2-8
15			MMK-AP0181H			3	0	0	11			Development	RC-11	1-3	2-3	2-8
16			MMK-AP0181H			4	1	0	12				RC-12	1-3	2-4	2-8
17			MMU-AP0181H			5	2	16	12					1-3	2-4	2-8
18			MMU-AP0181H			6	2	16	12					1-3	2-4	2-8
19			MMU-AP0181H			7	0	0	13				RC-13	1-3	2-5	2-8
20			MMU-AP0181H			8	0	0	14					1-3	2-6	2-8

Air conditioner list | Air conditioner address list | Display name Management category | Remote control | I/F Address Information

4-4 Smart BMS Manager

The Smart BMS Manager has the same hardware Control Function as the BMS-CM1280TLE Controller, but also has the ability of control from a Local Area Network and, with the use of an additional Interface, is capable of Energy Monitoring and Report Creation Functions.
This controller is ideal where advanced control, Energy Monitoring, advanced scheduling or access to individual Air Conditioners is required from networked computer systems.
Same Hardware control features as the BMS-CM1280TLE Controller.
Can be connected to a single PC or LAN to allow advanced control functions from a Multi-Language Web Browser Display Screen.*
Energy Monitoring and report creation functions available.
Advanced operation & master schedules can be set on a calendar.
Additional Digital I/O Device Available.
Thin profile controller and separate power supply unit enables easy installation.

Outline

Appearance	Application
	

Specifications

Part name		Smart BMS Manager
Model Name		BMS-SM1280HTLE
Power supply		220 - 240 VAC 50/60 Hz
Dimension	Central Controller	120 × 180 × 64 mm
	Power Unit	114 × 177 × 50 mm
Max. number per one controller	Indoor unit	128
	TCC-link bus	2
	Energy monitoring interface	4
	Digital Input / Output interface	4
Indoor view classification		(4 zone,16 groups/zone)
		(64 zone, 64 groups/zone)
Documents		Installation manual
		Owner's Manual

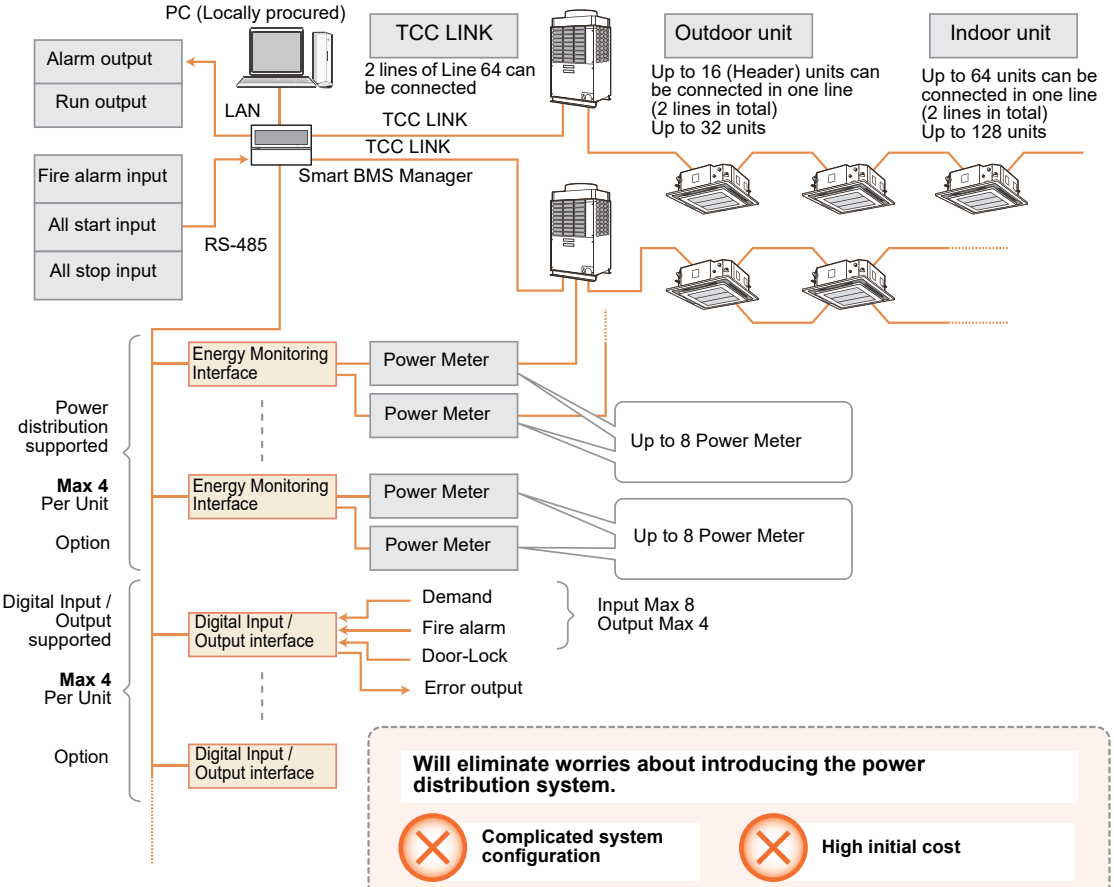
Software

Setting File Creation Software for BMS System	“This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.”
Report Creation Software	This software is a piece of software that is used in a PC to arrange the indoor unit operation results that where tallied up by the Smart BMS Manager in a report format. This software will also allow you to print these reports.
Section Changeover Software	This software renames the zones (Floor, Tenant, Area, Monthly report tenant), and targets.

System configuration (Optional)

Power can be distributed for each indoor unit (*).
Indoor unit can be controlled by external signals.

System image



Will eliminate worries about introducing the power distribution system.

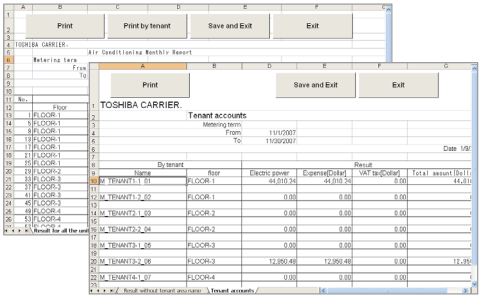
Complicated system configuration

High initial cost

Managing from inspection to aggregation simultaneously will reduce management and costs!

Can set any zone of 1 to 128 units!
(Up to 32 users, Up to 4 units can be accessed simultaneously)

•WAN
Wide Area Network: Network that connects remote Local Area Networks (LAN) using a telephone line or ISDN
• Cannot be connected via the above network for security reasons



- **Daily / Monthly Report creation function**
  Can distribute electric power to each indoor unit using Energy Monitoring Relay Interface. (*)
- **Linkage to external signals**
  Can stop the indoor unit (can stop all units simultaneously) by lock linkage or fire alarm signal using Digital Input / Output Relay Interface.

* In the case of group operation of the VRF indoor units, power is distributed by group.
Power cannot be distributed to the indoor follower unit in the DI/SDI indoor unit group.

Main functions

Function		Unit operation	Browser operation
Monitoring	ON/OFF	✓	✓
	Operation mode	✓	✓ Cool / Heat / Dry / Fan
	Set temperature	✓	✓
	Fan speed	✓	✓ Auto, High, Med., Low (*1)
	Swing / Direction	✓ (*2)	✓ (*3)
	Filter sign	✓	✓
	Child lock (Unit operation prohibited)	✓	-
	Power saving mode	✓	-
	Return back (*4)	✓	✓
	Central / Individual (Operation prohibited)	✓	-
	Operation switch control	✓	-
	Ventilation	✓	-
Operation	ON/OFF	✓	✓
	Operation mode	✓	✓
	Set temperature	✓	✓
	Fan speed	✓	✓
	Swing / Direction	✓ (*2)	✓
	Filter sign	✓	✓
	Child lock (Unit operation prohibited)	✓	-
	Power saving mode	✓	-
	Return back (*4)	✓	✓
	Central / Individual (Operation prohibited)	✓	✓
	Ventilation	✓	-
Schedule	Master schedule setting (Yearly, Weekly)	-	✓ Number of schedules : 32 patterns (Weekly schedule setting)
	ON/OFF	-	✓ Up to 10 per day Can be set in units of one minute
	Operation mode	-	
	Set temperature	-	
	Remote controller valid / invalid	-	
Schedule control	Master schedule	-	✓
	Charging schedule	-	✓
Alarm display	Unit No.	✓	✓ (*5)
	Occurrence time	-	✓
	Alarm code	✓	✓
	Alarm content	-	✓
	Alarm history	-	✓ Number of history records : 1,024
Electric charge calculation (*6)	Create daily report file	-	✓ Daily report file saving period :
	Create monthly report file	-	✓ 45 days
	Automatic inspection	-	✓ Monthly report file saving period :
	Charging schedule	-	✓ 3 months
PC user limitation	Access authority	-	✓ 3 levels
	Number of registered users	-	✓ 32
Web control	WebAccess	-	✓ Internet Explorer 7, 8 Firefox 2.0, 3.0, 3.5, 3.6
	Languages	-	✓ English, French, German, Italian, Spanish, Chinese
Separately sold products	Energy Monitoring Relay interface (*7)	-	✓ Maximum number of connected units : 4
	Digital Input/Output Relay interface (*8)	-	✓ Maximum number of connected units : 4
Digital input / output	Alarm output	✓	-
	Run output	✓	-
	All stop input	✓	-
	All start input	✓	-
	Fire alarm input	✓	-

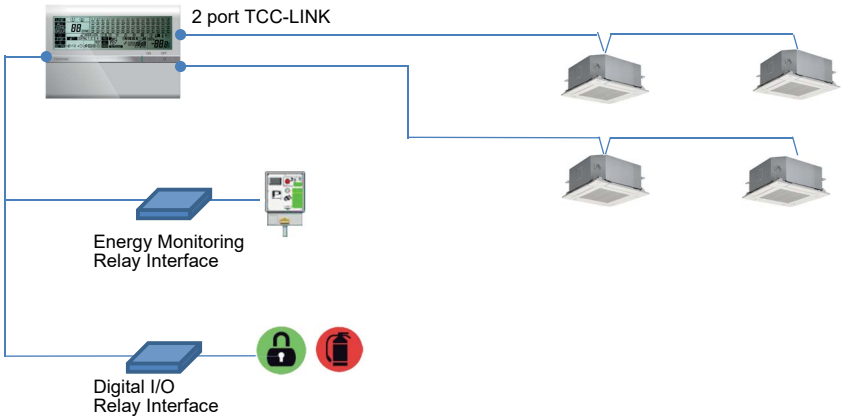
*1: Displayed when a model with the Fan speed setting fixed is connected.
*2: In case that there is no local remote controller. Not compatible with an independent louver of a 4-way cassette type. Only on or off setting for swinging.
*3: Only the on or off swinging setting can be configured on a browser.
*4: The temperature automatically returns to the set one after the set time (remaining time) has elapsed.
* Up to 60 minutes can be set for the remaining time.
*5: The unit name or error description can also be displayed.
*6: Need to set the locally procured products or the unit of electric charges.
*7: A power meter with pulse transmitter locally needs to be connected to the power meter interface in order to measure power of the connected air conditioner.
*8: In digital I/O interface, each air conditioner can be stopped (thermo off by demand alarm) by receiving 1. Lock No., 2. Fire alarm signal, or 3. Demand alarm signal.
* The group control of the central controller does not automatically apply on the browser (web), and needs to be set.

4-5 Smart BMS Manager with data analyzer

Data analyzer

On a connected local supplied personal computer is possible to view data analysis and energy monitoring.
Advanced operations and settings can be managed with this tool:
Set temperature restrictions, save operation modes, peak cut controls on condensing unit.
A set of graphs and detailed reports will help to easily monitor the performance of the system.

Outline

Appearance	Application
	

Specifications

Part name		Smart BMS Manager with data analyzer
Model Name		BMS-SM1281ETLE
Power supply		220 - 240 VAC 50/60 Hz
Dimension	Central Controller	120 × 180 × 64 mm
	Power Unit	114 × 177 × 50 mm
Max. number	Indoor unit	128
per one controller	TCC-link bus	2
	Energy monitoring interface	4
	Digital Input / Output interface	4
Indoor view classification		(4 zone,16 groups/zone) *
		(64 zone, 64 groups/zone) *

* The indoor savings and outdoor demand settings are functions that can only be set when the Super Module Multi System-e (heat pump model) is connected.

Software

Software name	Explanation
Setting File Creation Software for BMS System	“This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.”
Report Creation Software	This software is a piece of software that is used in a PC to arrange the indoor unit operation results that where tallied up by the Smart BMS Manager in a report format. This software will also allow you to print these reports.
Section Changeover Software	This software renames the zones (Floor, Tenant, Area, Monthly report tenant), and targets.
Data Analyzer	This software displays a history graph of operating power consumption or time of air conditioners managed with Smart BMS Manager.

Main functions

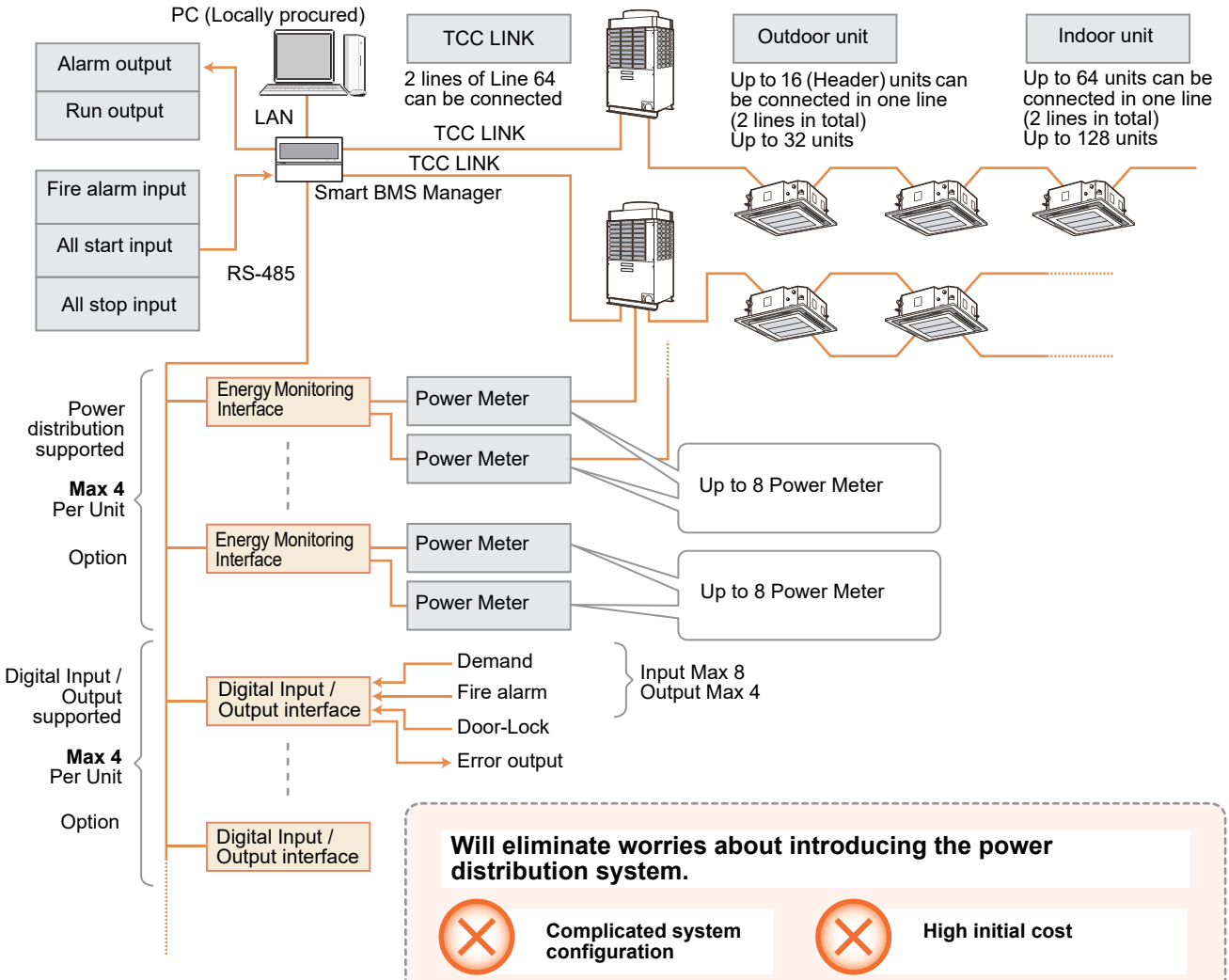
Function		Unit operation	Browser operation
Monitoring	ON/OFF	✓	✓
	Operation mode	✓	✓ Cool / Heat / Dry / Fan
	Set temperature	✓	✓
	Fan speed	✓	✓ Auto, High, Med., Low (*1)
	Swing / Direction	✓ (*2)	✓ (*3)
	Filter sign	✓	✓
	Child lock (Unit operation prohibited)	✓	-
	Power saving mode	✓	-
	Return back (*4)	✓	✓
	Central / Individual (Operation prohibited)	✓	-
	Operation switch control	✓	-
	Ventilation	✓	-
Operation	ON/OFF	✓	✓
	Operation mode	✓	✓
	Set temperature	✓	✓
	Fan speed	✓	✓
	Swing / Direction	✓ (*2)	✓
	Filter sign	✓	✓
	Child lock (Unit operation prohibited)	✓	-
	Power saving mode	✓	-
	Return back (*4)	✓	✓
	Central / Individual (Operation prohibited)	✓	✓
	Ventilation	✓	-
Schedule	Master schedule setting (Yearly, Weekly)	-	✓ Number of schedules : 32 patterns (Weekly schedule setting)
	ON/OFF	-	✓ Up to 10 per day Can be set in units of one minute
	Operation mode	-	
	Set temperature	-	
	Remote controller valid / invalid	-	
Schedule control	Master schedule	-	✓
	Charging schedule	-	✓
Alarm display	Unit No.	✓	✓ (*5)
	Occurrence time	-	✓
	Alarm code	✓	✓
	Alarm content	-	✓
	Alarm history	-	✓ Number of history records : 1,024
Electric charge calculation (*6)	Create daily report file	-	✓ Daily report file saving period :
	Create monthly report file	-	✓ 45 days
	Automatic inspection	-	✓ Monthly report file saving period :
	Charging schedule	-	✓ 3 months
PC user limitation	Access authority	-	✓ 3 levels
	Number of registered users	-	✓ 32
Web control	WebAccess	-	✓ Internet Explorer 7, 8 Firefox 2.0, 3.0, 3.5, 3.6
	Languages	-	✓ English, French, German, Italian, Spanish, Chinese
Separately sold products	Energy Monitoring Relay interface (*7)	-	✓ Maximum number of connected units : 4
	Digital Input/Output Relay interface (*8)	-	✓ Maximum number of connected units : 4
Digital input / output	Alarm output	✓	-
	Run output	✓	-
	All stop input	✓	-
	All start input	✓	-
	Fire alarm input	✓	-

*1: Displayed when a model with the Fan speed setting fixed is connected.
*2: In case that there is no local remote controller. Not compatible with an independent louver of a new 4-way cassette type. Only on or off setting for swinging.
*3: Only the on or off swinging setting can be configured on a browser.
*4: The temperature automatically returns to the set one after the set time (remaining time) has elapsed.
* Up to 60 minutes can be set for the remaining time.
*5: The unit name or error description can also be displayed.
*6: Need to set the locally procured products or the unit of electric charges.
*7: A power meter with pulse transmitter locally needs to be connected to the power meter interface in order to measure power of the connected air conditioner.
*8: In digital I/O interface, each air conditioner can be stopped (thermo off by demand alarm) by receiving 1. Lock No., 2. Fire alarm signal, or 3. Demand alarm signal.
* The group control of the central controller does not automatically apply on the browser (web), and needs to be set.
*9: MTP E-mail server can use “SMTP” server or “POP before SMTP” server only.

System configuration (Optional)

Power can be distributed for each indoor unit (*).
Indoor unit can be controlled by external signals.

System image



Will eliminate worries about introducing the power distribution system.

Complicated system configuration

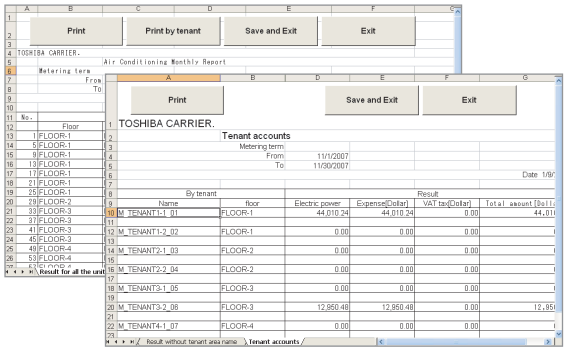
High initial cost

Managing from inspection to aggregation simultaneously will reduce management and costs!

Can set any zone of 1 to 128 units!
(Up to 32 users, Up to 4 units can be accessed simultaneously)

- **WAN**

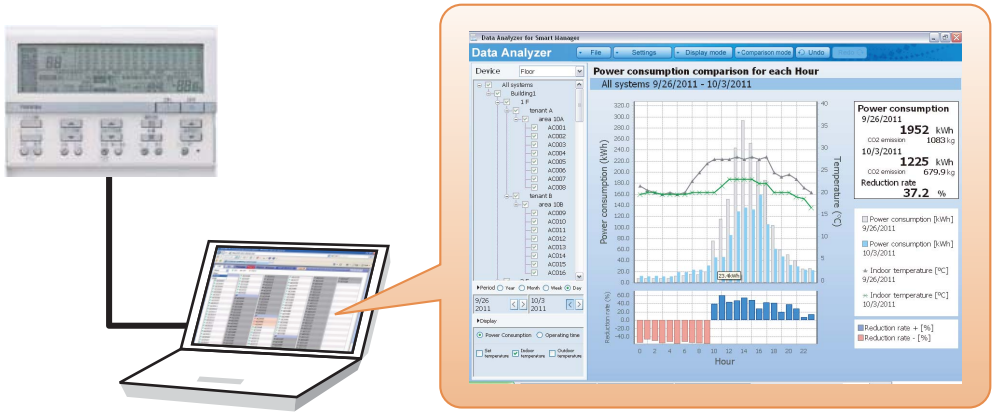
Wide Area Network: Network that connects remote Local Area Networks (LAN) using a telephone line or ISDN
·Cannot be connected via the above network for security reasons



- **Daily / Monthly Report creation function**
  Can distribute electric power to each indoor unit using Energy Monitoring Relay Interface. (*)
- **Linkage to external signals**
  Can stop the indoor unit (can stop all units simultaneously) by lock linkage or fire alarm signal using Digital Input / Output Relay Interface.

* In the case of group operation of the VRF indoor units, power is distributed by group.
Power cannot be distributed to the indoor follower unit in the DI/SDI indoor unit group.

Data Analyzer function



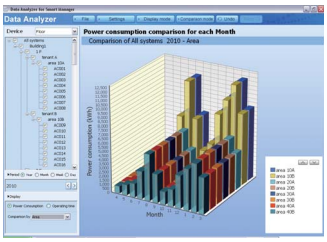
Air conditioner operating status (understanding current status)	• Graphic display of status of power consumption in entire building (for each floor or tenant is also possible). • Graphic display on one screen of outdoor temperature, room side suction temperature, and indoor set temperature which affect power consumption. • Easy to understand graphic display of peak consumption times in time line by month, date, or time. • Quickly spot wasteful air conditioners by displaying ranking of power consumption (all connected air conditioners).
Energy savings control (improving operations)	• Save energy and shift to energy saving temperatures easily. • Matching energy savings to needs of each tenant. ...Settings to control range of set temperature and settings to return to set temperature. • Save energy by pinpointing peak periods. ...Manage schedules for saving energy (suppressing capacity) used by indoor / outdoor units. • Handle power peaks with Peak Cut Controller. (Separate Peak Cut Controller required) • Set up schedules to avoid forgetting to turn off power and more.
Check results of energy savings (evaluating)	• Possible to do comparisons like outside temperature and power consumption from one year to the next. • Easy to understand the times when consumption is not reduced by understanding time line and reduction rates at the bottom of graphs. • More than just comparing entire buildings, comparisons can be done by floor, tenant, or air conditioner making it possible to understand reduction rates for each floor or tenant.

1. **Models that can be connected:**
2. **The indoor savings and outdoor demand settings are functions that can only be set when the Super Module Multi System-e (heat pump model) is connected.**
3. **With the Super Module Multi System-e, it is possible to measure the estimates of power consumption even if a power meter is not attached.**
   1) Just a reference, cannot be used for power distribution.
   2) Does not include power consumption for options that are not provided power from indoor unit power consumption or outdoor unit power.
   3) Cannot measure the estimates of power consumption with VRF and DI/SDI combined system. It is necessary to install separate power meters.

Easy to understand operating status of air conditioners

Graphs for at a glance understanding

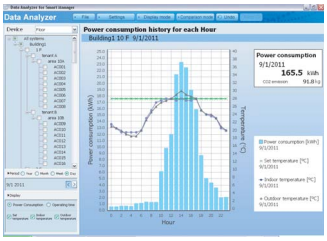
▼Power consumption by floor (simultaneous display)



Power consumption of up to 4 floors displayed simultaneously in 3D graph.
Easy to understand which floor consumes the most power.

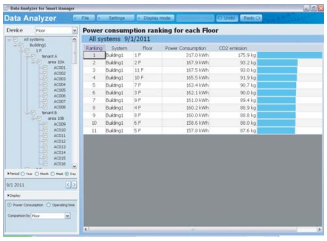
* Also possible to display for each tenant or for each air conditioner.

▼History of power consumption by air conditioners in a time line (month, date, time) and more



More than just power consumption, simultaneously display outdoor temperature, room side suction temperature, and indoor set temperature which affect power consumption. Plus it is possible to analyze operating status by month, date, and time.

▼Ranking of power consumption per air conditioner



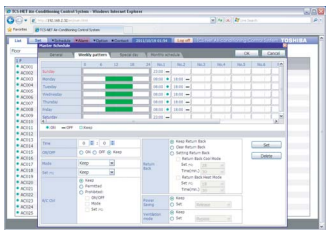
Quickly spot high consumption air conditioners by displaying power consumption ranking.

* Display ranking of all connected air conditioners.

Quickly improve control of energy savings

Easy online settings via the web

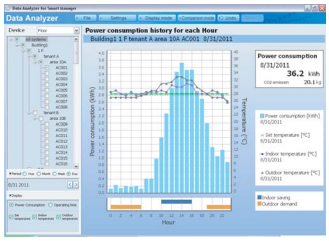
▼Easy to set up management of energy saving operations for air conditioners



1. Targeted air conditions are shifted to energy saving temperatures (while cooling +2ºC, while heating -2ºC) with easy settings.
2. Set temperature range limitation
   Limit temperature setting range with settings defined by building manager.
3. Manage schedules for indoor savings and outdoor demand (suppressing capacity)
   Suppressing capacity for each air conditioner
   (0 / 50 / any % setting with remote control)
   Set upper limit for capacity of outdoor unit systems
   (0 / 60 / 70 / 80 / 90 %)

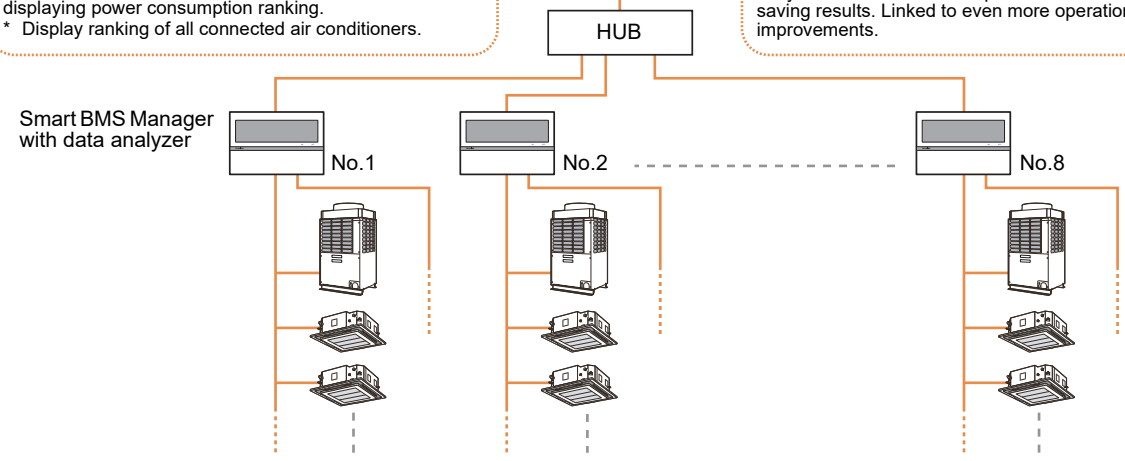
Easy to evaluate results of energy savings with comparative graphs

▼Check results of energy savings by air conditioners in a time line (month, date, time)



Possible to compare months, dates, and times. Plus, it is possible to check reduction results per time period so it is easy to understand the time periods with the lowest energy saving results. Linked to even more operational improvements.

PC
(Locally procured)

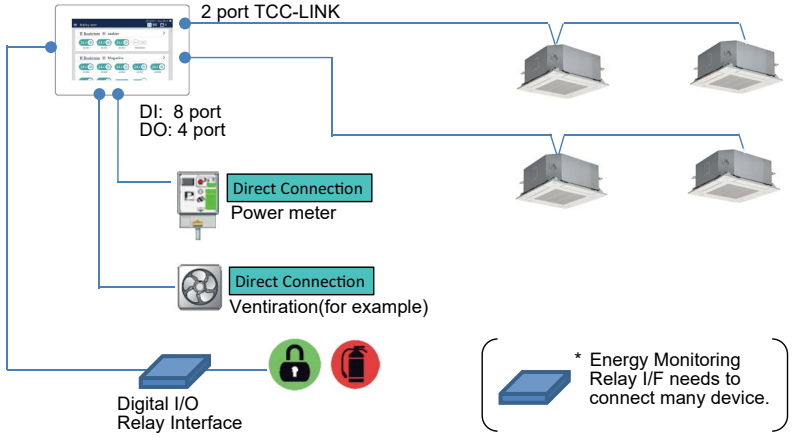


1. **Models that can be connected:**
2. **The indoor savings and outdoor demand settings are functions that can only be set when the Super Module Multi System-e (heat pump model) is connected.**
3. **With the Super Module Multi System-e, it is possible to measure the estimates of power consumption even if a power meter is not attached.**
   1) Just a reference, cannot be used for power distribution.
   2) Does not include power consumption for options that are not provided power from indoor unit power consumption or outdoor unit power.
   3) Cannot measure the estimates of power consumption with VRF and DI/SDI combined system. It is necessary to install separate power meters.

4-6 Touch Screen Controller

The BMS-CT1280E Touch screen controller can be connected to up to 128 Indoor Units via the TCC-Link Central Control network.

Outline

Appearance	Application
	

Specifications

Part name		Touch Screen Controller
Model Name		BMS-CT1280E
Power supply		220-240 V AC* 50/60 Hz
Dimension		136 × 205 × 10(+80) mm
Max number	Indoor unit	128
per one controller	TCC-link bus	2
Indoor view classification		4 zone, 16 groups/zone
Relay interface		4
Energy monitoring interface		4
Notes		There is some limit on function when connect Hot Water Module with Touch screen controller. Please contact us if you like detailed information.
Documents		Installation manual
		Owner's Manual

*Power cord for 220-240 V power adapter is to be arranged on site.

Main functions

Function		Operation	Monitoring
ON/OFF		✓	✓
Mode		✓	✓
Setting Temperature		✓	✓
Fan Speed		Auto, 5speed (MAX)	✓
Louver position		5tap (MAX)	✓
Schedule Function	Weekly	✓	✓
	Special Day	✓ (*)	✓ (*)
Multi language		✓	✓
Energy Save Function		✓	✓
Permit/Prohibit function		✓	✓
Filter sign		Clear	✓
Error Display		Reset	Hexadecimal fault code and Description
Dual automatic mode		✓	✓
Soft cooling		✓	✓
Power Save mode		✓	✓
Individual louver setting		-	-
Frost protection setting		-	-
Control by 2 remote controllers		✓	✓
Digital input / output	Alarm output	✓	-
	Run output	✓	-
	All stop input	✓	-
	All start input	✓	-
	ON/OFF	✓ (output)	✓ (input)
	Alarm	✓ (output)	✓ (input)
Ventilation		✓	✓
Connectable Central Control devices	Up to 2 devices (Header/Follower) In case of "zone fix mode", Up to 5 units (Header, zone 1, 2, 3, 4)		

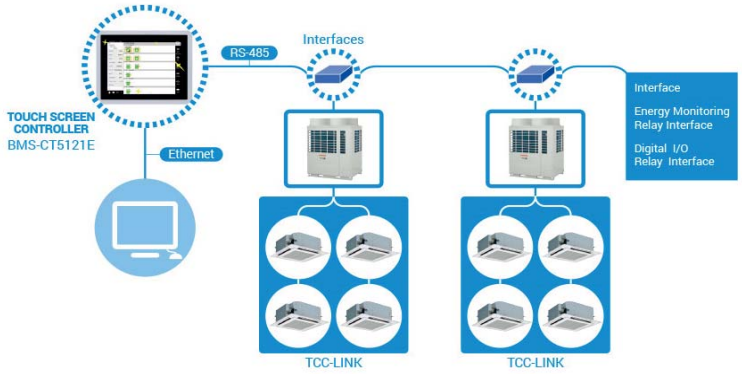
*The function will be identified by series No. as 91105001 or later.

4-7 Touch Screen Controller

The Touch Screen Controller can be connected to 64 or 512 Indoor Units depending on model and offers Energy Monitoring* and schedule program functions.
This controller is ideally suited to any small or large installation where Energy monitoring functions are required, or where a professional and highly presentable finish is required.
It can control each of the individual indoor units and is capable of providing information from the indoor unit settings and malfunction check codes.
The Touch Screen is connected to the air conditioner control network directly by relay interfaces.

TOUCH SCREEN CONTROLLER for Air Conditioning Control System (hereafter TOUCH SCREEN CONTROLLER) consists of an operation section and a display section. It is equipped with an LCD display and touch panel, enabling functions such as monitoring of the status of air conditioners, setting changes, scheduled operation, error displays, and output of data for monthly reports.

Outline

Appearance	Application
	

Specifications

Part name		Touch screen controller system
Model Name		BMS-CT5121E
Power supply		220-240 V 50/60 Hz (Main unit supply from AC-adopter: 12V-DC)
Dimension		323 × 256 × 49 mm
Max number	Indoor unit	512
per one controller	TCC-link bus	12
	Relay interface	12
	Energy monitoring interface	8
	Digital Input / Output interface	8
Indoor view classification		Floor/Tenant/area/group unit
Documents		Installation manual
		Owner's Manual

*1:The power cable is field arrangement.

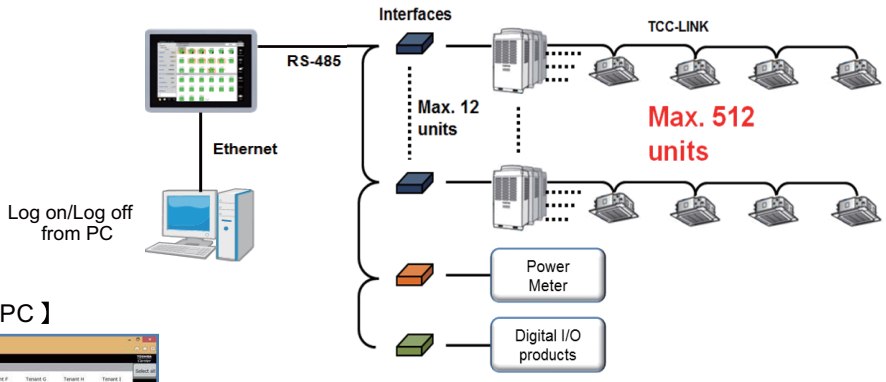
Main functions

Function		Operation	Monitoring
ON/OFF		✓	✓
Mode		✓	✓
Setting Temperature		✓	✓
Fan Speed		Auto, Low, Med., High	✓
Louver position		Swing, Fix	✓
Schedule Function		Scheduled timer required	-
Multi language		-	-
Energy Save Function		-	-
Permit/Prohibit function		-	-
Filter sign		-	-
Error Display		Reset	Hexadecimal fault code
Dual automatic mode		-	-
Soft cooling		-	-
Air flow changing		-	-
Power Save mode		-	-
Individual louver setting		-	-
Frost protection setting		-	-
Filter sign flashes		✓	✓
Control by 2 remote controllers		-	-
Swing / Direction		✓	✓
Central / Individual (Operation prohibited)		✓	✓
Digital input / output	Alarm output	✓	-
	Run output	✓	-
	All stop input	✓	-
	All start input	✓	-
Ventilation		✓	✓
Connectable Central control devices	Up to 2 devices (Header/Follower)		
	In case of "zone fix mode", Up to 5 units (Header, zone 1, 2, 3, 4)		

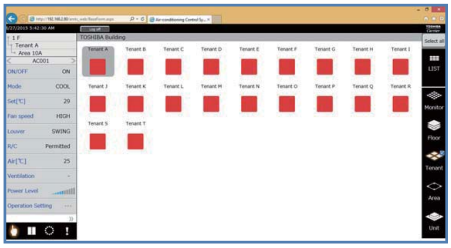
System configuration

1) Monitoring / Controlling using a computer (Web connection function)

You can use your computer to monitor and control air conditioners via the Touch Screen Controller.



【 Web browser screen on PC 】



- **Monitoring and controlling (include scheduling) operation**
- **Similar user interface by mouse operation and the screen.**
- **Up to 2 users can be logged on concurrently.**

Note > O/S : Windows8.1 (R) or Windows10(R).
Web browser : Internet Explorer 11 (R).

2) Graph function

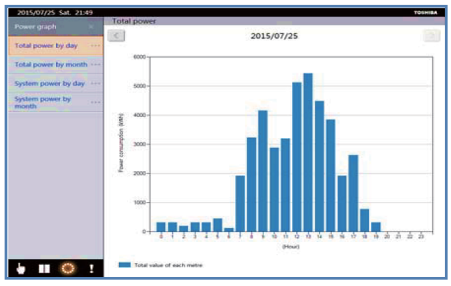
You can display the indoor temperature, the set temperature, the outdoor temperature, and the power of electricity meter in a graph. (*Cannot use web browser)

【 Indoor unit graph by a day 】

- Indoor unit graph screen mode :

- The value can be selected from indoor temperature ,set temperature of indoor unit and outdoor temperature of connected outdoor unit.
- When multiple indoor unit are selected, the temperature is shown as average value.

【 Power graph by a day 】



- Power graph screen mode :

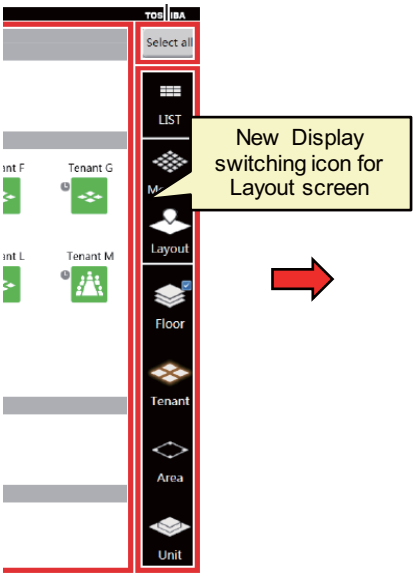
- The value can be displayed the power of selected electricity meter or total power.

- This graph function cannot use comparing or analyzing these data.
  In those purpose, please use **"Data analyzer*"** of PC software which is in this package.
  This is also a new feature of BMS-CT5121E.

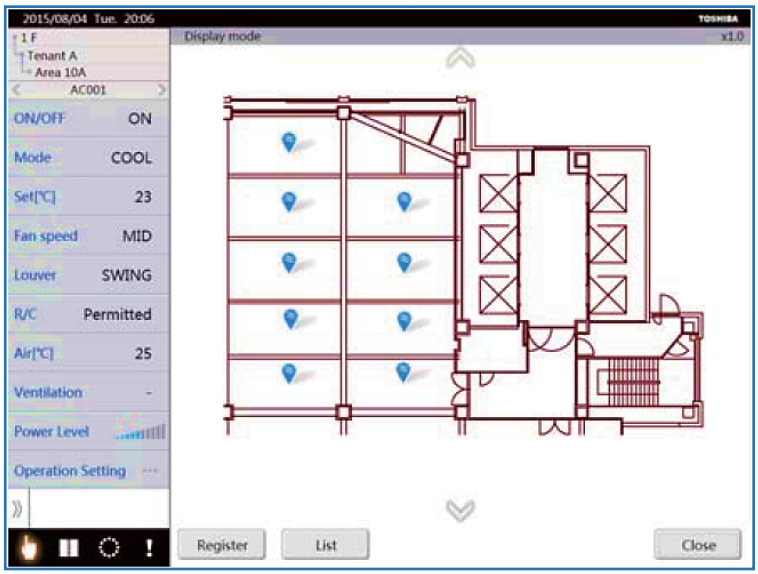
***** This tool is the same as "Smart BMS managers with Data Analyzer".

3) Layout diagram function

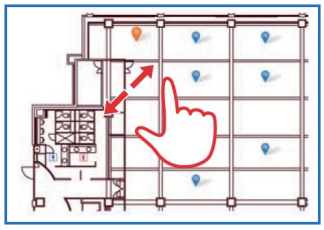
You can display unit icons on the layout diagram[*1,*2] so that you know the potion of the air conditioners.
(*Cannot use web browser)



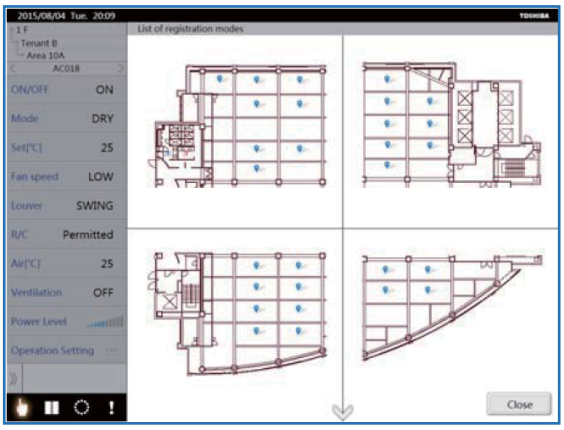
【 Layout diagram 】



- Checking the location of indoor unit on the layout diagram from the control screen.
- Monitoring and controlling operation on the layout diagram.
- 4 layout diagram can display at the same time.
- Smart operation to zoom in and out



【 Multiple display 】



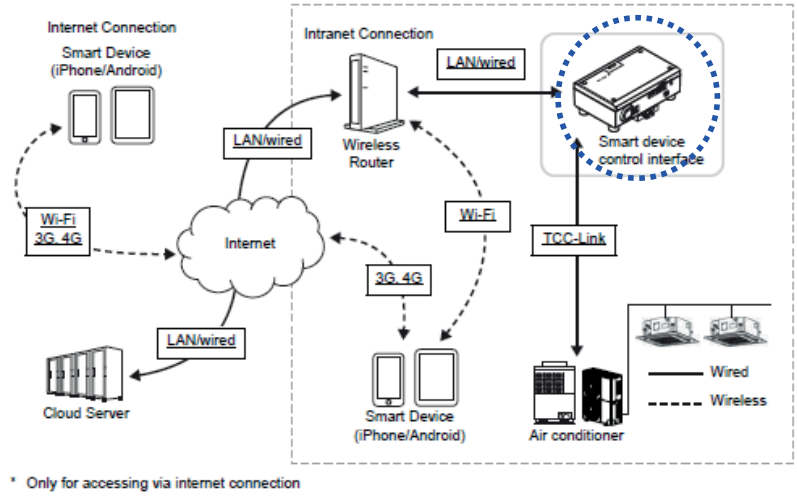
*1 This function need to install “Layout image file”.
When customer/user want to use this function, TCC request the original layout data to customer/user.
After received customer data, TCC make and draw Layout image file.
The Drawing fee require separately.
*2 “Layout image file” can have max. 32 files.

4) Alarm e-mail function

When abnormalities occur in monitoring indoor units, the information about the abnormalities are sent to the e-mail address set as recipients. (*Cannot use web browser)

4-8 Smart device control interface

Outline

Appearance	Application
	

Specifications

Part name		Smart device control interface
Model Name		BMS-IWF0320E
Power supply		220 - 240 VAC 50/60 Hz
Dimension		140 x 90 x 45 mm
Max number	Indoor unit	32
per one controller	TCC-link bus	1
	Relay interface	-
Documents		Installation manual
		Owner's Manual

Operating environment (Smart device)

Application: Download and install the application from either the AppStore or GooglePlay
The following is the ideal operating environment for this software:

Item	Necessary environment
Targeted devices	iPad, iPhone, Android Phone, Android Tablet
Operating System (iOS)	Version 9.x, 10.x
Operating System (Android)	5.x, 6.x, 7.x

* This application is confirmed to operate with the following models.

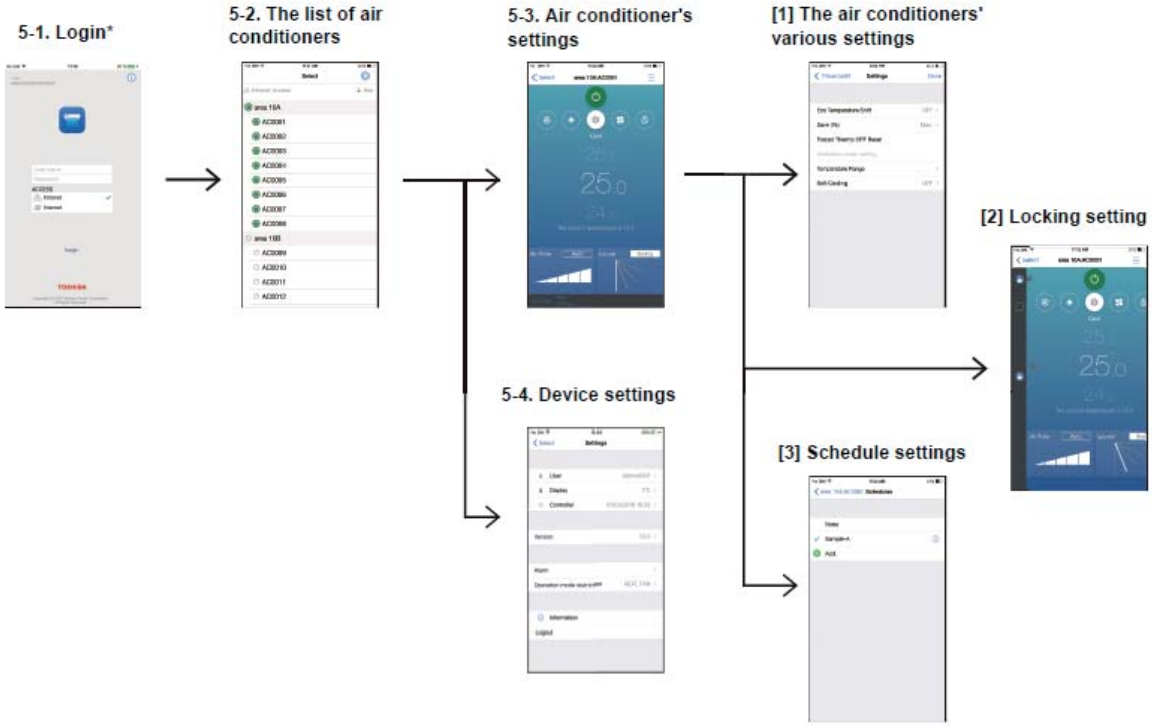
Manufacturer	Model name
Apple	iPhone 7, iPhone 7 Plus, iPad
Sony	Xperia XZ, Xperia XA1 Ultra
Samsung	Galaxy S7, Galaxy S8, Galaxy Tab A10.1, Galaxy Tab S3 9.7, Galaxy Tab A7.0

* Xperia is a trademark or registered trademark of Sony Mobile Communications Inc.
* Galaxy is a trademark or registered trademark of Samsung Electronics Co., Ltd.

Main functions

Function		Operation	Monitoring
ON/OFF		✓	✓
Mode		✓	✓
Setting Temperature		✓	✓
Fan Speed		Auto, 5speed(MAX)	✓
Louver position		5tap(MAX)	✓
Schedule Function	Weekly	✓	-
	Special Day	-	-
Multi language		✓	✓
Energy Save Function		✓	✓
Permit/Prohibit function		✓	✓
Filter sign		✓	✓
Error Display		Reset	Hexadecimal fault code
Dual automatic mode		✓	✓
Soft cooling		✓	✓
Individual louver setting		-	-
Frost protection setting		-	-
Control by 2 remote controllers		-	-
Digital input / output	Alarm output	-	-
	Run output	-	-
	All stop input	-	-
	All start input	-	-
Ventilation		✓	✓
Connectable Central control devices	1 In case of "zone fix mode", Up to 5 units (Header, zone 1, 2, 3, 4)		

Screen configuration



* : The "Confirm personal information" screen appears when starting up for the first time. You can select the "Yes" button by scrolling to the end of the message (smartphones only). Pressing "Yes" shows the login screen. Pressing "No" exits the application.

Necessary equipment

No.	Equipment	Intended use	Condition
1	Wireless router	Connects the Smart device control interface and the smart phone	Can connect more than 1 wired LAN port and supports standards(e.g.:IEEE802.11n) for the wireless LAN that can connect to the smart phone/tablet to be used.
2	LAN cable	Connects the Smart device control interface and the wireless router	Straight cable, Category 5 or higher
3	Internet connection environment	Accesses the controller via the internet	Connects to broadband (1.5 Mbps or more) • An internet connection environment is not necessary if the system is not going to connect to the internet. • Internet connection is not possible under a proxy.

4-9 Data flow overview

System address list should contains following information.

- All air-conditioners address information
- All system devices address information
- Control classification
- Model name

[NOTE]
This information is essential to prevent troubles.
Be sure to complete before on site installation.

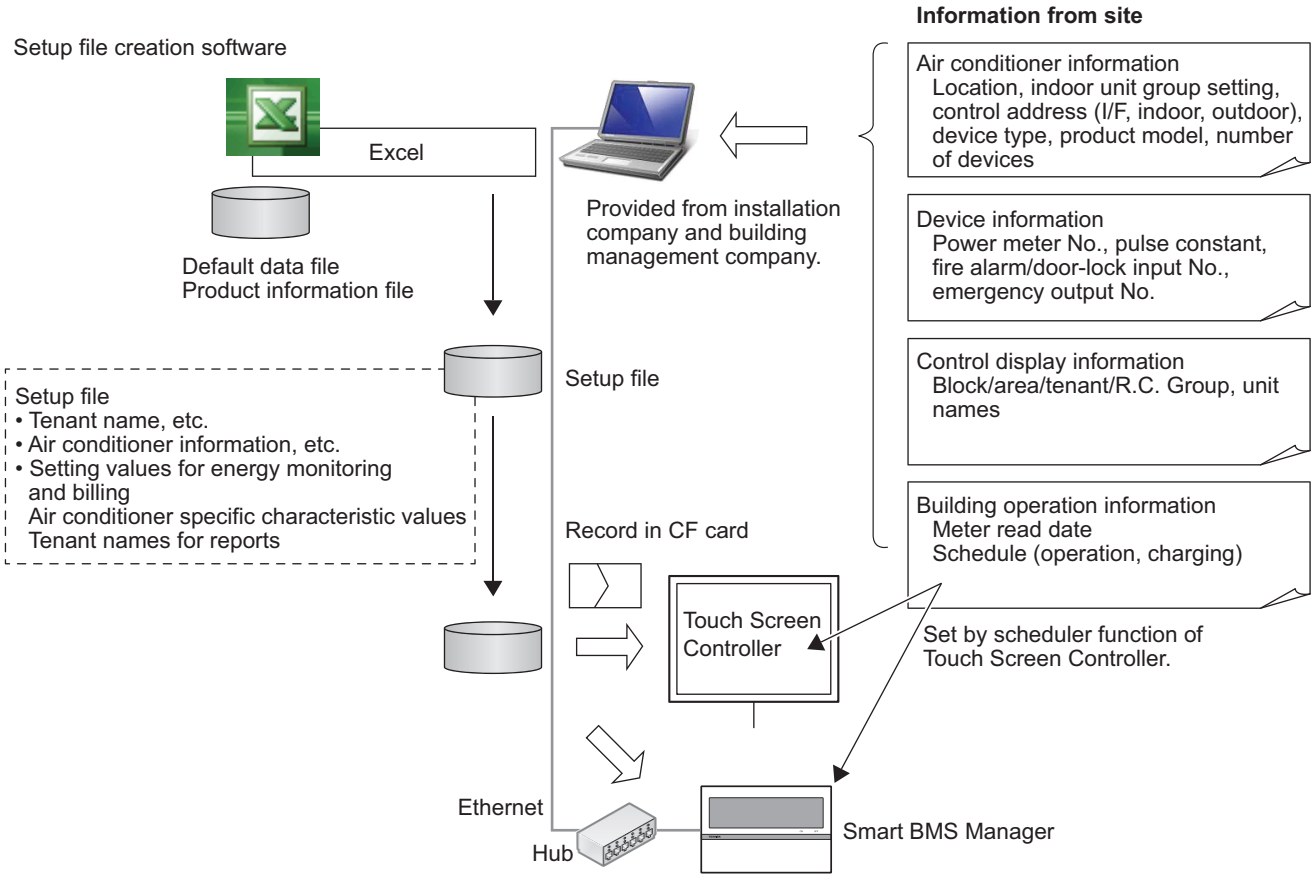
System address list

Building Name	Toshiba Building	IP Address	192.168.2.100

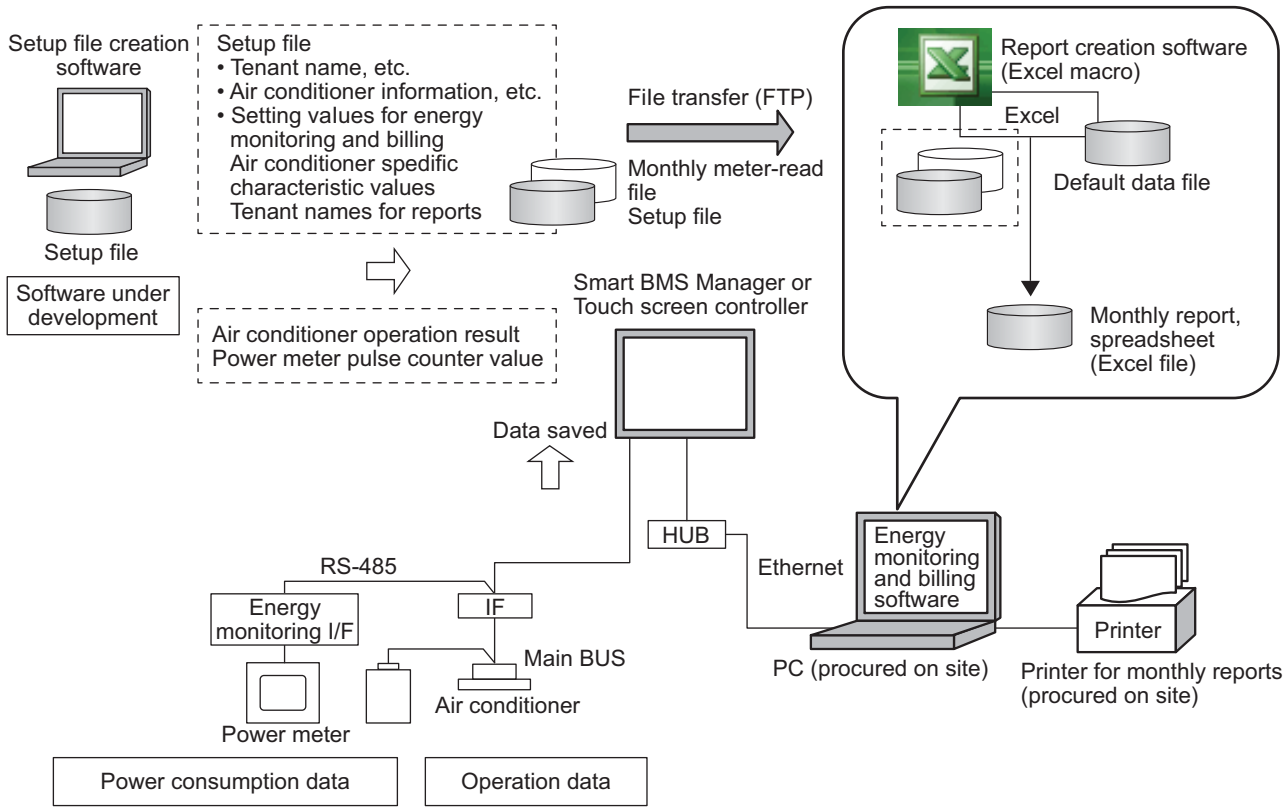
No	Air Conditioner List			Address Information						Display Name			R.C. Unit/Group	Energy I/F Data	Digital I/F Data	
	Outdoor Refrigerant System	Outdoor unit Model Name	Indoor Unit Model Name	TCC-LINK Line No	Line Address	Indoor Unit Address	Group Address	Group Relation	Central Control Address	Floor Name	Tenant Name	Area Name		Power Meter Address - Channel	Key Input Address - Channel	Fire Alarm Address - Channel
1	SYS-1	MMY-AP1401HT8	MMU-AP0181H	1	1	1	0	0	1	1F	TenantA	ShopA	RC-1	1-1	1-1	2-8
2			MMU-AP0091H			2	1	0	2				RC-2	1-1	1-2	2-8
3			MMU-AP0181H			3	2	2	2					1-1		2-8
4			MMU-AP0091H			4	2	2	2					1-1		2-8
5			MMK-AP0091H			5	0	0	3		TenantB	ShopB	RC-3	1-1	1-3	2-8
6			MMK-AP0181H			6	0	0	4			ShopC	RC-4	1-1	1-4	2-8
7			MMK-AP0181H			7	0	0	5			ShopD	RC-5	1-1	1-5	2-8
8			MMK-AP0181H			8	0	0	6				RC-6	1-1	1-6	2-8
9	SYS-2	MMYAP0801HT8	MMU-AP0181H		2	1	1	0	7	2F	TenantC	ShopE	RC-7	1-2	1-7	2-8
10			MMU-AP0181H			2	2	9	7					1-2		2-8
11			MMK-AP0181H			3	1	0	8			ShopF	RC-8	1-2	1-8	2-8
12			MMK-AP0181H			4	2	11	8					1-2		2-8
13	SYS-3	MMYAP1001HT8	MMU-AP0181H	2	1	1	0	0	9	3F	Office	CEO	RC-9	1-3	2-1	2-8
14			MMU-AP0181H			2	0	0	10				RC-10	1-3	2-2	2-8
15			MMK-AP0181H			3	0	0	11			Development	RC-11	1-3	2-3	2-8
16			MMK-AP0181H			4	1	0	12				RC-12	1-3	2-4	2-8
17			MMU-AP0181H			5	2	16	12					1-3	2-4	2-8
18			MMU-AP0181H			6	2	16	12					1-3	2-4	2-8
19			MMU-AP0181H			7	0	0	13				RC-13	1-3	2-5	2-8
20			MMU-AP0181H			8	0	0	14					1-3	2-6	2-8

Air conditioner list | Air conditioner address list | Display name Management category | Remote control | I/F Address Information

Setup file data flow



Energy Monitoring Data Flow



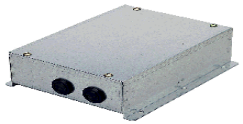
5

Open network and analog interface

5-1 Line Up & Function

Type	LN Interface		Modbus Interface		BN Interface		Analog Interface	
Model Name	**TCB-IFLN642TLE**		**TCB-IFMB641TLE**		**BMS-IFBN640TLE**		**TCB-IFCB640TLE**	
Appearance								
Object	**Command**	**Monitoring**	**Command**	**Monitoring**	**Command**	**Monitoring**	**Command**	**Monitoring**
ON / OFF status	✓	✓	✓	✓	✓	✓	✓	✓
Operation mode	✓	✓	✓	✓	✓	✓	✓	✓
Fan speed	✓	✓	✓	✓	✓	✓	✓	✓
Louver	✓	✓	✓	✓	✓	✓	✓	✓
Set temperature	✓	✓	✓	✓	✓	✓	✓	✓
Filter sign	✓	✓	✓	✓	✓	✓	-	-
Room temperature	-	✓	-	✓	-	✓	-	-
Permit / Prohibit of Local Operation	✓	✓	✓	✓	✓	✓	-	-
Error status	-	✓	-	✓	-	✓	-	✓
Error code	-	✓	-	✓	-	✓	-	-

▼ Additional devices

Model Name	BMS-IFLSV4E	BMS-IFDD03E	BMS-IFWH5E
Appearance			
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/-

5-2 Comparison table

Type		Lon Interface	Modbus Interface	BN Interface	Analog Interface
Model Name		**TCB-IFLN642TLE**	**TCB-IFMB641TLE**	**BMS-IFBN640TLE**	**TCB-IFCB640TLE**
Power supply		220 - 240 VAC 50/60Hz	220 - 240 VAC 50/60Hz	220 - 240 VAC 50/60Hz	15 VDC ±5%
Dimension	Width x Height x Depth	66 × 246 × 193mm	66 × 170 ×200mm	140 × 90 × 45mm	66 × 170 × 200mm
Display		-	-	-	-
Max number per one controller [Note1]	Indoor unit	64	64	64	64
	TCC-link bus	1	1	1	1
	Relay I/F	-	-	-	-
Communication port	TCC-link	1	1	1	1
	RS485	-	Modbus RTU mode 9.6/19.2/38.4kbps for upper system	-	-
	Ethernet	-	-	10BASE-T/ 100BASE-TX, IPv4	-
	Others	Twisted pair FT-X1 transceiver 78kbps with system	-	-	Analog in 8, out 5 (DC 0-10v variable) Digital in 2, out 5
Indoor view classification		-	-	-	-
Network specification		LonWorks EIA/AnSI 709.1 support	Modbus APPLICATION PROTOCOL SPECIFICATION V1.1b	AnSI/ASHRAE Standard 135-2004 BACnet Advanced Application Controller (B-ASC)	-
Monitoring [Note2]	ON / OFF	✓	✓	✓	✓
	Operation mode	✓	✓	✓	✓
	Set temperature	✓	✓	✓	✓
	Fan speed	✓	✓	✓	✓
	Swing / Direction	✓	✓	✓	✓
	Filter sign	✓	✓	✓	-
	Child lock (Unit operation prohibited)	-	-	-	-
	Power saving mode	-	-	-	-
	Return back	-	-	-	-
	Central control	✓	✓	✓	-
	Room temperature	✓	✓	✓	-
	Ventilation	-	-	✓	-
Operation [Note2]	ON / OFF	✓	✓	✓	✓
	Operation mode setting	✓	✓	✓	✓
	Temperature setting	✓	✓	✓	✓
	Fan speed setting	✓	✓	✓	✓
	Swing / Direction	✓	✓	✓	✓
	Filter sign reset	✓	✓	✓	-
	Child lock (Unit operation prohibited)	-	-	-	-
	Power saving mode (Compatible models only)	-	-	-	-
	Return back	-	-	-	-
	Central / Individual (Operation prohibited)	✓	✓	✓	-
	Ventilation	-	-	-	-
Alarm display	Unit No.	✓	✓	✓	✓
	Occurrence time	-	-	-	-
	Alarm code	✓	✓	✓	-
	Alarm content	-	-	-	-
	Alarm history	-	-	-	-
Schedule Function		Depend on upper system			
Alarm e-mail					

[Note 1] Restriction by TCC-Link specification:

1.Max 64indoors, max16*1 header outdoor with max 3 followers per 1 TCC-Link main bus, Max 48 indoors per 1VRF refrigerant system.

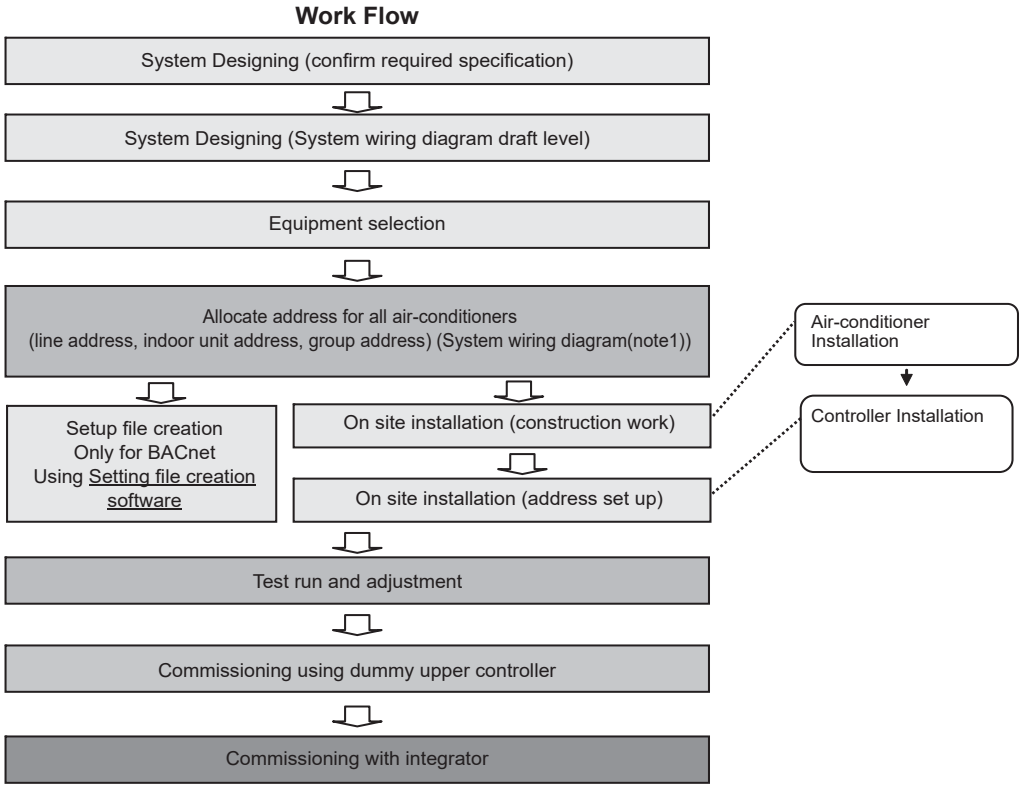
2.Number of indoor followers shall be counted for VRF, however in case of DI/SDI, number of TCC-link adaptor shall be counted.

3.Confirm that max 16 refrigerant systems per 1 main bus for VRF, max 64 refrigerant systems per 1 main bus for only DI/SDI, max 64 total refrigerant systems and max 16 VRF refrigerant systems per 1 main bus for mixed VRF / DI/SDI.

[Note 2] Actual functions depend on each air conditioner.

5-3 Work flow

The BMS work flow (LonWorks®, Modbus®, BACnet®, Analog I/F) is shown below.
Documents to be referred to are prepared for each series or product. Analog I/F, LonWorks and Modbus use the central control addresses to identify indoor units.



Note1)
System wiring diagram

* All air-conditioners (FCU/CDU/controller) layout
* All system devices layout (include local equipment)
* Control Wiring diagram
* Refrigerant system piping information diagram

	Airconditioner list								
	Outdoor refrigerant system	Outdoor unit model name	Indoor unit model name	Header unit	Intelligent server address	Relay I/F address	Line address	Indoor unit address	Group address
1	CDU-1	MMY-AP3611HT8	MMD-AP0721H	0	192.168.xxx.xxx	1	1	1	0
2			MMD-AP0721H	0				2	0
3			MMD-AP0961H	0				3	0
4			MMK-AP0241H	0				4	0
5			MMK-AP0241H	0				5	0
6			MMK-AP0241H	0				6	0
7			MMK-AP0181H	0				7	0
8			MMK-AP0181H	0				8	0
9			MMU-AP0481H	0				9	0
10			MMK-AP0151H	0				10	1
11			MMK-AP0151H	10				11	2
12			MMK-AP0121H	0				12	0
13			MMK-AP0121H	0				13	0
14	CDU-2	MMY-AP3611HT8	MMK-AP0091H	0		2	2	1	0
15			MMD-AP0721H	0				2	0
16			MMD-AP0721H	0				3	0
17			MMD-AP0361BH	0				4	0
18			MMD-AP0361BH	0				5	0
19			MMD-AP0361BH	0				6	0
20			MMD-AP0361BH	0				7	0
21			MMD-AP0361BH	0				8	0
22			MMD-AP0361BH	0				9	0
23			MMD-AP0271BH	0				10	0
24			MMK-AP0181H	0				11	0
25			MMD-AP0961H	0				1	0
26			MMD-AP0961H	0				2	0

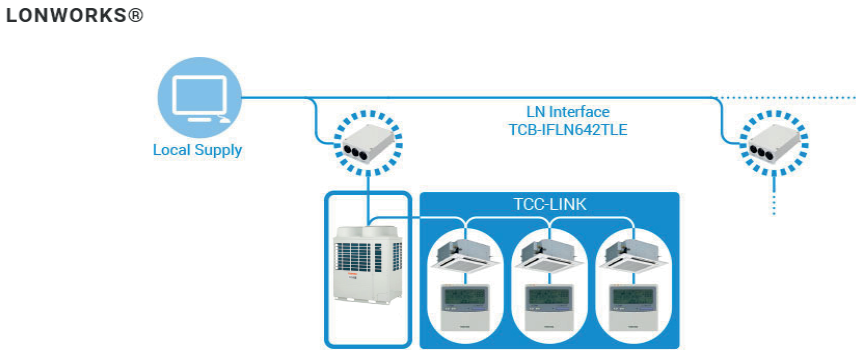
Air conditioner list

BACnet Server/
I/F /Line/Indoor/Group address
information

5-4 LonWorks Interface

The Toshiba LonWorks interface 100% LonMark Compliant and is designed to connect the Toshiba Air Conditioning system to a LonWorks Building Management Control System.
This Interface connects directly to the Toshiba TCC-Link Central Control Network on the Air Conditioner side and can be wired on the Indoor or outdoor side depending on preference.
The Interface is then connected to the LonWorks Building Management Control system where it provides 28 Network variables for the sending of Control Commands and receiving unit information.
Multiple Toshiba LonWorks Interfaces can be connected to a single TCC-Link Network and addressed using simple switches provided on the device.
This is to enable ease of installation, especially in buildings with separate areas where 1 Interface may be used for each area/floor.

Outline

Appearance	Application
	

Specifications

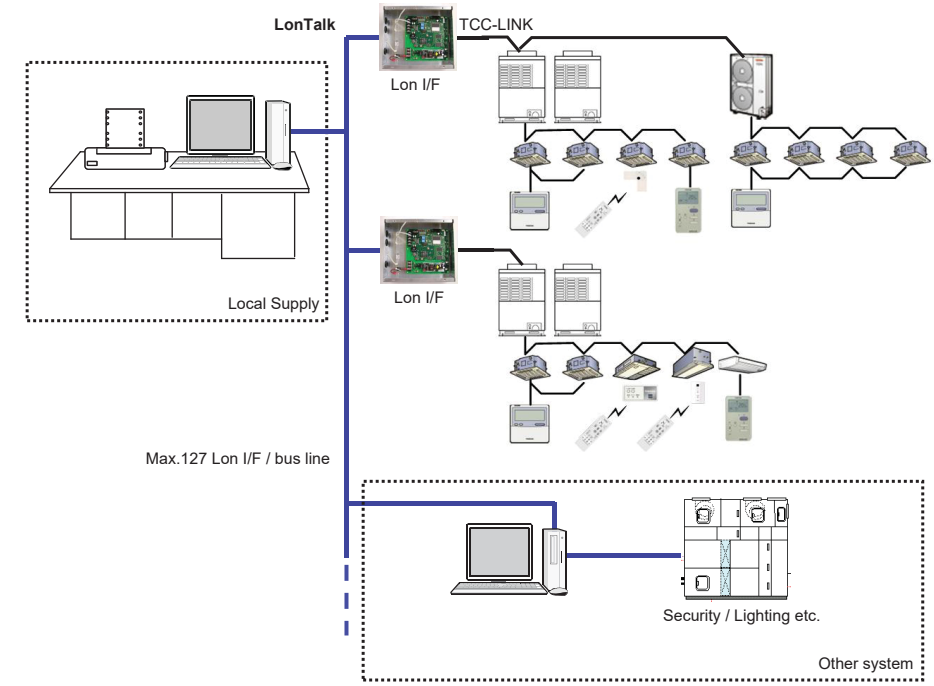
Part name		Lon Interface
Model Name		TCB-IFLN642TLE
Power supply		220 - 240 VAC 50/60 Hz
Dimension		66 × 246 × 193 mm
Max number	Indoor unit	64
per one controller	TCC-link bus	1
Lon I/F / bus line		127
Communication port		Twisted pair FT-X1 transceiver 78 kbps with system
Network specification		LonWorks EIA/ANSI 709.1 support
Documents	Included	Installation manual
	Exhibit	Specification manual

Main functions

Function	Command	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Med., High	✓
Louver position	Swing, Fix	✓
Filter sign	Reset	✓
Room temperature	-	✓
Permit / Prohibit of Local Operation	ON/OFF, Mode, Set temp., Fan Speed, Louver	✓
Error status	-	✓
Error Display	-	✓

System configuration

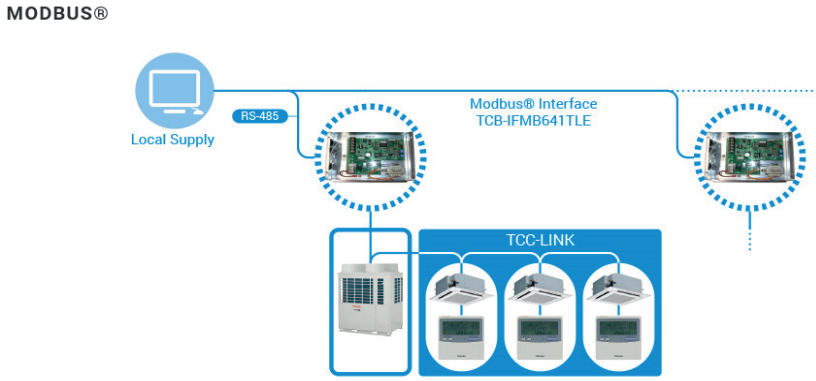
Lon Interface



5-5 Modbus Interface

The Toshiba ModbusR interface is designed to connect the Toshiba Air Conditioning system to a Modbus Building Management System.
The Toshiba Interface connects directly to the Toshiba TCC-Link Central Control Network on the Air Conditioner and can be wired on the Indoor or outdoor side depending on preference.
The Interface then uses the Modbus RTU protocol based on the RS-485 type serial communications protocol to connect to a suitable Modbus Master device.
Finally, this Modbus Master device is connected to the BMS control system and allows control of all connected Toshiba Air Conditioner equipment from that BMS control system.
Multiple Toshiba Modbus Interfaces can be connected to a single TCC-Link Network and addressed using simple switches provided on the device.
This is to enable ease of installation, especially in buildings with separate areas where 1 Interface may be used for each area/floor.

Outline

Appearance	Application
	

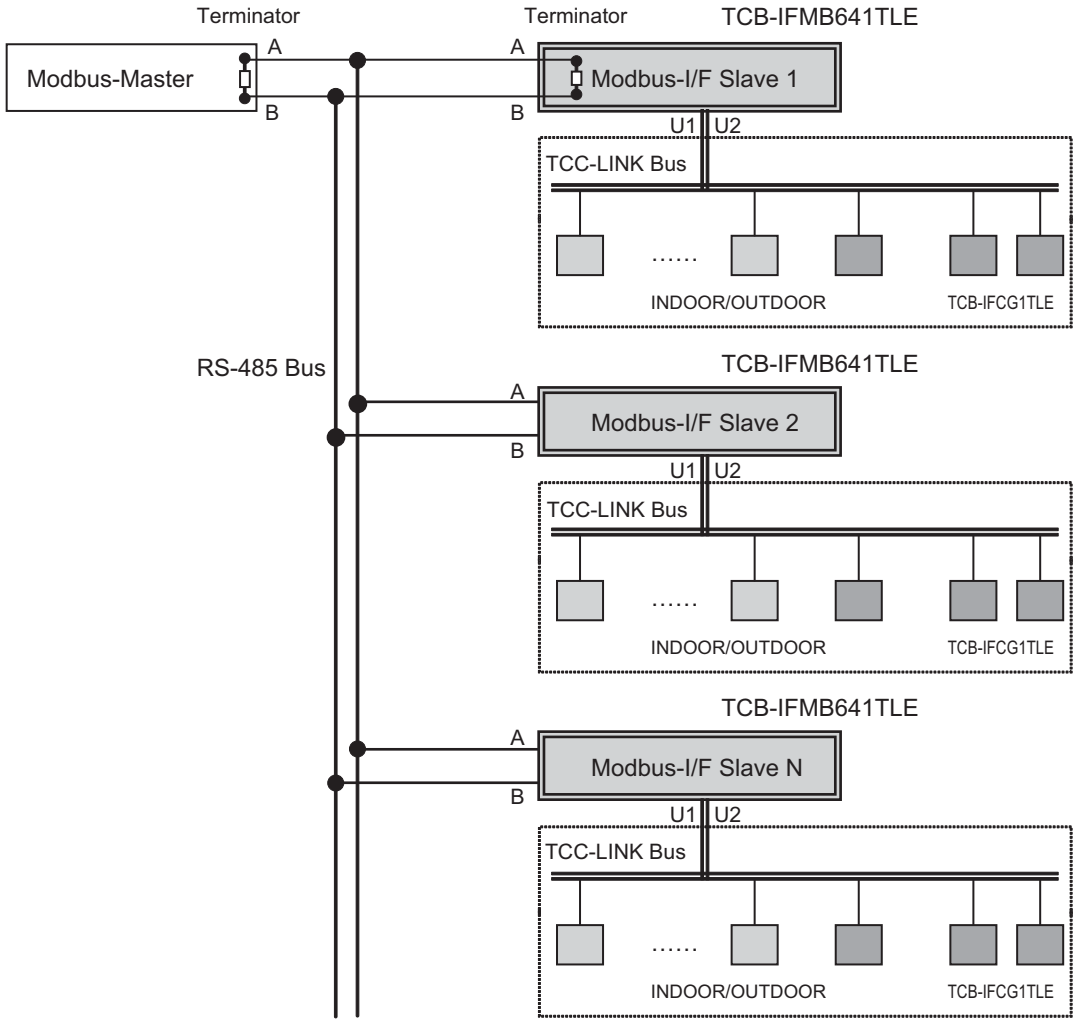
Specifications

Part name		Modbus Interface
Model Name		TCB-IFMB641TLE
Power supply		220 - 240 VAC 50/60Hz
Dimension		66 x 170 x 200mm
Max number	Indoor unit	64
per one controller	TCC-link bus	1
Modbus I/F / bus line		15
Communication port for RS485		Modbus RTU mode 9.6/19.2/38.4kbps
Network specification		Modbus APPLICATION PROTOCOL SPECIFICATION V1.1b
Documents		Installation manual
		Specification manual

Main functions

Function	Command	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Med., High	✓
Louver position	Swing, Fix	✓
Filter sign	Reset	✓
Room temperature	-	✓
Permit/Prohibit of Local Operation	On/Off, Mode, Set temp., Fan Speed, Louver	✓
Error status	-	✓
Error Display	-	✓

System configuration

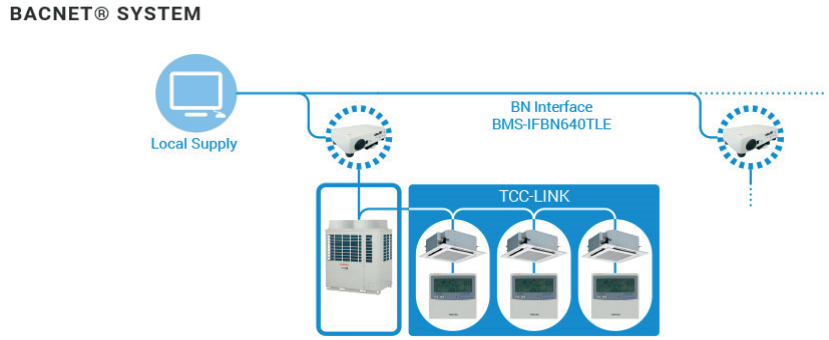


N = Max. 15

5-6 BN Interface

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.

Outline

Appearance	Application
	

Specifications

Part name		BN Interface
Model Name		BMS-IFBN640TLE
Power supply		220 - 240 VAC 50/60Hz
Dimension		140 × 90 × 45 mm
Max number	Indoor unit	64
per one controller	TCC-link bus	1
Communication port		10BASE-T/100BASE-TX for upper system
Network specification		ANSI/ASHRAE Standard 135-2008 BACnet Application Specific Controller (B-ASC)
Documents		Installation manual
		BN Interface Specifications
		PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT

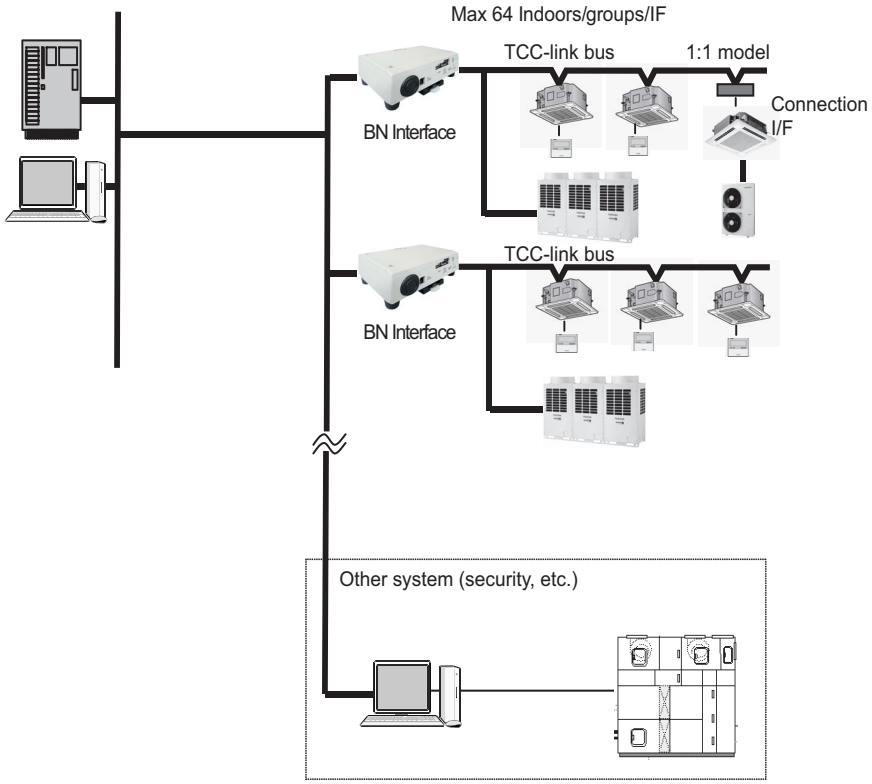
Software

Software name	Explanation
Setting File Creation Software for BMS System	“This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.”

Main functions

Function	Command	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Med., High	✓
Louver position	Swing, Fix	✓
Filter sign	✓	✓
Room temperature	-	✓
Permit / Prohibit of Local Operation	On/Off, Mode, Set temp.,	✓
Error status	-	✓
Error Display	-	✓

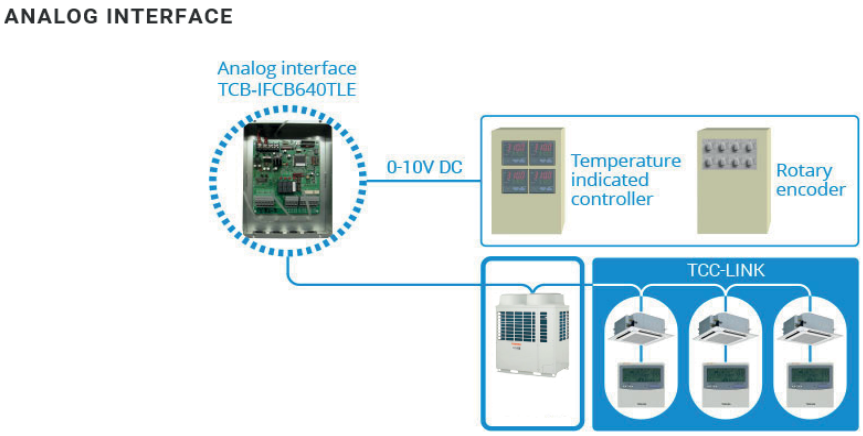
System configuration



5-7 Analog Interface

That 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. This Interface is ideal for Integrating the Toshiba Air Conditioner product into basic or PLC BMS control systems, such as may be found in older controls systems.

Outline

Appearance	Application
	

Specifications

Part name		Analog Interface
Model Name		TCB-IFCB640TLE
Power supply		15 VDC ±5%
Dimension		66 × 170 × 200 mm
Max number	Indoor unit	64
per one controller	TCC-link bus	1
Input/ Output	Analog input	8
	Analog output	5
	Digital input	2 (*1)
	Digital output	5 (*1)
Documents		Installation manual

(*1) General Purpose Interface (TCB-IFCG1TLE) needed in part.

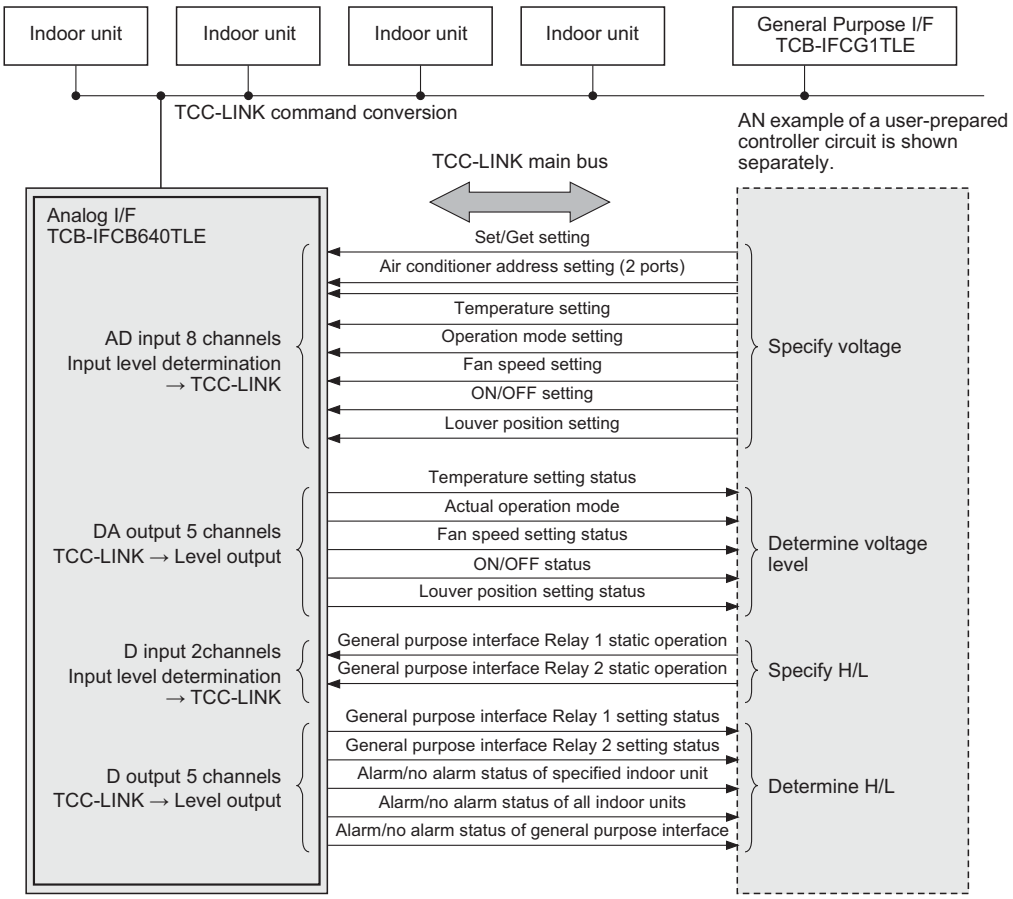
Software

Software name	Explanation
Setting File Creation Software for BMS System	“This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.”

Main functions

Function	Command	Monitoring
ON/OFF	✓	✓
Mode	Heat, Cool, Dry, Fan, Auto	✓
Setting Temperature	18 - 29 °C	✓
Fan Speed	Auto, Low, Med., High	✓
Louver position	Swing, Fix	✓
Filter sign	-	-
Room temperature	-	-
Permit / Prohibit of Local Operation	-	-
Error status	-	✓
Error Display	-	-

System configuration



Input/Output specifications

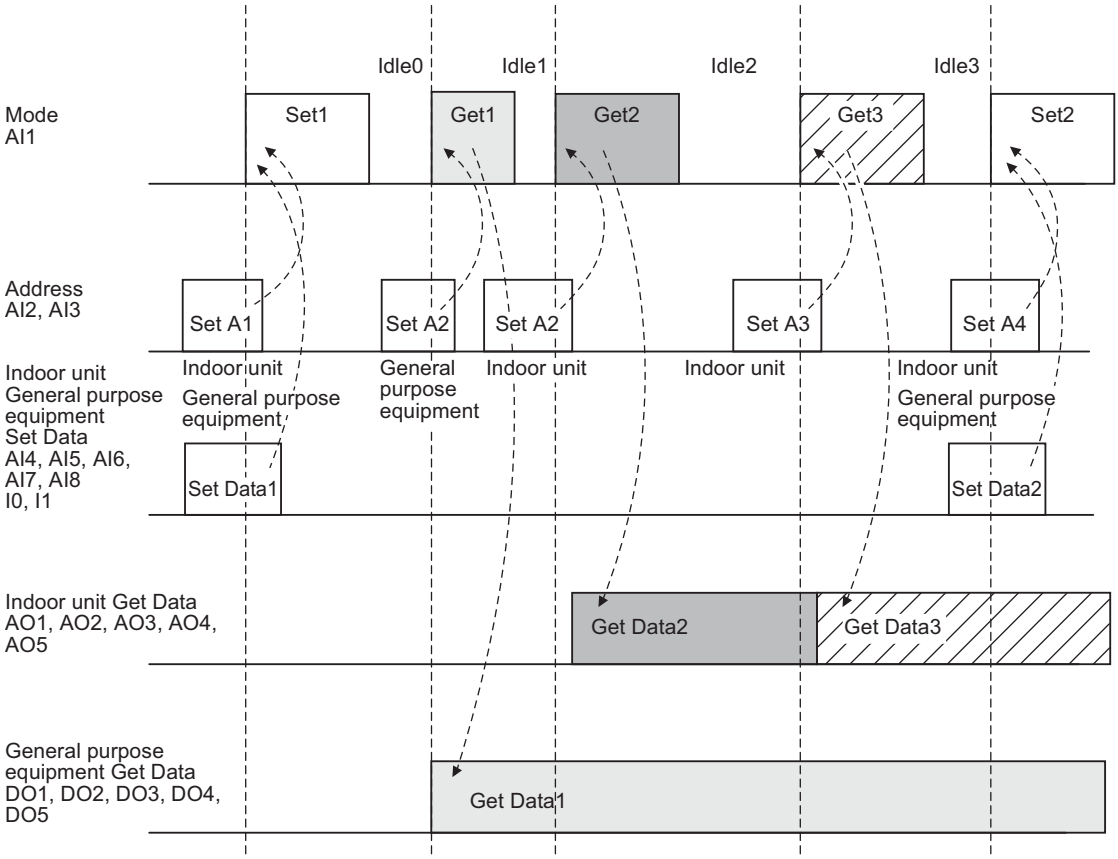
Signal classification		Port name	Data item	Specification
Analog input	0 to 10 V range	AI1 AI2 AI3 AI4 AI5 AI6 AI7 AI8	Input type	Resistor-divided A/D converter input
			Number of input points	2
			Resolution	10 bits, 0 to 1023 levels
			Allowable input voltage range	0.0 V to 10.0 V
			Input resistance	3 k ohm
			Connection circuit output resistance	50 ohm or less
			Conversion time	160 ms
Analog output	0 to 10 V range	AO1 AO2 AO3 AO4 AO5	Output type	Class-C push-pull
			Output point	5
			Resolution	8 bits, 0 to 255 levels
			Output voltage range	0.0 V to 10.0 V
			Maximum output source current	10 mA
			Connection circuit load resistance	10 k ohm or more
			Conversion time	10 μS
Digital output		DO1 DO2 DO3 DO4 DO5	Output type	Insulated by photocoupler
			Output point	5
			Maximum output current	10 mA
			Maximum voltage (between DO and Com)	DC 55 V
			Maximum voltage (between Com and DO)	DC 7 V
Digital input		DI5 DI6	Input type	Insulated by photocoupler
			Input point	2
			Input resistance	100 ohm
			Minimum input ON current	2 mA
			Maximum allowable input ON current	30 mA
			Maximum input OFF current	0.05 mA

Analog/Digital specifications

No.	Name	Description	In/Out	Connector
S0	Set/Get/Idle	Sets mode.	Analog In	AI1
S1	Address set	Sets the lower 3 bits of central control address.		AI2
S2	Address set	Sets the lower 3 bits of central control address.		AI3
S3	Set Point Temperature set	Room temperature setting value 16 to 29°C (in units of 1°C)		AI4
S4	Operation Mode set	Sets operation mode.		AI5
S5	Fan Speed set	Sets fan speed.		AI6
S6	Indoor ON/OFF set	Sets ON/OFF.		AI7
S7	Louver set	Sets louver position.		AI8
SO1	Set Point Temperature set value	Temperature set value status 18 (16) to 29 (27)°C (in units of 1°C)		AO1
SO2	Operation Mode status	Actual operation mode		AO2
SO3	Fan Speed set status	Fan speed set status		AO3
SO4	Indoor ON/OFF status	ON/OFF status, communication failure status, and internal error status		AO4
SO5	Louver set status	Louver position set status		AO5
	Relay 1 set for General Purpose I/F	Relay setting for general purpose interface TCB-IFCG1TLE (1: on, 0: off)		DI5
	Relay 2 set for General Purpose I/F	Relay setting for general purpose interface TCB-IFCG1TLE (1: on, 0: off)		DI6
	Alarm status output for General Purpose I/F	General purpose interface TCB-IFCG1TLE alarm input status (1: alarm, 0: no alarm)		DO3
	Alarm status	Specified indoor unit (1: alarm, 0: no alarm)		DO5
	Alarm status	All indoor units (1: alarm, 0: no alarm)		DO4
	Relay 1 set status for General Purpose I/F	Relay set value for general purpose interface TCB-IFCG1TLE (1: on, 0: off)		DO1
	Relay 2 set status for General Purpose I/F	Relay set value for general purpose interface TCB-IFCG1TLE (1: on, 0: off)		DO2

Setting input timing chart

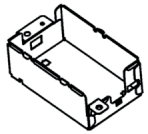
The AI1 Input Mode will always have an “Idle mode” inserted between and Set (Setting) of Get (Status acquisition) operation when they are transmitted.
During a “Set” operation, the Indoor unit Central Control address specified by AI2 and AI3 immediately after the transition to the “Set” mode is read, and the value to be set is applied to the indoor unit.
The setting value is read and set ONLY during the transition to the Set mode.
During a Get operation, the indoor unit central control address specified by AI2 and AI3 immediately after transition to the Get mode is read, and the address status is output to AO1, AO2, AO3, AO4, and AO5.
This output value is retained until the next Get operation is performed.
General purpose equipment addresses are retained as DO1, DO2, DO3, DO4, and DO5 outputs separately from indoor unit addresses until the next general purpose equipment Get operation is performed.
The process moves to Set or Get mode from the specified idle voltage.
Retain AI4, AI5, AI6, AI7, AI8, I0, and I1 address setting data for 200 ms after transition to the Set mode as input condition.
For AI1 Set or Get, retain the value for 200 ms after transition from the idle mode.



6

Indoor unit optional devices

6-1 Line Up & Function – Indoor unit optional devices

Type	Remote location ON/OFF control box	General Purpose Interface	GSM Phone Control Interface	Digital Inverter Air Conditioner "1:1 Model"Connection Interface	Connection Interface Kit	Remote sensor	Occupancy Sensor
Model name	**TCB-IFCB-4E2**	**TCB-IFCG1TLE**	**TCB-IFGSM1E**	**TCB-PCNT30TLE2**	**TCB-PX30MUE TCB-PX40MUME**	**TCB-TC41LE**	**TCB-SIR41UM-E / TCB-SIR41U-E**
Appearance							
On / Off	✓	✓ (Operation only) (*1)	✓	-	Some types of indoor units need the metal case TCB-PX30MUE/TCB-PX40MUME to use TCB-PCNT30TLE2.	Remote sensing of indoor air temperature	Occupancy Sensor
Mode	-	✓ (Operation only) (*1)	-	-			
Setting Temperature	-	✓ (Operation only) (*1)	-	-			
Fan Speed	-	✓ (Operation only) (*1)	-	-			
Permit/Prohibit function	-	✓ (Operation only) (*1)	-	-			
Filter sign	-	-	-	-			
Error Display	✓	✓	✓	-			
Ventilation	-	-	-	-			
TCC-link line	-	-	-	✓ (For DI / SDI)			
Digital input / output	1 / 2	6 / 4	-	-			
Analog input / output	-	4 / 2 (*2)	-	-			

Type	Application control kit	Fan output (CN32)	Option output (CN60)	Operation terminal (CN61)	Option error input (CN70)	Demand input (CN73)	Outside error input (CN80)
Model Name	**TCB-PCUC2E**	**TCB-KBCN32VEE**	**TCB-KBCN60OPE**	**TCB-KBCN61HAE**	**TCB-KBCN70OAE**	**TCB-KBCN73DEE**	**TCB-KBCN80EXE**
Appearance							
On / Off	-	-	✓ (Monitoring only)	✓	-	-	-
Mode	✓	-	✓ (Monitoring only)	-	-	-	-
Setting Temperature	✓	-	-	-	-	-	-
Fan Speed	✓	-	-	-	-	-	-
Permit/Prohibit function	-	-	-	✓ (Operation only)	-	-	-
Filter sign	-	-	-	-	✓ (Operation only)	-	-
Error Display	-	-	-	✓	✓ (Operation only)	-	✓ (Operation only)
Ventilation	-	✓ (Operation only)	-	-	-	-	-
Demand function	-	-	-	-	-	✓ (Operation only)	-
Digital input / output	-	1 / -	5 / -	2 / 2	- / 1	- / 1	- / 1

(*1) : Operation of specified indoor units can be controlled with input ports. Setting parameters by programming tool.
(*2) : Modbus system(TCB-IFMB641TLE) needed.

6-2 Indoor Connector port existing table

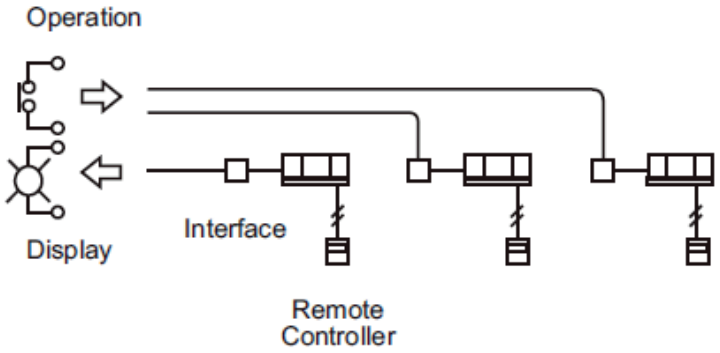
Indoor Category			Indoor Connector port					
			CN32	CN60	CN61	CN70	CN73	CN80
VRF	4-way Air Discharge Cassette Type	4 series	✓	✓	✓	✓	✓	✓
	Compact 4-way Cassette Type	7 series	✓	-	✓	-	-	-
	2-way Air Discharge Cassette Type	2 series	✓	✓	✓	✓	✓	✓
	1-way Air Discharge Cassette Type	4YH series	✓	✓	✓	✓	✓	✓
		4SH series	✓	✓	✓	✓	✓	✓
	Concealed Duct Type	6 series	✓	✓	✓	✓	✓	✓
	Concealed Duct High Static Pressure Type	6 series	✓	✓	✓	✓	✓	✓
	Slim Duct Type	4 series	✓	✓	✓	✓	✓	✓
	Ceiling Type	8 series	✓	-	✓	-	-	-
	High-wall Type	7 series	✓	✓	✓	-	-	✓
	Floor Standing Concealed Type	4 series	✓	✓	✓	✓	✓	✓
	Floor Standing Cabinet Type	4 series	✓	✓	✓	✓	✓	✓
	Floor Standing Type	6 series	✓	-	✓	-	-	-
	Console Type	4 series	✓	✓	✓	-	-	✓
	Fresh Air Intake Indoor Unit Type	1 series	✓	✓	✓	✓	-	-
	Air to Air Heat exchanger with DX-coil Type	2 series	-	-	✓	✓	✓	✓
SMMS-e	Large Capacity Floor standing Type	5 series	-	-	✓	-	-	-
DI / SDI	Smart 4-way Air Discharge Cassette Type	1 series (R32)	✓	-	✓	-	-	-
	4-way Air Discharge Cassette Type	1 series (R32)	✓	✓	✓	✓	✓	✓
		4 series (R410A)	✓	✓	✓	✓	✓	✓
	Compact 4-way Cassette Type	1 series (R32)	✓	-	✓	-	-	-
		4 series (R410A)	✓	-	✓	-	-	-
	Concealed Duct Type	1 series (R32)	✓	✓	✓	✓	✓	✓
	Slim Duct Type	1 series (R32)	✓	✓	✓	✓	✓	✓
		4 series (R410A)	✓	✓	✓	✓	✓	✓
	Ceiling Type	1 series (R32)	✓	-	✓	-	-	-
		7 series (R410A)	✓	-	✓	-	-	-
	High-wall Type	1 series (R32)	✓	✓	✓	-	-	✓
		7 series (R410A)	✓	✓	✓	-	-	✓

Indoor Category		HA terminal
		CN61
Inverter Multi	RAS-M__U2DVG-E	✓

6-3 Remote location ON/OFF Control box

Start and Stop of the air conditioner is possible by the external signal as well as the indication of operation/alarm to outside is possible.
This application control PC Board connects to the CN61 connector of the Indoor Unit Interface PC Board.
It can be connected to the Master unit of a group to provide On/Off Control of up to 8 Indoor Units.

Outline

Appearance	Application
	

Specifications

Part name		Remote location ON/OFF control box
Model Name		TCB-IFCB-4E2
Power supply		220 - 240 VAC 50/60 Hz
Dimension		66 x 170 x 200 mm
No. of connected indoor units	Indoor unit	1 to 8 units for 1 interface (Group connection for 2 or more connected units)
Receive signal type of central ON/OFF command		Non-voltage ON/OFF continuous signal
Status output signal		Non-voltage contact (For indication of ON/OFF status, and alarm) Contact capacity : Max. AC 240 V 0.5 A or less
Documents		Installation manual

Main functions

Function	Command	Monitoring
ON/OFF status (for indoor unit)	-	✓
Alarm status (system & indoor unit stop)	-	✓
Air conditioner can be turned ON/OFF by the external signal	✓	-
The external ON/OFF signals will initiate the signals shown below. 	✓	-

System configuration

[Wiring and setup]

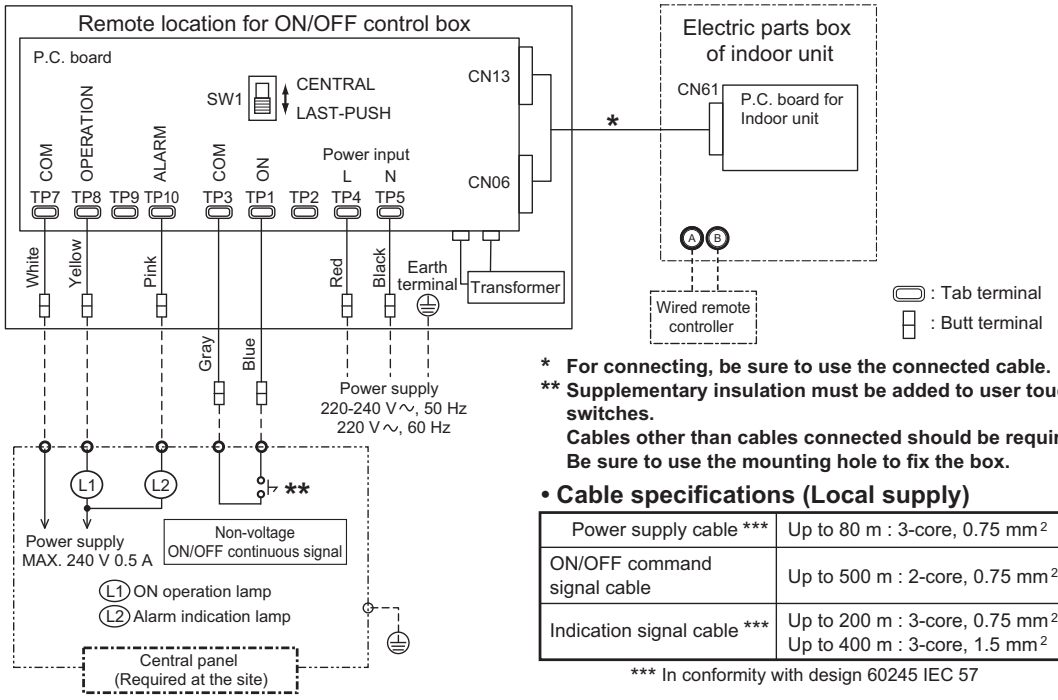
- Use an exclusive connector for connection with the indoor control PCB.
- In a group control, the system can operate when connecting with any indoor unit (Control PCB) in the group. However when taking out the operation/error signal from one unit, it is necessary to take it from all other units within the group individually.

(1) Control items

1) Start/Stop input signal : Operation start/stop in unit
2) Operation signal : Output during normal operation
3) Error signal : Output during alarm
(Serial communication error or indoor/outdoor protective device) operation

(2) Wiring diagram using remote control interface (TCB-IFCB-4E2)

Input No voltage ON/OFF serial signal
Output No voltage contact for operation, error display
Contact capacity : Below Max. AC240 V 0.5 A



*** For connecting, be sure to use the connected cable.**

**** Supplementary insulation must be added to user touchable part of switches.**
Cables other than cables connected should be required at the site.
Be sure to use the mounting hole to fix the box.

• Cable specifications (Local supply)

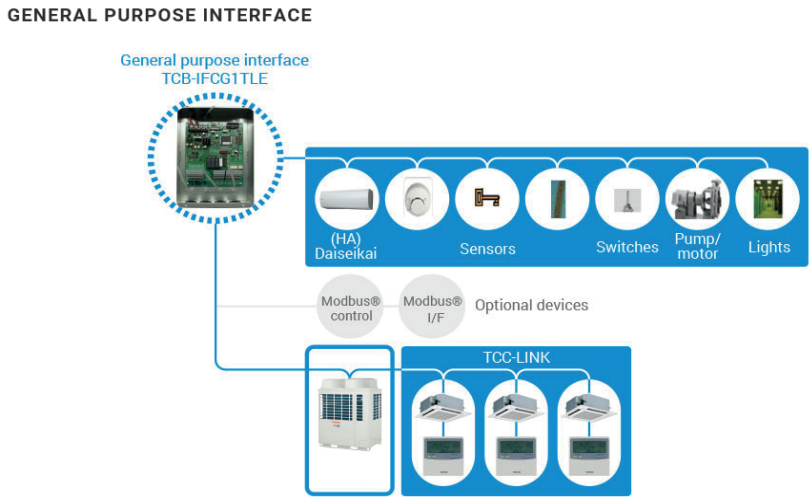
Power supply cable ***	Up to 80 m : 3-core, 0.75 mm^2
ON/OFF command signal cable	Up to 500 m : 2-core, 0.75 mm^2
Indication signal cable ***	Up to 200 m : 3-core, 0.75 mm^2 Up to 400 m : 3-core, 1.5 mm^2

*** In conformity with design 60245 IEC 57

6-4 General Purpose Interface

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.
TCB-IFCG1TLE is given a Central Control address (similar to an Indoor Unit) and can then be controlled from a central control device.
Only ON/OFF Input/Output available from Central Controllers.
Full Control Available From Modbus Interface Only.
Can be used to allow ON/OFF control and monitoring of Residential Indoor Units from TCC-Link Central Control devices (selected models only).

Outline

Appearance	Application
	

Specifications

Part name		General Purpose Interface
Model Name		TCB-IFCG1TLE
Power supply		DC 15 V ± 5%
Dimension		66 × 170 × 200 mm
Max number	Indoor unit	63
per one interface	TCC-link bus	1
Input / Output	Analog input	4 (*1)Thermistor / 0 to 10 V
	Analog output	2 (*1)0 to 10 V
	Digital input	6
	Digital output	4
Documents		Installation manual

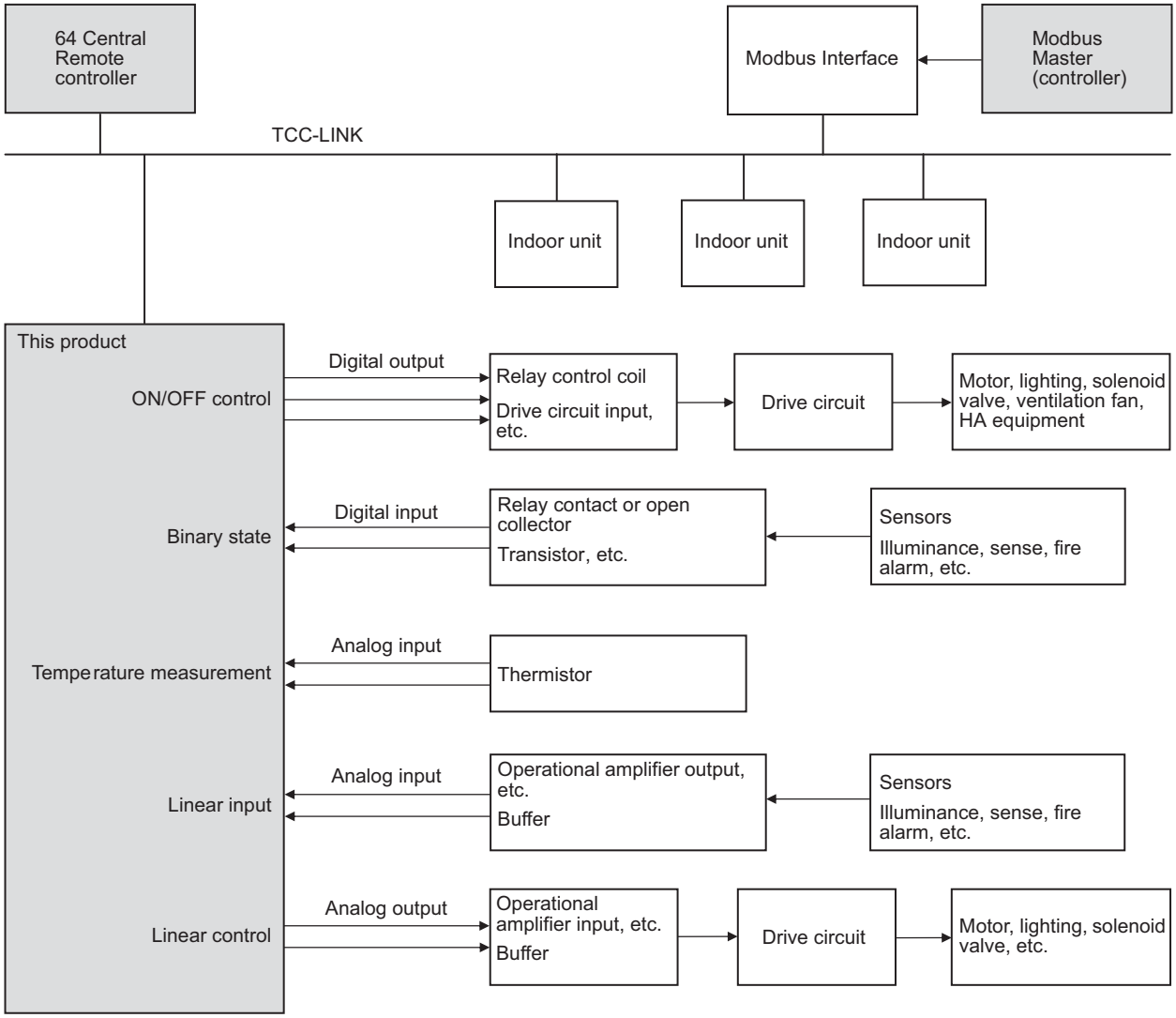
(*1) Modbus system (TCB-IFMB641TLE) needed.

Main functions

Port specification

Input/output port	Channel number	Main spec	Connected Device/Apparatus example
Analog input	2	Temperature measurement: -10~90 °C±0.4 °C	Thermistor
	2	Analog Input: 0~10 V 10 bits resolution	Sensor, etc.
Analog Output	2	Output: 0-10 V 8 bits resolution	Actuator, Motors, Pumps, etc.
Digital input	6	Photo coupler type: ON level 2mA, max 30mA	HA in (Daiseilai, IMS), Fan Sensor, etc.
Digital Output	4	Relay contacts: Max 1A 42 VAC/ 30VDC	

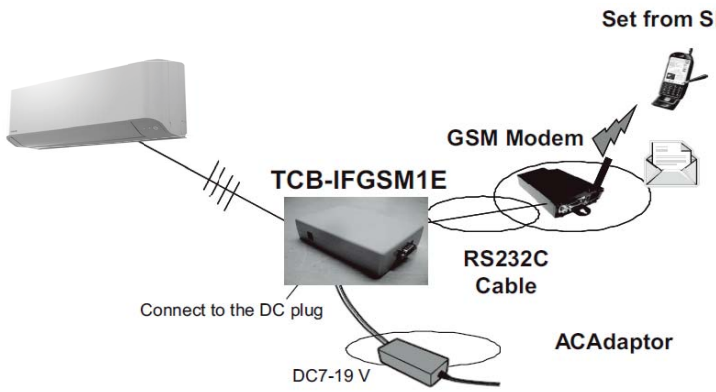
System configuration



6-5 GSM Phone Control Interface

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.
Device connects to CN61 on DI/SDI & VRF Indoor Units (excludes DI Flexi Type).
Daiseikai Residential & DI Flexi units can be connected via HA connector on Indoor Unit.
Control Functions vary depending on HA/CN61 Connection used.

Outline

Appearance	Application
	

Specifications

Part name		GSM Phone Control Interface
Model Name		TCB-IFGSM1E
Power supply		DC 7-19 V ± 5% No external power supply is required when CN61 is used.
Dimension		32 × 80 × 125 mm
No. of connected indoor units		1 to 8 units for 1 interface (Group connection for 2 or more connected units)
RS-232C connector		Supports communication specifications (9600bps, non-parity, 8 bits, 1 stop bit, flow control provided/none) D-sub 9-pin male connector Protocol: Supports ETSI GSM 07.05, GSM 07.07, GSM 03.40, GSM 03.38 standard compliant SMS-related AT commands.
Connector for the air conditioner		Photocoupler HA connector specification, 12 VDC power input, alarm input CN3: HA connector CN4: For CN61
Operation	Air conditioner control items	Air conditioner ON/OFF control is designated by mobile phone SMS message.
	Air conditioner status acquisition items	Air conditioner ON, OFF, and alarm status is notified by mobile phone SMS message. (Auto-notification is provided only when CN61 is used.)
	Operation/notification target telephone number	Up to 5 numbers can be registered initially.
	Accessible telephone number	Up to 5 numbers can be registered initially.
Media used		Global System for Mobile Communications (2G digital mobile phone communication system)

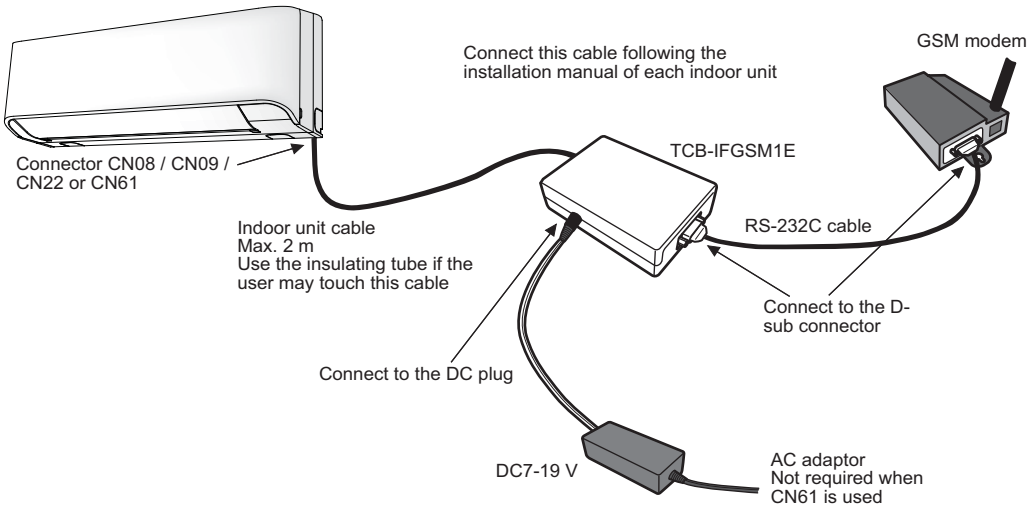
Main functions

Function	HA	CN61
On / Off	✓	✓
On / Off Status output	✓	✓
Alarm output	-	✓

Port specification

Input/output port	Channel number	Main spec	Connected Device/Apparatus example
Analog input	2	Temperature measurement: -10~90 °C±0.4 °C	Thermistor
	2	Analog Input: 0~10 V 10 bits resolution	Sensor, etc.
Analog Output	2	Output: 0-10 V 8 bits resolution	Actuator, Motors, Pumps, etc.
Digital input	6	Photo coupler type: ON level 2mA, max 30mA	HA in (Daiseilai, IMS), Fan Sensor, etc.
Digital Output	4	Relay contacts: Max 1A 42 VAC/ 30VDC	

System configuration



The cable connected to the CN61 and CN4 should be the optional connector cable TCB-KBCN61HAE.

Parts Supplied with the Product and Required Materials

Part name	Description / Specification	Quantity	Procurement
GSM Phone Control Interface TCB-IFGSM1E	This product	1	Supplied
GSM modem	Provided with an RS-232C connector and the SMS-related AT command function. Conforming to ETSI GSM 07.05, GSM 07.07, GSM 03.40, and GSM 03.38 standards.	1	Locally procured (including power supply)
Power supply	Not required when CN61 is used.	1	Locally procured
RS-232C cable	Used for connection to between GSM modem and TCB-IFGSM1E. A straight cable with male-female connectors (max.15 m)	1	Locally procured
Indoor unit cable	Used for connection to between GSM modem and TCB-IFGSM1E. A straight cable with male-female connectors (max.15 m)	1	Locally procured Ask your dealer.
	Use a 1.9 m 4-pin cable for connection to HA terminal.	1	Supplied
Insulating tube for cable protection	Use this tube (Thickness: at least 1 mm) to protect the indoor unit cable if the user may touch the cable.	1	Locally procured
Screw	For 4 feet to be attached to the wall (M3 × 16 tapping screw)	4	Supplied
Foot	4 feet (including screws MT-34K) to be attached to the TCB-IFGSM1E.	4	Supplied
Cable clamp	For clamping indoor unit cable.	1	Supplied
Installation Manual	Used by installation staff	1	Supplied
Owner's Manual	Used by the user	1	Supplied

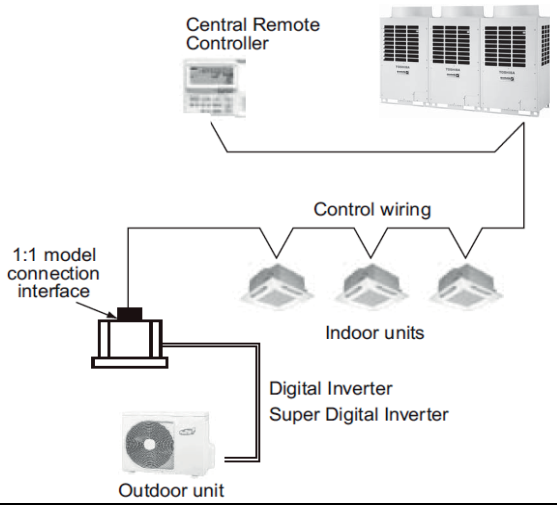
Parts Required for Tests

GSM modem simulator software (CD-ROM)	Used for checking air conditioner communication and RS-232C communication.	1	Supplied
PC for tests	Equipped with RS-232C communication function. Used for the GSM modem simulator software.	1	Locally procured
RS-232C cable for tests	A cross cable with female-female connectors used for connection to a PC	1	Locally procured

6-6 Digital Inverter Air Conditioner “1:1 Model” Connection Interface

This interface corresponds to the digital inverter air conditioner.
Do not use or connect this interface for other type of air conditioner than the above because the indoor P.C. boards of other air conditioners differ from one of the digital inverter air conditioner.

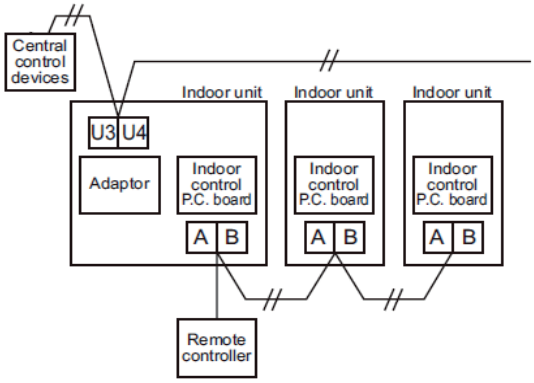
Outline

Appearance	Application
	

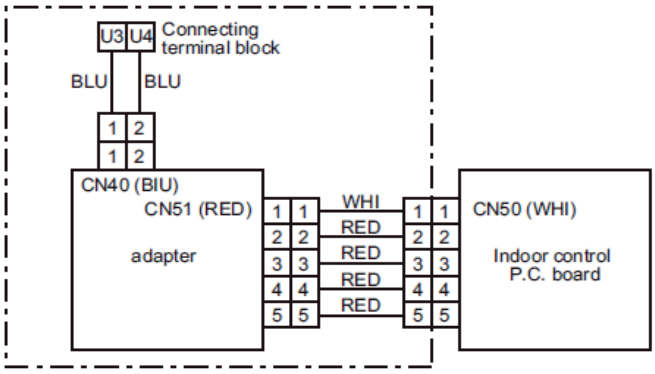
Specifications

Part name		Digital Inverter Air Conditioner “1:1 Model” Connection Interface
Model Name		TCB-PCNT30TLE2
Power supply		No external power supply is required No external power supply is required when CN61 is used.
Dimension		85 × 52 mm
No. of connected indoor units		1 to 8 units for 1 interface (Group connection for 2 or more connected units)
Max number per one interface	Indoor unit	1 (DI/SDI)
	TCC-link bus	1
Installation position		E-parts of the indoor unit
		Or, need 1:1 Model Connection Interface board box (TCB-PX30MUE/TCB-PX40MUME)
Documents		Installation manual

System configuration



Wiring diagram of indoor P.C. board



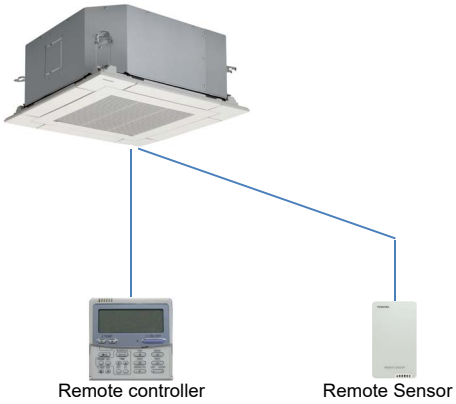
Combination

Indoor unit type (DI/SDI)		TCB-PCNT30TLE2	TCB-PCNT30TLE2 with TCB-PX30MUE	TCB-PCNT30TLE2 with TCB-PX40MUME
4-way cassette		-	✓	-
Smart 4-way cassette		-	✓	-
Compact 4-way cassette	SM 4 series	-	✓	-
	SM 7series/ RM 1series	-		✓
Slim duct		✓	-	
Duct		✓	-	
Ceiling		✓	-	
High wall		(No need)	-	

6-7 Remote sensor

Air temperature sensing at a distance by switching from body sensor max 1 and max 1 wired remote controller on the A/B terminal.

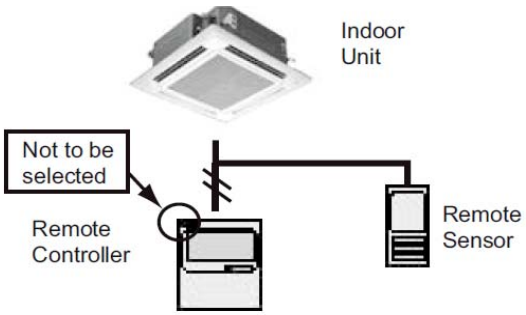
Outline

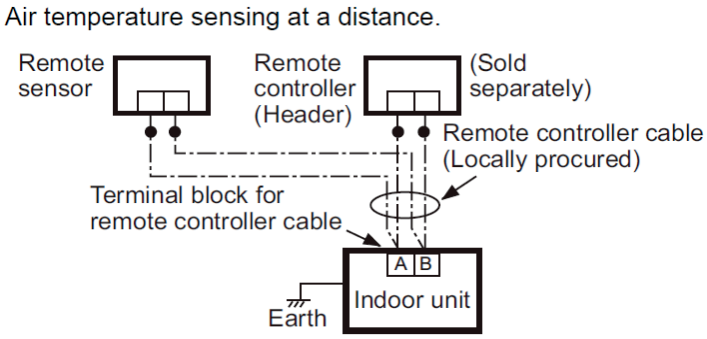
Appearance	Application
	

Specifications

Part name	Remote sensor
Model Name	TCB-TC41LE
Power supply	DC 7-19 V ± 5% No external power supply is required when CN61 is used.
Dimension	32 × 80 × 125mm
No. of connected indoor units	1 to 8 units for 1 interface (Group connection for 2 or more connected units)
Documents	Installation manual

System configuration





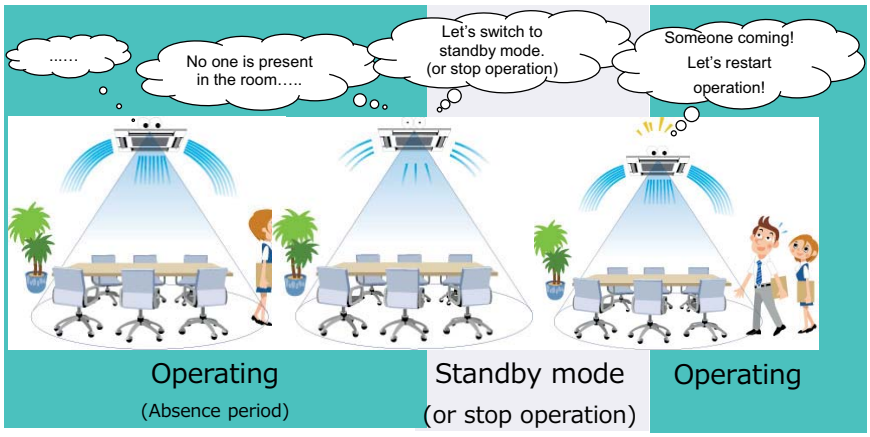
Room temperature data

Category	Group Control	Room temperature for control		
		Body TA sensor	TCB-TC41LE	Sensor in Remote controller
VRF	Group	yes (each)	prohibited	
	Individual	yes (each)	yes (each)	
DI/SDI	Group/Twin/Triple	yes (Header)	yes (Header)	
	Single	yes (each)	yes (each)	
DN code = 32 TA sensor selection setting		Body TA sensor	Body TA sensor [Note 1]	Remote controller sensor [Note 2]

6-8 Occupancy Sensor

When the occupancy sensor detects that no one is present, the indoor unit will automatically switch to either standby mode (Pattern1)or stop operation (Pattern2), increasing energy saving.

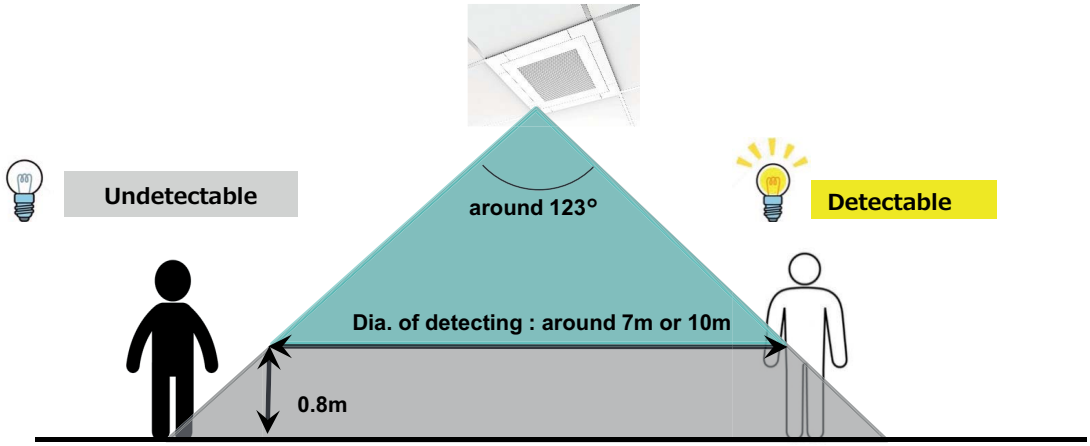
Outline

Appearance	Application
  The function is available only "RBC-AMS55E-ES/EN" RBC-AMS55E-ES/EN	

Specifications

Part name	Remote sensor		
Model Name	TCB-SIR41UM-E	VRF	For MMU-AP__7MH-E (Compact 4-way cassette)
		LC	For RAV-RM__1MUT-E (Compact 4-way cassette)
			For RAV-SM__7MUT-E (Compact 4-way cassette)
	TCB-SIR41U-E	LC	For RAV-GM__1UT-E (Smart 4-way cassette)
Position	Occupancy Sensor fits into the ceiling panel corner pocket.		
Notes	1) The function is available only "**RBC-AMS55E-ES/EN**". 2) Wireless remote controller kit and Occupancy sensor **cannot be used** on the same indoor unit. 3) Even if someone is present, when movement is small, Occupancy Sensor may detect no one is present. 4) When group control is used, please install Occupancy Sensor on the all of indoor units.		
Documents	Installation manual Owner's manual		

System configuration

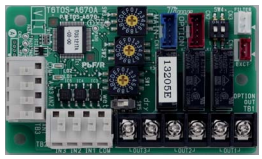
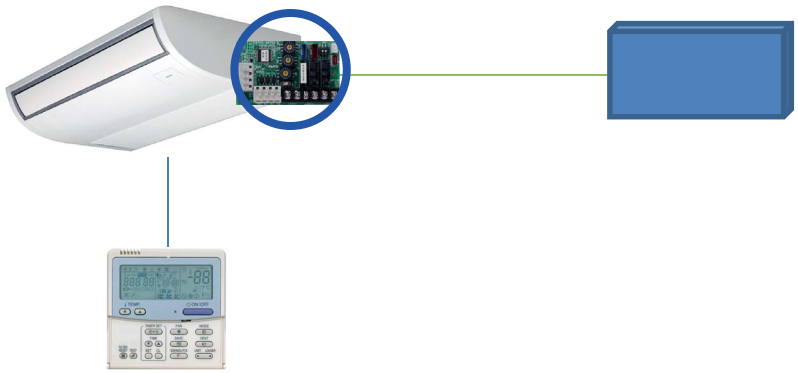


Detectable position

Model		Installable Ceiling Height (m)	Detecting Height (m)		Dia. of detecting (m)
			From floor	From ceiling	
MMU-AP__7MH-E	AP005 up to AP012	Up to 2.7	0.8	1.9	Around 7.0
	AP015 up to AP018	Up to 3.5	0.8	2.7	Around 10.0
RAV-RM__1MUT-E	RM30	Up to 2.7	0.8	1.9	Around 7.0
	RM40 up to 56	Up to 3.5	0.8	2.7	Around 10.0
RAV-SM__7MUT-E	SM30	Up to 2.7	0.8	1.9	Around 7.0
	SM40 up to 56	Up to 3.5	0.8	2.7	Around 10.0
RAV-GM__1UT-E	GM56	Up to 2.8	0.8	2.7	Around 10.0
	GM80	Up to 3.0	0.8	2.7	Around 10.0
	GM110 to 140	Up to 3.9	0.8	3.1	Around 11.4

6-9 Application control kit

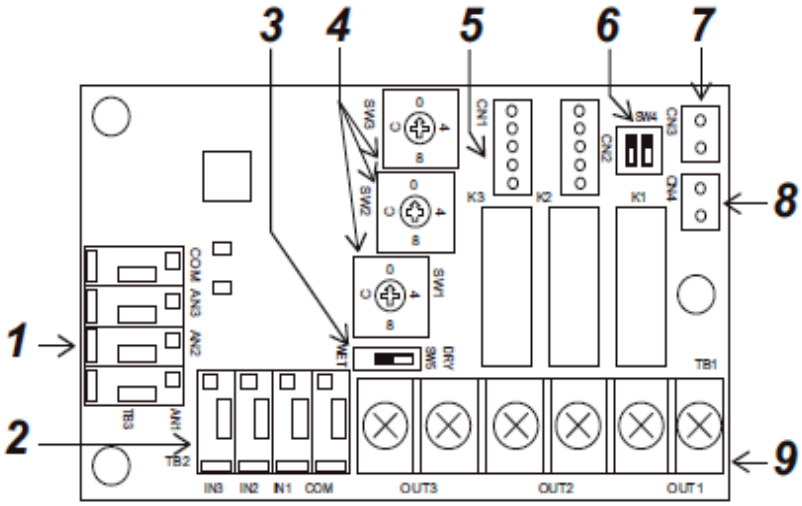
Outline

Appearance	Application
	

Specifications

Part name	Application control kit
Model Name	TCB-PCUC2E
Power supply	DC 7-19 V ± 5% No external power supply is required when CN61 is used.
Dimension	32 × 80 × 125 mm
Documents	Installation manual

System configuration



Function

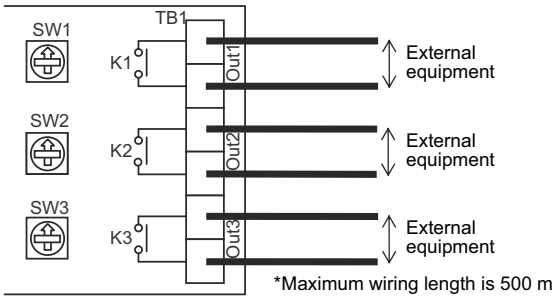
Description / Specification

1 External analog input terminal (TB3)
2 External digital input terminal (TB2)
3 External digital input
4 Switch for setting signal output (Factory default: 0)
5 Connector for connecting to indoor circuit board (CN1)
6 Switch for function select (SW4) (Factory default: OFF)
7 FILTER connector (CN3)
8 EXCT connector (CN4)
9 Signal output terminal block (TB1)

<Signal output terminal: TB1> (*1)

The following signal outputs are extracted from “OUT1”, “OUT2”, and “OUT3”.
It is possible to change the signal outputs with SW1, SW2, and SW3.

*** Always turn off the power to the indoor unit before setting the signal outputs.**
Note that even if you set the signal outputs, the settings do not change if the power to the indoor unit is ON.



<Connectable load>
30 VDC/1 A or less
277 VAC/1 A or less

SW1, 2, and 3 settings	Signal output
0	No output (default)
1	Cool dry output
2	Heat output
3	Defrost output
4	Fan output (indoor unit fan ON)
5	Thermo. ON output
6	Ventilation output
7	Operation output
8	Alarm output
9	Humidify output *1
A	Heater output
B	Actual compressor on output
C	Actual fan status output
D	Filter sign output
E	Demand response output
F	Not used

*1 Attach the short plug provided to CN3 if using humidify output.
*2 Only signal output 3 (OUT3) can change relay (K3) contacts from A contact to B contact by switching the relay output reverse switch (SW4(bit 1)) from OFF to ON.
- A contact: Relay is ON when there is signal output
- B contact: Relay is OFF when there is signal output (Relay is ON when there is no signal output)

Always turn off the power to the air conditioner before doing the settings because the SW4 settings also are not changed even if the settings are changed while the power is ON.

⚠CAUTION

Keep input signal wires and other signal wires away from power supply lines that are 220-240 VAC.

<External digital input terminal: TB2> (*1)

The following controls can be done by inputting signals to the external digital input terminal.

▼ IN1: External trouble input

The air conditioner system stops and check code “L30: Indoor unit external interlock trouble” is displayed on the wired remote controller when an external trouble is input.

▼ IN2: Prohibition of local input

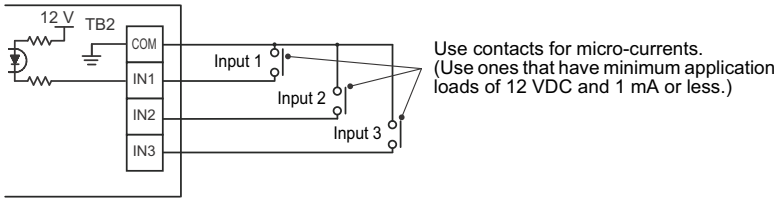
is displayed on the wired remote controller and operations cannot be started or stopped from the wired remote controller during prohibition of local input.
It is also possible to release local prohibition from the central remote controller.
(Most recent input is given priority.)

▼ IN3: Not used

* Do the wiring as shown to the right for input of either “Voltage ON: WET” or “Voltage OFF: DRY”.

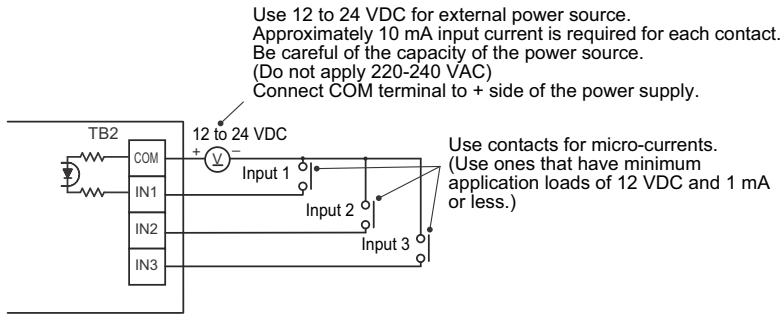
“Voltage OFF” input

Set the input switch (SW5) to the “Voltage OFF: DRY” side.
(Factory default: Voltage OFF (DRY) side)



“Voltage ON” input

Set the input switch (SW5) to the “Voltage ON: WET” side.
(Factory default: Voltage OFF (DRY) side)



<Wiring specifications>
Wire type: Sheathed vinyl cord, single strand
Wire thickness: 1.25 to 2.00 mm^2 (prep 9 to 10 mm of the tips of wires)
Total wire length: Max 70 m
* If you use twisted strand wires, connect a pin terminator.

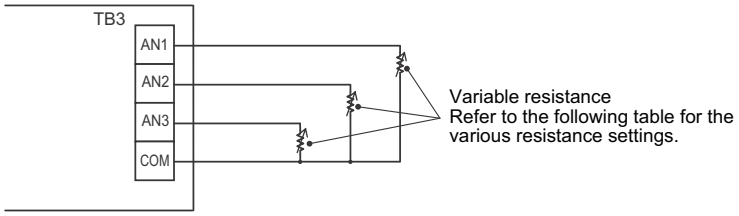
⚠CAUTION

Separate power lines when wiring to prevent misoperations.

<External analog input terminal: TB3> (*2)

It is possible to change the indoor unit's operation mode (AN1), set temperature (AN2), and blower setting (AN3) by connecting a variable resistor to the analog input terminal.

* When both the wired remote controller and the central controller are used, the most recent setting has priority.



Do not apply voltage or current to AN1, AN2, AN3, or COM.

<Operation mode: AN1>

Operation switching	External resistance (Ω)
Stop	30
Blower	60
Cool	90
Warm	120

<Set temperature: AN2>

Set temperature (°C)	External resistance (Ω)
17	10
18	20
19	30
20	40
21	50
22	60
23	70
24	80
25	90
26	100
27	110
28	120
29	130
30	140

<Blower setting: AN3>

Blower setting	External resistance (Ω)
Auto	30
Fast	60
High	90
Low	120

<Wiring specifications>
Wire type: Sheathed vinyl cord, single strand
Wire thickness: 1.25 to 2.00 mm^2 (prep 9 to 10 mm of the tips of wires)
Total wire length: Max 70 m
* If you use twisted strand wires, connect a pin terminator.

⚠CAUTION

Separate power lines when wiring to prevent misoperations.

Other functions

▼ FILTER(CN3)
Install the short plug provided to CN3 if connecting a humidifier.

▼ EXCT(CN4)
Can thermo. OFF by shorting this connector.
Use contacts for micro-currents when using external contacts.
(Use ones that have minimum application loads of 12 VDC and 1 mA or less.)

LED display

▼ Power LED (LD1) [Red]
Lights when running and power is supplied.
Normally lighted, but flashes if a transmission trouble occurs on the indoor unit P.C. board.

▼ Regular operation LED (LD2) [Green]
Lights when transmission with indoor unit P.C. board is established and operation is regular.

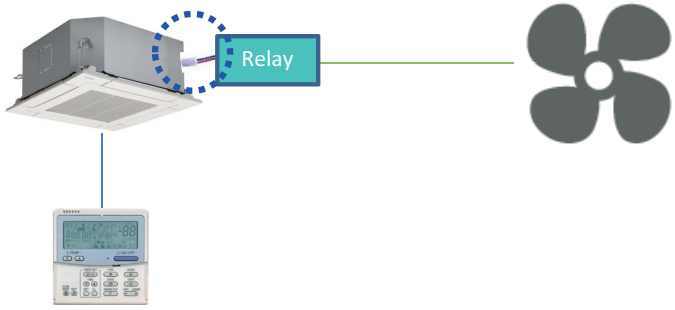
Precautions for using an application control kit together with Air to Air Heat Exchanger (VN-M*HE1).**

(*1) <Signal output terminal: TB1> and <External digital input terminal: TB2> differ from the functions described in this Installation Manual.
Refer to the Installation Manual attached to Air to Air Heat Exchanger product.
(*2) <Signal output terminal: TB3> cannot be used for Air to Air Heat Exchanger.

6-10 Connectors

CN32 - Ventilation Fan control

Outline

Appearance	Connector port on Indoor control P.C. board	Application
		

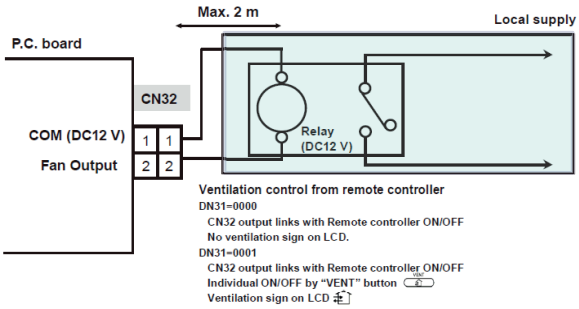
Specifications

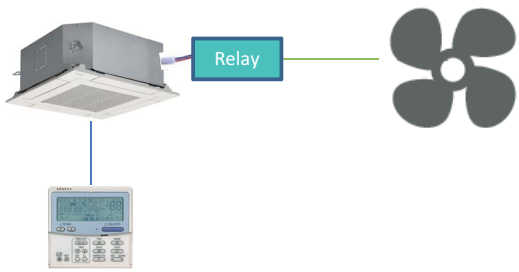
Model Name		TCB-KBCN32VEE
Connector port on Indoor control P.C. board		CN32
Operation		Fan Output
Socket	Color	White
	Housing	XAP-02V-1 (White): UL1007
	Contact	SXA-001T-P0.6: AWG22
Cable	Length	500 mm *The length of cables ought to be 2000mm or less including this connector cable(500mm).
Documents		Installation manual

Pin	Color	Operation	
1	Red	DC12 V (Common)	
2	Blue	Fan output (Open collector)	-Shipment setup (DN31 = 0000)
			-Ventilation control (DN31 = 0001) 
			Remote controller ON Ventilation ON (IF already ON, ON remains)
			Remote controller OFF Ventilation OFF (IF already OFF, OFF remains)

Application

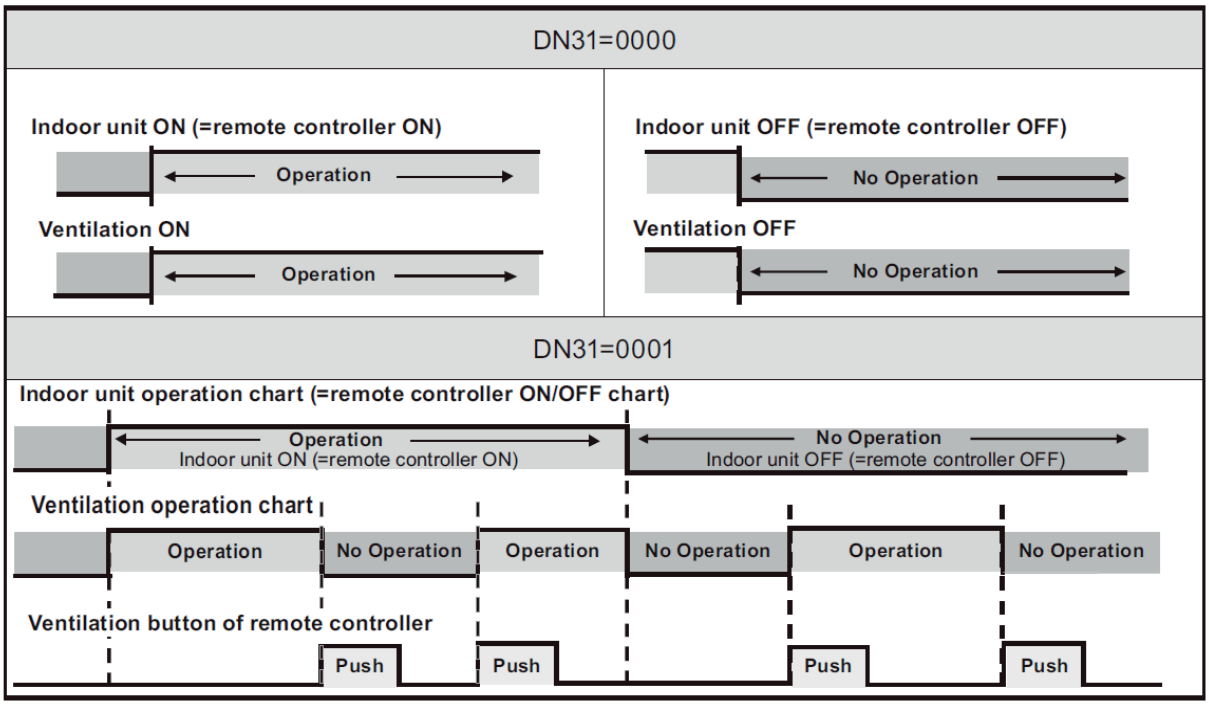
The External ventilation control allows the control of an external fan (or other equipment) via a 12 VDC Relay output





Chart

DN31=0000Ventilation output turn ON/OFF with Indoor unit ON/OFF
DN31=0001Ventilation output is controller using the Ventilation button on Controller



CN60 - Operation status signal output

Outline

Appearance	Connector port on Indoor control P.C. board	Application
		

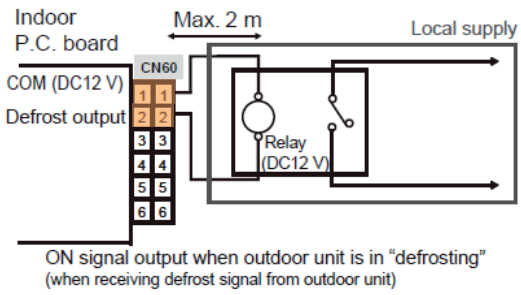
Specifications

Model Name		TCB-KBCN60OPE
Connector port on Indoor control P.C. board		CN60
Operation		Operation status signal output
Socket	Color	White
	Housing	PAP-06V-S (White): UL1007
	Contact	SPHD-002T-P0.5: AWG24
Cable	Length	500 mm
		*The length of cables ought to be 2000mm or less including this connector cable(500mm).
Documents		Installation manual

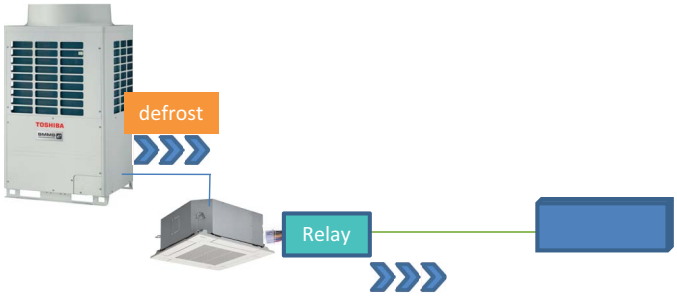
Pin	Color	Operation	
1	Red	DC12 V (COM)	Common for Pin. 2 to 6
2	Blue	Defrost output (Open collector)	ON signal when outdoor unit is in defrosting (when receiving defrost signal from outdoor unit)
3	Orange	Thermo ON output (Open collector)	ON signal when indoor unit is “thermo-ON”
4	Yellow	Cooling output (Open collector)	ON when operation mode is cooling (Cooling, Dry, Cooling in Auto mode)
5	Brown	Heating output (Open collector)	ON when operation mode is heating (Heating, Heating in Auto mode)
6	Black	Fan output (Open collector)	ON when indoor fan is ON (ex. Interlock cabling)

Application

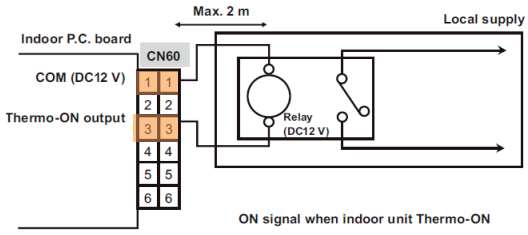
The Operation status Output connector supplies a 12 VDC



ON signal output when outdoor unit is in "defrosting"
(when receiving defrost signal from outdoor unit)

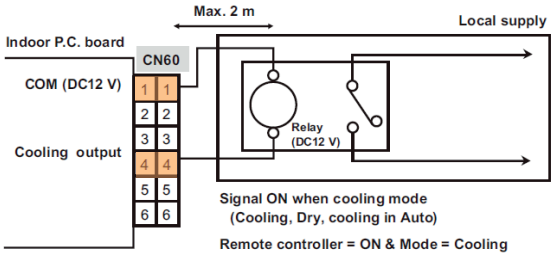


ON signal when indoor unit is "thermo-ON"



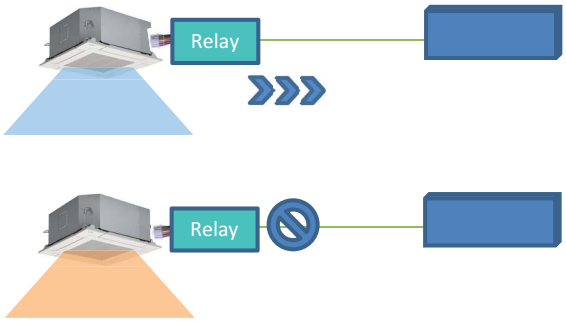
ON signal when indoor unit Thermo-ON

ON when operation mode is cooling

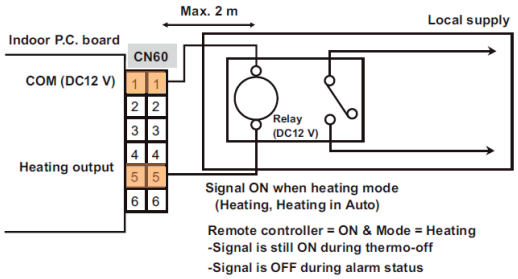


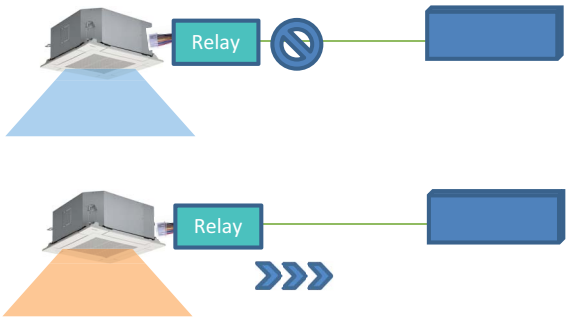
Signal ON when cooling mode
(Cooling, Dry, cooling in Auto)

Remote controller = ON & Mode = Cooling
-Signal is still ON during thermo-off
-Signal is OFF during alarm status

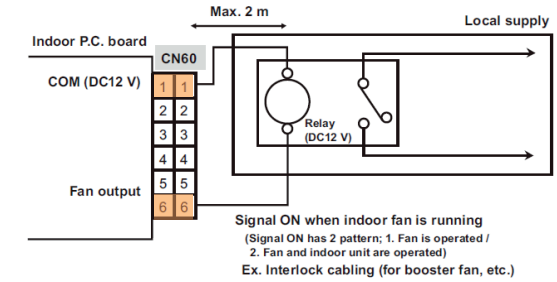


ON when operation mode is heating

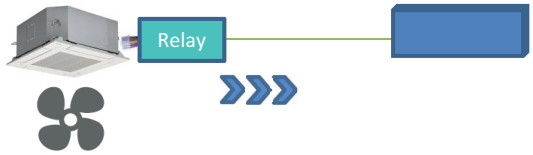




ON when indoor fan is ON

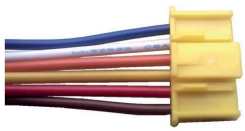
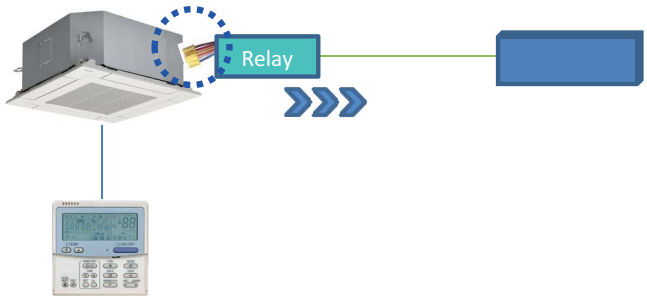


(Note) Signal is OFF when 4-way cassette type performs intermittent operation after oil recovery control.



CN61- Leaving-ON prevention control

Outline

Appearance	Connector port on Indoor control P.C. board	Application
		

Specifications

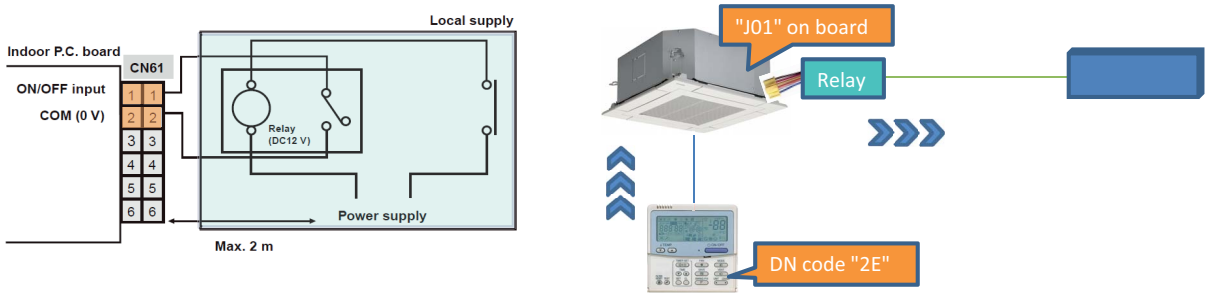
Model Name		TCB-KBCN61HAE
Connector port on Indoor control P.C. board		CN61
Operation		Leaving - ON prevention control
Socket	Color	Yellow
	Housing	XAP-06V-1-Y (Yellow): UL1007
	Contact	SXA-001T-P0.6: AWG22
Cable	Length	500 mm
		*The length of cables ought to be 2000mm or less including this connector cable(500mm).
Documents		Installation manual

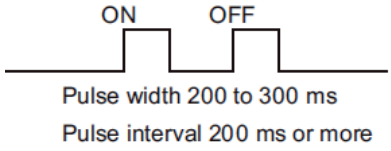
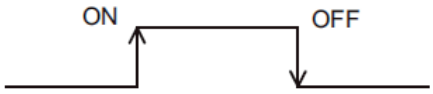
Pin	Color	Operation	
1	Blue	ON/OFF input	External ON/OFF control (DN code 2E, J01)
2	White	0 V (Common for Pin. 1, 3)	
3	Orange	ON/OFF prohibition input	Input signal makes switching of permission / prohibition of individual remote controller ON/OFF (During prohibition, “Central controlling mark” is shown on the LCD.)
4	Yellow	Operation output (Open collector)	On signal during “remote controller ON”
5	Red	DC12 V (Common for Pin. 4, 6)	
6	Brown	Alarm output (Open collector)	On signal during alarm output (non recovery fatal error)

Using a door switch or card entry system etc, the leaving-ON of the indoor unit can be prevented, this is done by the setting of the remote controller and relay wiring.

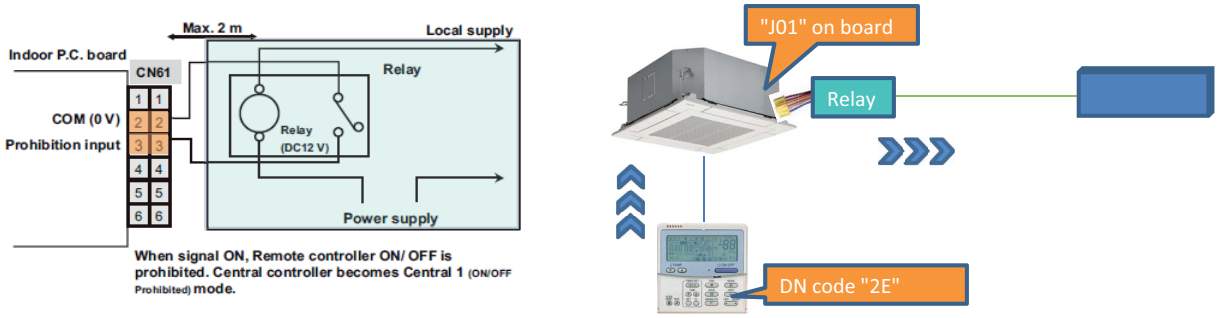
Application

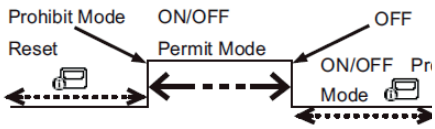
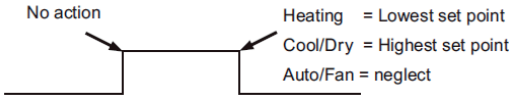
External ON/OFF control (DN code 2E, J01)



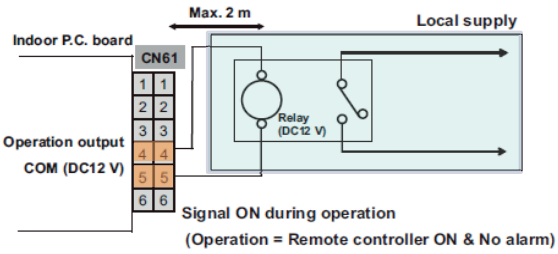
DN 2E 	J01 	Action
0000 (Factory setting)	Connect	Pulse input 
	Cut	Static input 

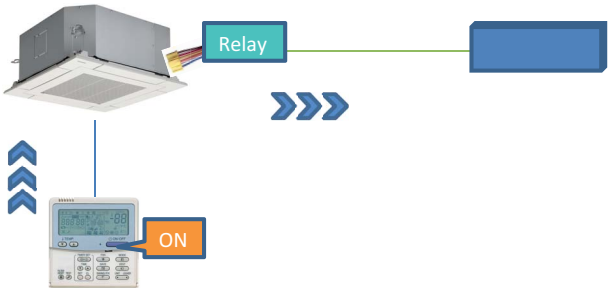
ON/OFF prohibition input



DN 2E 	J01 	Action
0001	Connect	Leaving on prevention control 
	Cut	

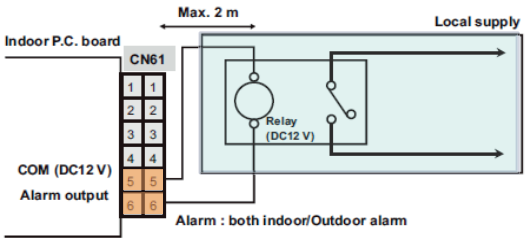
Operation output

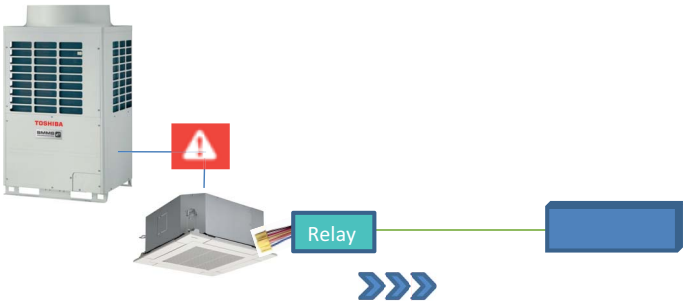




(Note) Individual signal output group control is available.
If follower indoor unit generates alarm, signal becomes OFF in this indoor unit only.

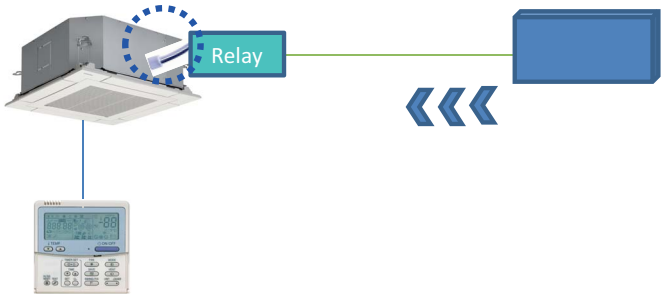
Alarm output





CN70 - Option error input

Outline

Appearance	Connector port on Indoor control P.C. board	Application
		

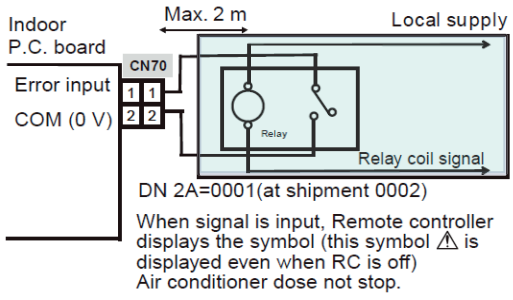
Specifications

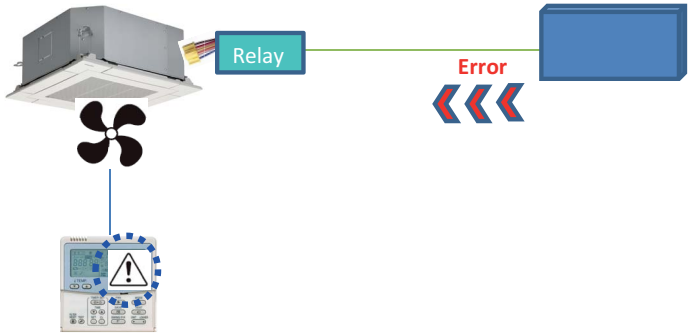
Model Name		TCB-KBCN70OAE
Connector port on Indoor control P.C. board		CN70
Operation		Option error input
Socket	Color	White
	Housing	HER-2 (White): UL1007
	Contact	SEH-001T-P0.6: AWG22
Cable	Length	500 mm
		*The length of cables ought to be 2000mm or less including this connector cable(500mm).
Documents		Installation manual

Terminal	Color	Operation	
1	Blue	Error input	Default : DN2A=0002 (at shipment) No function.
			DN2A=0001 (External error input)
			When signal is input, error symbol is displayed on RC.
			(Indoor unit does not stop)
			DN2A=0000 (Filter display input) When signal is input, filter sign symbol is displayed on RC.
2	White	0 V (COM)	

Application

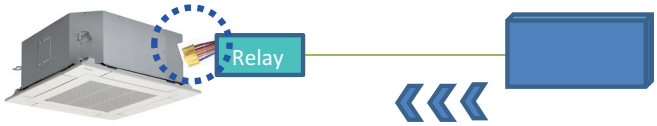
Error input





The CN70 connector enables an external error signal to be input the connected indoor unit and displayed on the connected remote controller without stopping the indoor unit.

CN73 - Demand control
Outline

Appearance	Connector port on Indoor control P.C. board	Application
		

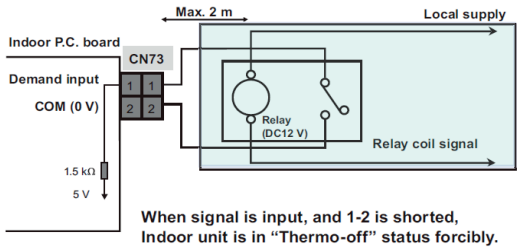
Specifications

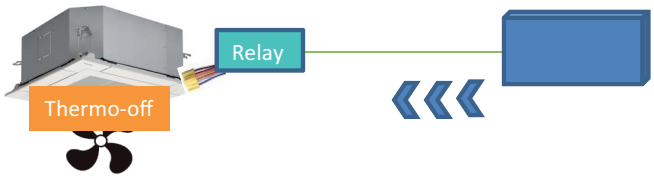
Model Name		TCB-KBCN73DEE
Connector port on Indoor control P.C. board		CN73
Operation		Demand control
Socket	Color	Red
	Housing	HER-2-R (Red): UL1007
	Contact	SHE-001T-P0.6: AWG22
Cable	Length	500 mm
		*The length of cables ought to be 2000mm or less including this connector cable(500mm).
Documents		Installation manual

Terminal	Color	Operation	
1	Blue	Demand input	Indoor unit is forced to turn thermo OFF
2	White	0 V (COM)	

Application

Demand input

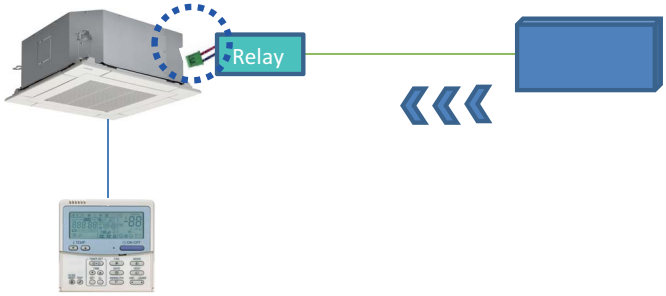




The CN73 Connector enables an external input signal to force the connected indoor unit into thermo OFF status.

CN80 - Outside error input

Outline

Appearance	Connector port on Indoor control P.C. board	Application
		

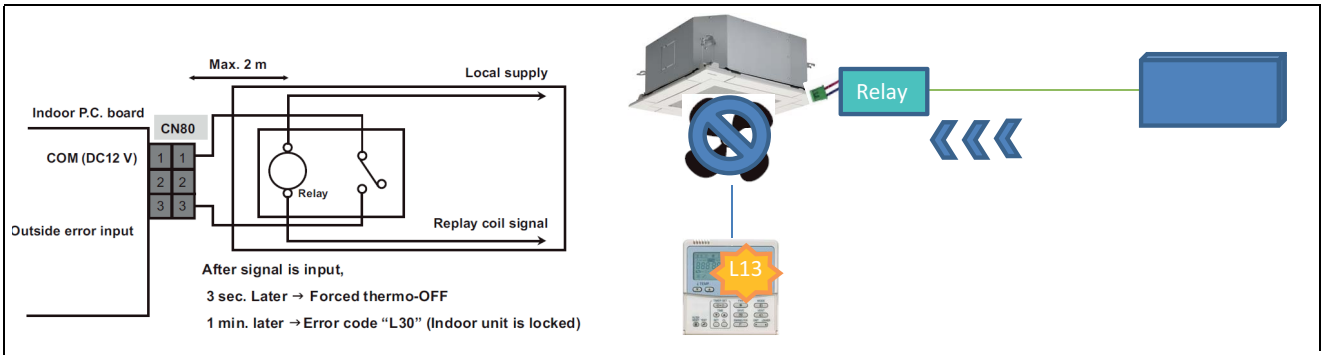
Specifications

Model Name		TCB-KBCN80EXE
Connector port on Indoor control P.C. board		CN80
Operation		Outside error input
Socket	Color	Green
	Housing	XAP-03V-1-M (Green): UL1007
	Contact	SXA-001T-P0.6: AWG22
Cable	Length	500 mm
		*The length of cables ought to be 2000mm or less including this connector cable(500mm).
Documents		Installation manual

Terminal	Color	Operation	
1	Red	DC12 V (COM)	Common for Pin.3
2	-	-	
3	Blue	Outside error input	After signal is input:
			3 sec.: Thermo-off forcedly
			1 min.: Generates Error code “L30” (Interlock from outside) to stop the operation forcedly.

Application

Outside error input



The CN80 connector enables an external error signal to be input into the connected Indoor unit and that will stop the Indoor unit and be displayed on the connected Remote controller.

7

Individual gateway

7-1 Line Up – Individual gateway

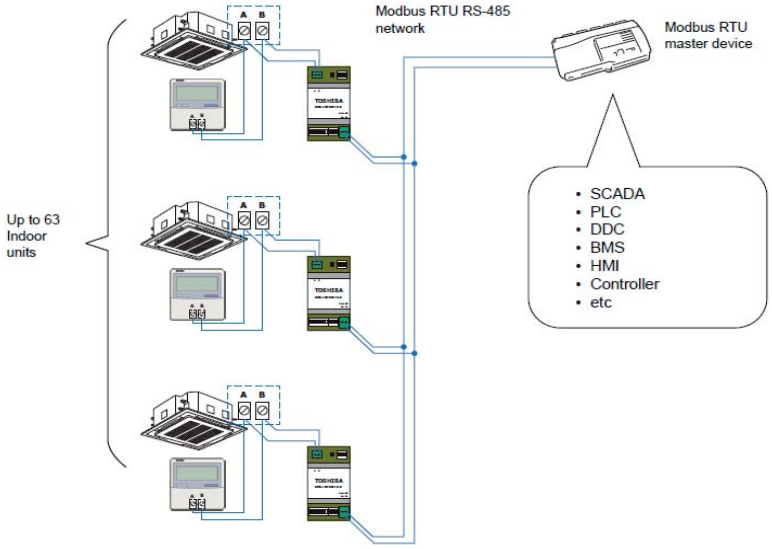
Type	Modbus Interface	KNX Interface	Modbus Interface	KNX Interface
Model Name	**BMS-IFMB0TLR-E**	**BMS-IFKX1TLR-E**	**BMS-IFMB0AWR-E**	**BMS-IFKX0AWR-E**
Appearance				
System	**VRF**		**Air to Water**	
ON / OFF status	✓	✓	✓	✓
Operation mode	✓	✓	✓	✓
Fan speed	✓	✓	-	-
Louver	✓	✓	-	-
Set temperature	✓	✓	✓	✓
Filter sign	✓	✓	-	-
Room temperature	✓	✓	✓	✓
Permit / Prohibit of Local Operation	✓	✓	-	-
Error status	✓	✓	✓	✓
Error code	✓	✓	✓	✓

*If you connect these models, you cannot use sub remote controller.

7-2 Modbus Interface (VRF)

The BMS-IFMB0TLR-E interface allows a complete and natural integration of Toshiba air conditioners into Modbus RTU (RS-485) networks.
The BMS-IFMB0TLR-E is compatible with the Toshiba Remote controller AB lines.

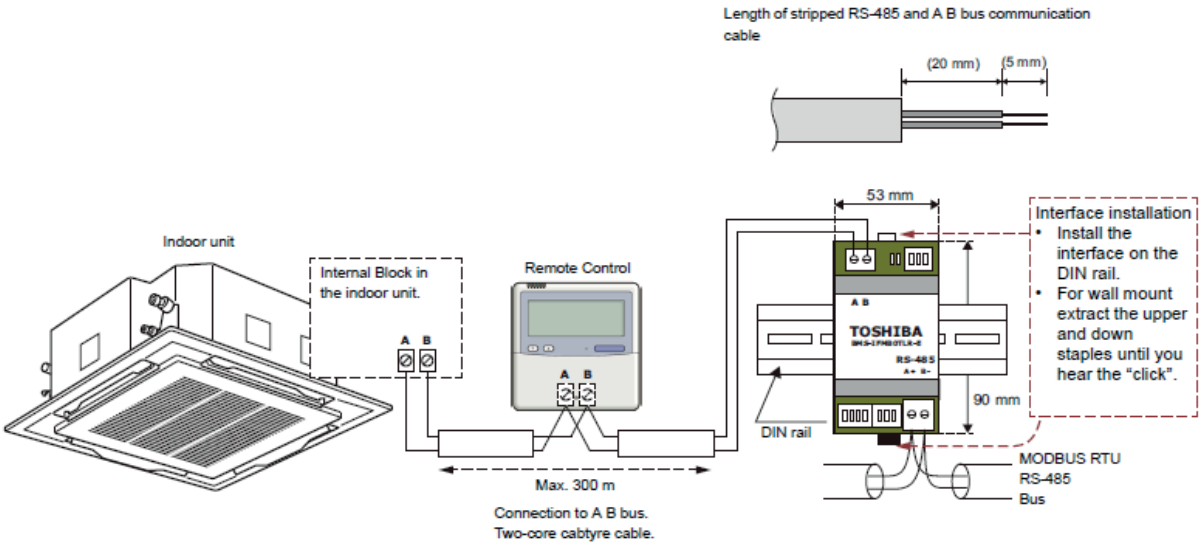
Outline

Appearance	Application
	

Specifications

Part name		Modbus Interface
Model Name		BMS-IFMB0TLR-E
Power supply		External power not required
Dimension		90 (93) x 53 x 58 mm
Max number	Indoor unit	1
Connection		Direct connection to Modbus RTU (RS-485) networks
		Direct connection to the Indoor unit
NOTE When use RBC-AMS5* Remote Controller, You cannot connect the listed air-conditioner.		MMU-AP***4YH1 MMD-AP***4H,-E MML-AP***4BH1,-E MML-AP***4H,-E MMF-AP***4H,-E MMD-AP***1HFE MMD-APVN***2HEX1E MMW-AP***LQ-*
Documents	Installation manual	Installation instructions, Configuration through micro switches
	User Manual	Modbus Interface Specification etc.

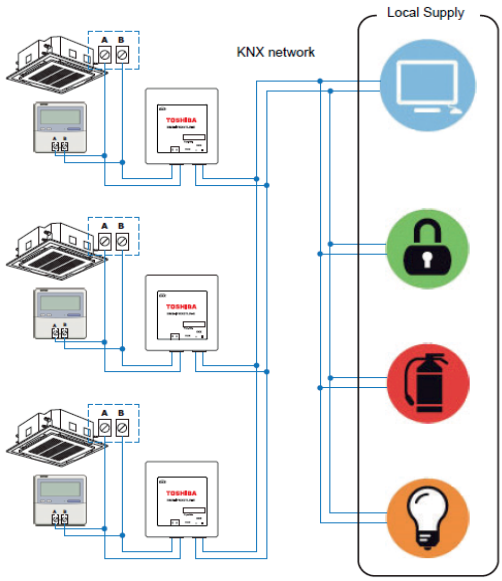
System configuration



7-3 KN Interface (VRF)

The BMS-IFKX0TLR-E interface allows a complete and natural integration of Toshiba air conditioners into KNX networks.
The BMS-IFKX0TLR-E is compatible with the Toshiba Remote controller AB lines.
Control and Monitoring of the indoor unit from KNX, including monitoring of indoor unit's state of internal variables and error indication and error code.

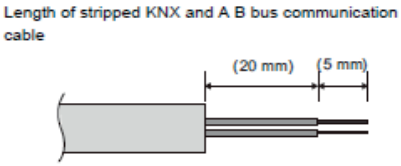
Outline

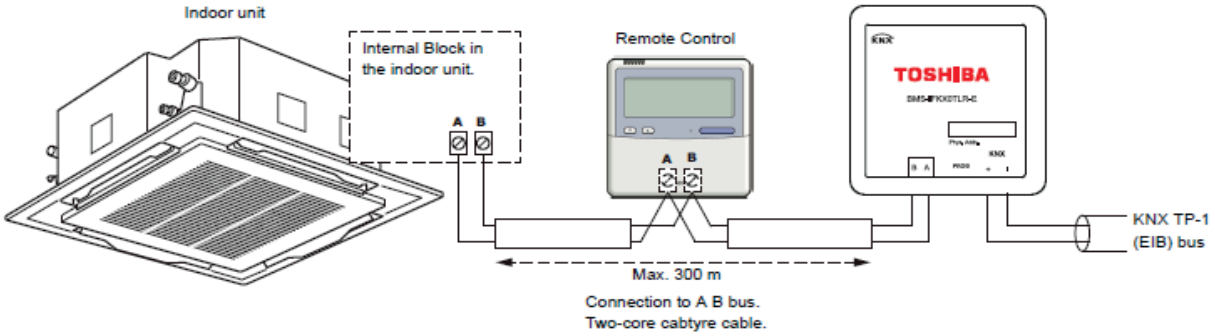
Appearance	Application
	

Specifications

Part name		KN Interface
Model Name		BMS-IFKX0TLR-E
Power supply		KNX line 29 VDC / 8 mA
		AW line 14 VDC / 20 mA
Dimension		Sheet metal box 33.4 x 82.5 x 92.1 mm
		Mold unit 28 x 70 x 70 mm
Connection		Direct connection to the Indoor unit.
		Use only one remote controller. A sub-remote controller cannot be connected when connecting this interface.
Remote controller		Wired remote controller only
Documents	Installation manual	Installation instructions
	User Manual	Object table, ETS parameters etc.

System configuration





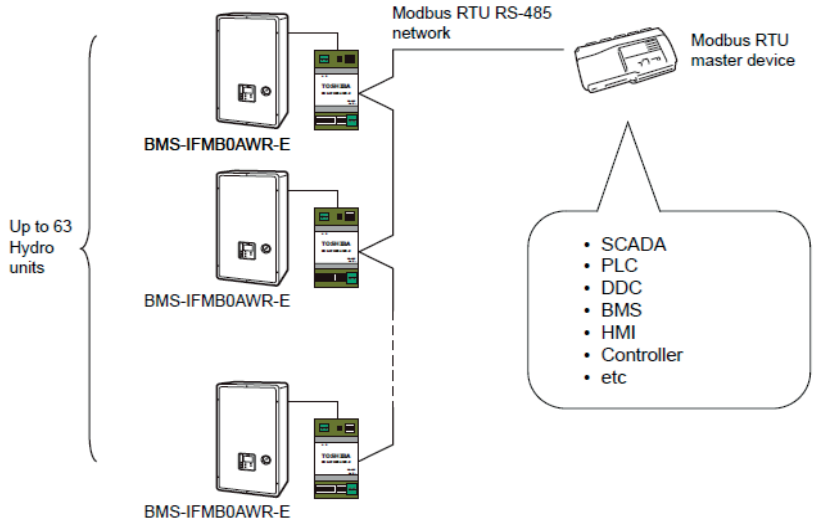
Wiring materials to connect the signal line (Procure locally)

For KNX TP-1 Bus	Cable type	KNX TP1
	Cable diameter	-
	Cable length	1000 m
	Polarity	Yes (+/-)
For AB Bus (AW-LINK) lines	Cable type	VCTF
	Cable diameter	0.5 mm² to 2.0 mm²
	Cable length	300 m (0.75²)
	Polarity	No

7-4 Modbus Interface (Air to water(Estia))

The BMS-IFMB0AWR-E interface allows a complete and natural integration of Toshiba air conditioners into Modbus RTU(RS-485) networks.
The BMS-IFMB0AWR-E is compatible with the Toshiba ESTIA AW-LINK lines.

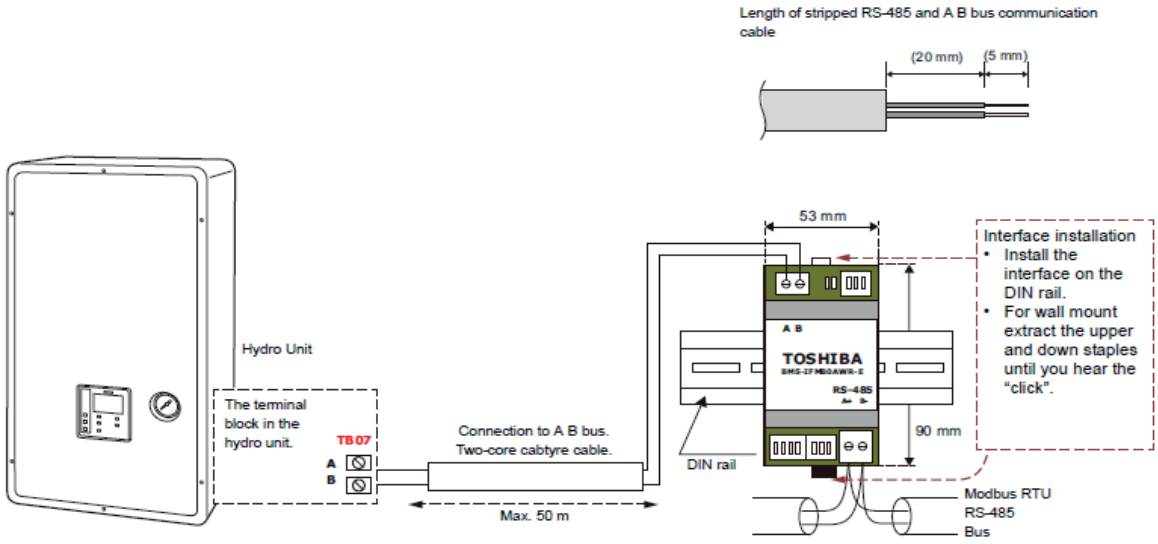
Outline

Appearance	Application
	

Specifications

Part name		Modbus Interface
Model Name		BMS-IFMB0AWR-E
Power supply		External power not required
Dimension		90 (93) x 53 x 58 mm
Max number	Indoor unit	1
Connection		Direct connection to Modbus RTU (RS-485) networks
		Estia Hydro Unit
Documents	Installation manual	Installation instructions, Configuration through micro switches
	User Manual	Modbus Registers for Standard Functions etc.

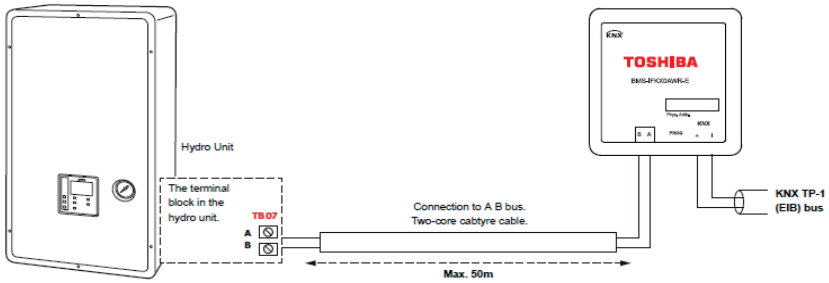
System configuration



7-5 KN Interface (Air to water(Estia))

The BMS-IFKX0AWR-E interface allows a complete and natural integration of Toshiba air conditioners into KNX network.
The BMS-IFKX0AWR-E is compatible with Toshiba ESTIA AB Bus(SW-LINK) lines.

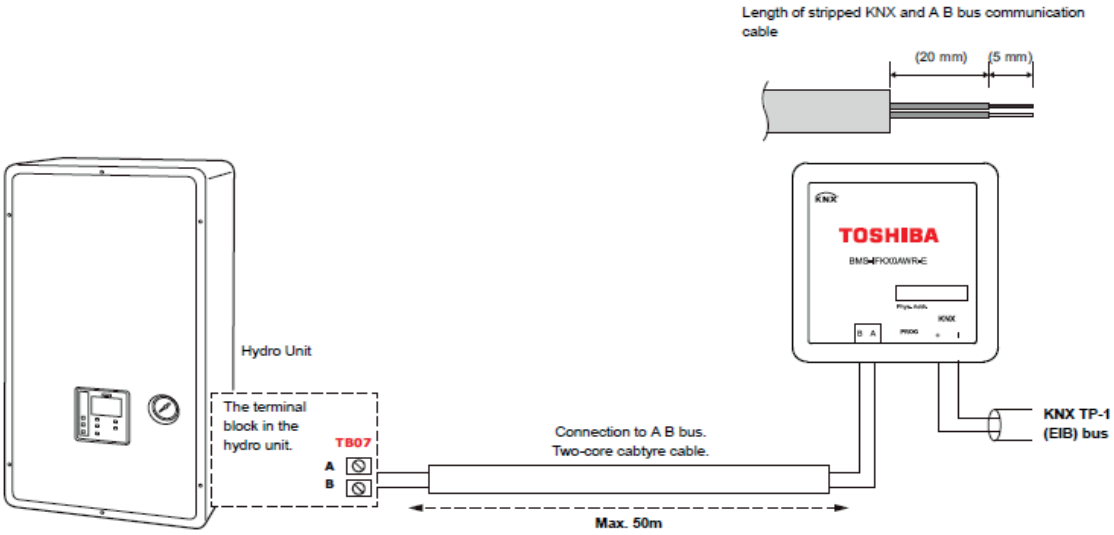
Outline

Appearance	Application
	

Specifications

Part name		KN Interface
Model Name		BMS-IFKX0AWR-E
Power supply		KNX line 29 VDC / 8 mA
		AW line 14 VDC / 20 mA
Dimension		Sheet metal box 33.4 x 82.5 x 92.1 mm
		Mold unit 28 x 70 x 70 mm
Connection		Estia Hydro Unit
Documents	Installation manual	Installation instructions
	User Manual	Object table, ETS parameters etc.

System configuration



Wiring materials to connect the signal line (Procure locally)

For KNX TP-1 Bus	Cable type	KNX TP1
	Cable diameter	-
	Cable length	1000 m
	Polarity	Yes (+/-)
For AB Bus (AW-LINK) lines	Cable type	VCTF
	Cable diameter	0.5 mm² to 2.0 mm²
	Cable length	50 m (0.75²)
	Polarity	No

8

Outdoor unit optional devices

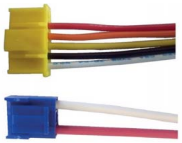
8-1 Line Up & Function

Outdoor unit optional devices for VRF

Type	Power peak-cut control board			External master ON/OFF control board			Output control board		
Model Name	**TCB-PCDM4E**			**TCB-PCMO4E**			**TCB-PCIN4E**		
Appearance									
System	**SMMS-e**	**SHRM-e**	**MiNi-SMMS-e**	**SMMS-e**	**SHRM-e**	**MiNi-SMMS-e**	**SMMS-e**	**SHRM-e**	**MiNi-SMMS-e**
Power peak-cut control (Standard)	✓	✓	✓	-	-	-	-	-	-
Power peak-cut control (Expand)	✓	✓	✓	-	-	-	-	-	-
Snowfall fan control	-	-	-	✓	✓	-	-	-	-
External master ON/OFF control	-	-	-	✓	✓	✓	-	-	-
Night operation (Sound reduction) control	-	-	-	✓	✓	✓	-	-	-
Operation mode selection control	-	-	-	✓	✓	✓	-	-	-
Error /Operation output control	-	-	-	-	-	-	✓	✓	✓
Compressor operation output	-	-	-	-	-	-	✓	✓	-
Operation rate display	-	-	-	-	-	-	✓	✓	-
Max. number installed (*)	1	1	1	4	4	2	2	2	1
Kind of digital input / output	2 / 1			6 / -			- / 8		

(*) : Mini-SMMS is up to a total of 2 boards.

Outdoor unit optional devices for LC

Type	Application Control		Optional Connector Cable	
Model Name	**TCB-PCOS1E2**		**TCB-KBOS4E**	
Appearance				
Peak-cut control	✓		✓	
Night operation	✓		✓	
Compressor output	✓		✓	
Object model	RAV-SP40*ATP-* RAV-SP45*ATP-* RAV-SP56*ATP-* RAV-SM56*ATP-* RAV-SM80*ATP-* RAV-SM110*ATP-* RAV-SM140*ATP-* RAV-SM1103E1-* RAV-SM1403E1-*	RAV-GP561ATP-* RAV-GP801ATP-* RAV-GP1101ATP-* RAV-GP1401ATP-*	RAV-SP80*AT-* RAV-SP110*AT-* RAV-SP140*AT-*	RAV-SM224*AT8/7-* RAV-SM280*AT8/7-* RAV-SP110*AT8/7-* RAV-SP140*AT8/7-* RAV-SP160*AT8/7-*

8-2 Power peak-cut control board TCB-PCDM4E

The Power Peak Cut accessory PCB connects to connector CN513 of the Header Outdoor Unit PCB.

- The upper limit capacity of the Outdoor Unit is restricted based on the demand request signal from the external input.
- There are two functions that can be selected depending on requirements, the standard function and the advanced function.

Outline

Appearance

Application

* Install the optional PCB in the inverter assembly of the outdoor header unit.

VRF

Function

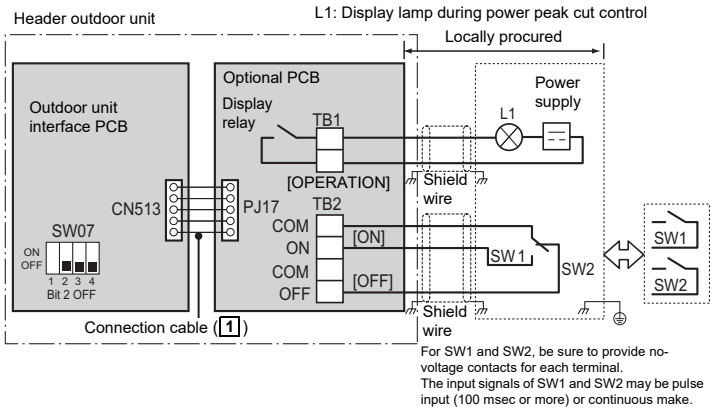
Power peak-cut Control

● **Purpose: Limiting air conditioning performance with external signals and decreasing the peak power consumption.**

● **Feature**
The upper limit capacity of the outdoor unit is restricted based on the outdoor power peak selected setting.

● **Function**
Two control settings are selectable by setting SW07 on the interface PCB on the header outdoor unit.

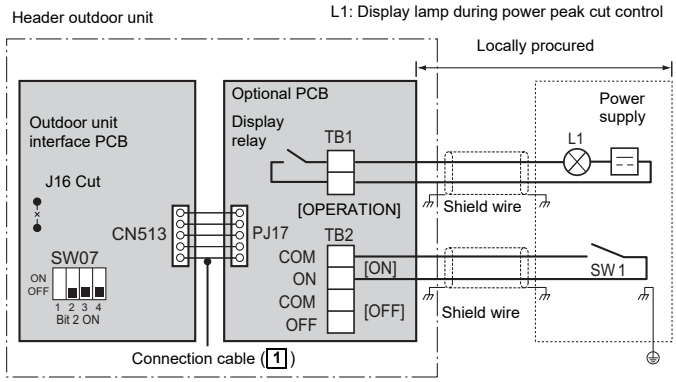
● **Electrical Wiring Diagram**
Standard Specifications
(Wiring example)



<SW07 (bit 2) OFF [2-stage switching]>

Input		SW07 (bit 1)		Display relay (L1)
SW1	SW2	Bit 1 OFF	Bit 1 ON	
OFF	ON	100% (normal operation)	100% (normal operation)	OFF
ON	OFF	0% (forced stop)	Approx. 60% (upper limit regulated)	ON

Two-core cable support
It allows ON/OFF power peak-cut control to be implemented using a power peak-cut control ON input (SW1) alone, provided that the J16 (J20) jumper wire on the interface PCB of the outdoor unit has been removed.
(Wiring example)

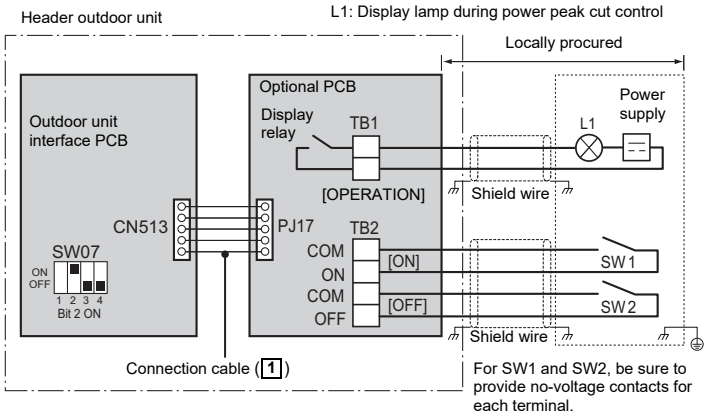


Appearance	Function
	<SW07 (bit 2) OFF [2-stage switching]> Power peak-cut control turns ON when SW1 in the wiring example is ON (continuous make).

Jumper lead J16	Input SW1	SW07 (bit 1)		Display relay (L1)
		Bit 1 OFF	Bit 1 ON	
Cut	OFF	100% (normal operation)	100% (normal operation)	OFF
	ON	0% (forced stop)	Approx. 60% (upper limit regulated)	ON

Enhanced Functions

(Wiring example)



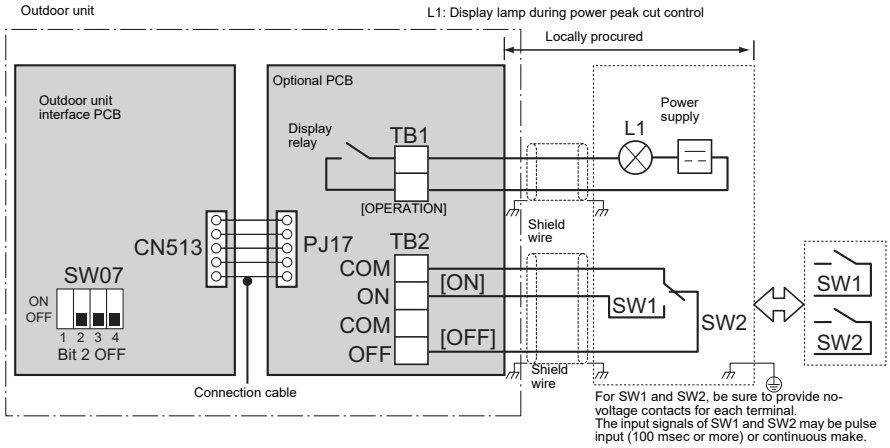
<SW07 (bit 2) ON [4-stage switching]>

Input		SW07 (bit 1)		Display relay (L1)
SW1	SW2	Bit 1 OFF	Bit 1 ON	
OFF	OFF	100% (normal operation)	100% (normal operation)	OFF
ON	OFF	Approx. 80% (upper limit regulated)	Approx. 85% (upper limit regulated)	ON
OFF	ON	Approx. 60% (upper limit regulated)	Approx. 75% (upper limit regulated)	ON
ON	ON	0% (forced stop)	Approx. 60% (upper limit regulated)	ON

Specifications

Part name		Power peak-cut control board
Model Name		TCB-PCDM4E
Power supply		No external power supply is required
Dimension		71 × 85 mm
Max.number installed	SMMS-e	1
	SHRM-e	1
	Mini-SMMS-e	1
Digital input / output	Power peak-cut control (Standard)	2 / 1
	Power peak-cut control (Two-core cable support)	1 / 1
	Power peak-cut control (Expand)	2 / 1

Power peak-cut control (standard)



Operation

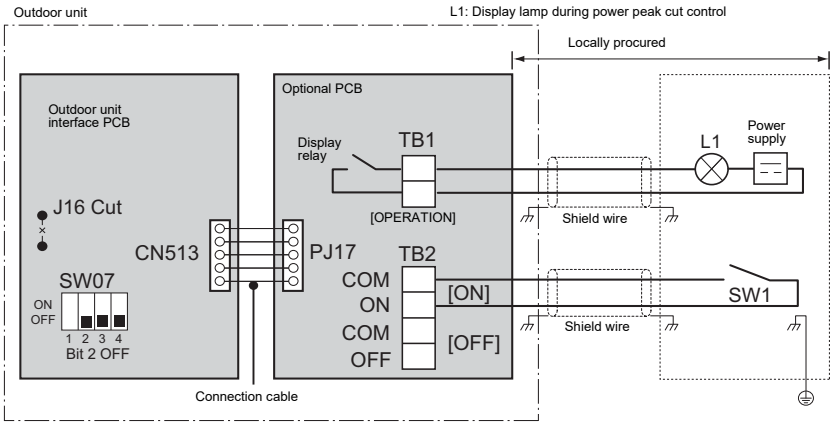
An external power peak-cut control signal limits the peak capacity of the outdoor unit.
L1: Power peak-cut control indication lamp
SW1: Power peak-cut control ON switch (ON as long as target power peak-cut control has been reached or exceeded, normally OFF)*1
SW2: Power peak-cut control OFF switch (OFF as long as target power peak-cut control has not been reached or exceeded, normally ON)*1
*1 The inputs of SW1 and SW2 can be either pulse (100 msec or wider) or step signals.
Do not turn on SW1 and SW2 simultaneously.
* Be sure to provide a contact for each terminal.

Power peak-cut control settings

Power peak-cut control PCB	SW1	SW2	L1	Interface PCB of outdoor unit	
				SW07 Bit 1 OFF	SW07 Bit 1 ON
Power peak-cut control ON signal received	ON	OFF	ON	0% (forced stop)	60% capacity (upper limit regulated)
Power peak-cut control OFF signal received	OFF	ON	OFF	100% (normal operation)	100% (normal operation)

Two-core cable support

It allows ON/OFF power peak-cut control to be implemented using a power peak-cut control ON input (SW1) alone, provided that the J16 jumper wire on the interface PCB of the outdoor unit has been removed.



<SW07 Bit 2 OFF (two-step control)>
Power peak-cut control is enabled as long as SW1, as shown on the wiring diagram, is ON (continuously).

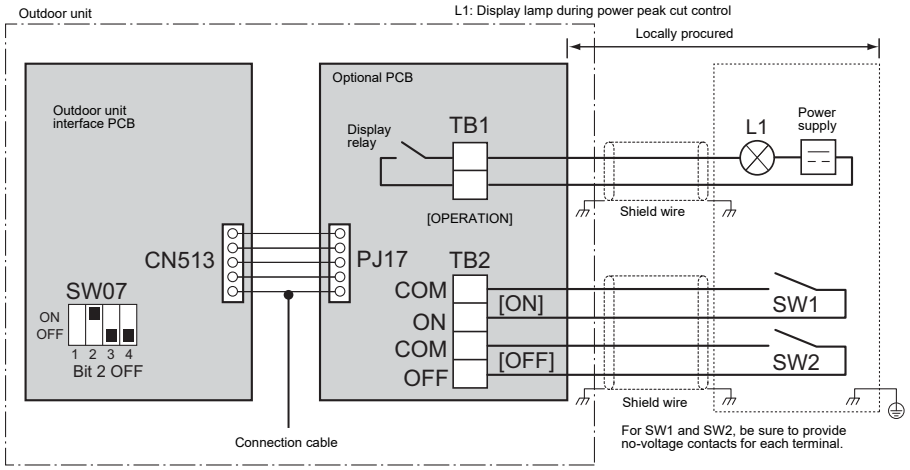
Jumper wire J16	Input SW1	SW07 Bit 1		Indicator relay
		Bit 1 OFF	Bit 1 ON	(L1)
Cut	OFF	0% (forced stop)	60% capacity (upper limit regulated)	OFF
	ON	100% (normal operation)	100% (normal operation)	ON

Note 1: Specifications of display relay contact
- The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VDC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

Power peak-cut control (extended)



Operation

An external power peak-cut control signal limits the peak capacity of the outdoor unit.
L1: Power peak-cut control indication lamp
SW1: Power peak-cut control ON switch*1
SW2: Power peak-cut control OFF switch*1
*1 The inputs of SW1 and SW2 can be either pulse (100 msec or wider) or step signals.
* Be sure to provide a contact for each terminal.

Extended power peak-cut control settings

Specifications of display relay contact

Indication lamp	External power peak-cut control signals		Peak capacity	
			I/F SW07 Bit 1	
L1	SW1	SW2	OFF	ON
OFF	OFF	OFF	100% (normal operation)	100% (normal operation)
ON	ON	OFF	80% (upper limit regulated)	85% (upper limit regulated)
ON	OFF	ON	60% (upper limit regulated)	75% (upper limit regulated)
ON	ON	ON	0% (forced stop)	60% (upper limit regulated)

Note 1: Specifications of display relay contact
• The terminal for display output ([Operation] terminal) must satisfy the following electrical rating.

<Electrical Rating>
220 to 240 VAC, 10 mA or more, 1 A or less
24 VAC, 10 mA or more, 1 A or less (non-conductive load)

When connecting a conductive load (e.g. relay coil) to the display relay load, insert a surge killer CR (for an AC power supply) or a diode for preventing back electromotive force (for a DC power supply) on the bypass circuit.

Installation

➔ Please refer to the Installation Manual

8-3 External master ON/OFF control board TCB-PCMO4E

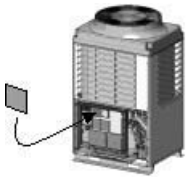
This is an application control PCB that can be connected to a VRF Outdoor Unit in order to provide one of up to four available functions, these are:

- Snowfall Fan Control
- External Master ON/OFF Control
- Night Operation Control
- Operation Mode Selection Control

Outline

Appearance

Application



* Install the optional PCB in the inverter assembly of the outdoor header unit.

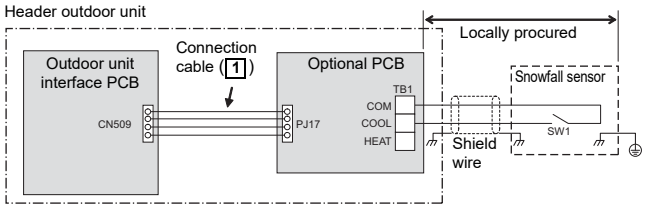
VRF

Function

[1] Snowfall fan control (SMMS-e, SHRM-e)

- **Purpose: rotating the fan to prevent snow accumulation**
- **Functions**

  The outdoor unit fan operates at snowfall by connecting to the outdoor unit interface PCB.
- **Operation**



SW1: Snowfall detection switch (snowfall sensor)

Terminal	Input Signal	Operation
Cooling (SW1)	ON OFF	Snowfall fan control (Fan in outdoor unit operates.)
	ON OFF	Normal operation

⚠CAUTION

Be sure to provide no-voltage continuous contacts for each terminal.

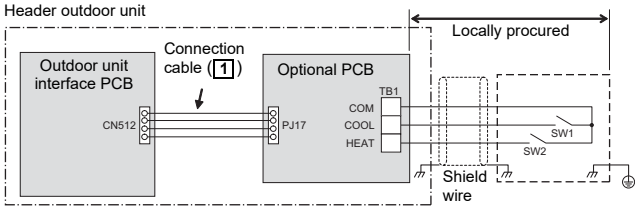
This control is activated when a input signal increases or decreases.
(The increasing or decreasing signal needs to be held for a minimum of 100 msec in order to activate the control).

[2] External master ON/OFF control

- **External master ON/OFF control**
- **Functions**

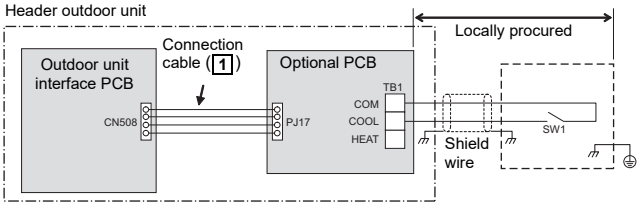
  Indoor units connected to the outdoor unit can be batch-operated or batch-stopped by connecting to the interface PCB of those outdoor units. Batch operation is performed in the previously active mode.
- **Operation**

  The outdoor unit connection is for the header unit (U1).



SW1: Operation input switch
SW2: Stop input switch

Terminal	Input Signal	Operation
COOL (SW1)	ON OFF	Batch-operates indoor units.
HEAT (SW2)	ON OFF	Batch-stops indoor units.

Appearance	Function
	**⚠CAUTION** Be sure to provide no-voltage pulse contacts for each terminal. Hold the ON state for at least 100 msec. Do not turn SW1 and SW2 ON simultaneously •Ensure that terminal contacts are fixed and secure. This control is activated when a input signal increases or decreases. (The increasing or decreasing signal needs to be held for a minimum of 100 msec in order to activate the control).
Application	**[3] Night operation (Sound reduction) control** ● **Purpose: Reducing noise from an outdoor unit** ● **Functions** The rotation speed of the compressor and fan can be restricted during input of the night time signal to reduce noise by connecting to the interface PCB of outdoor units. ● **Operation** The outdoor unit connection is for the header unit (U1).
 * Install the optional PCB in the inverter assembly of the outdoor header unit. VRF	 SW1 : Night time signal switch

Terminal	Input Signal	Operation
COOL (SW1)	ON OFF	Night time control
	ON OFF	Normal operation

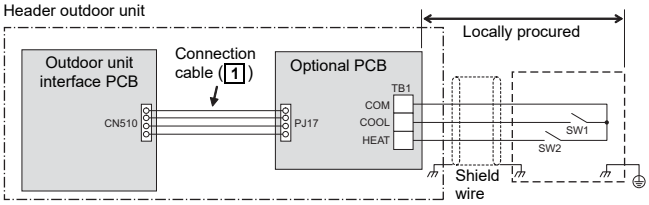
⚠CAUTION

Be sure to provide no-voltage continuous contacts for each terminal.

This control is activated when a input signal increases or decreases.
(The increasing or decreasing signal needs to be held for a minimum of 100 msec in order to activate the control).

[4] Operation mode selection control

● **Purpose: Limiting operation modes to cooling and heating only**
● **Functions**
The heating/cooling mode of the system can be selected by connecting to the interface PCB of outdoor units.
● **Operation**
The outdoor unit connection is for the header unit (U1).



SW1: Cooling mode specified input switch
SW2: Heating mode specified input switch

Input Signal		Operation: Selected operation mode
Cooling (SW1)	Heating (SW2)	
ON	OFF	Cooling operation only allowed
OFF	ON	Heating operation only allowed
OFF	OFF	Normal operation

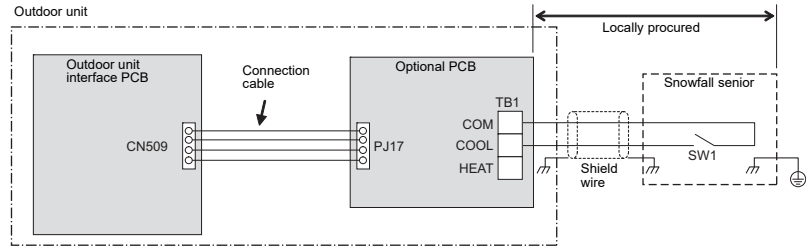
⚠CAUTION

Be sure to provide no-voltage continuous contacts for each terminal.

Specifications

Part name		External master ON/OFF control board
Model Name		TCB-PCMO4E
Power supply		No external power supply is required
Dimension		55.5 × 60 mm
Max.number installed	SMMS-e	4
	SHRM-e	4
	Mini-SMMS-e	2
Digital input / output	Snowfall fan control	1 / -
	External master ON/OFF control	2 / -
	Night operation (Sound reduction) control	1 / -
	Operation mode selection control	2 / -

Snowfall fan control



SW1: Snowfall detection switch (snowfall sensor)

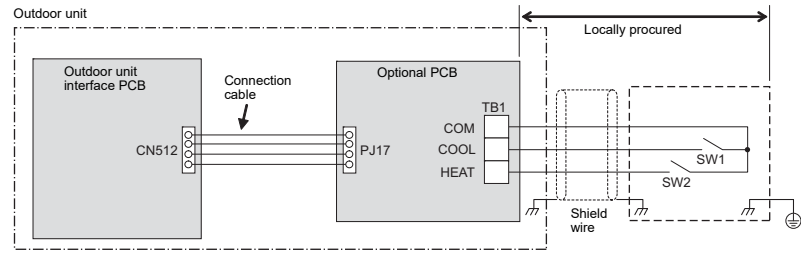
Operation

An external snowfall signal turns on the outdoor unit fan.

Terminal	Input signal	Operation
COOL (SW1)	ON → OFF	Snowfall fan control (Turns on outdoor unit fan)
	ON → OFF	Normal operation (Cancels control)

The input signal is recognized during its rising / falling phase.
(After reaching the top / bottom of the rising / falling edge, the signal must remain there for at least 100 ms.)

External master ON/OFF control



SW1: Operation input switch
SW2: Stop input switch)

Operation

The system is started / stopped from the outdoor unit.

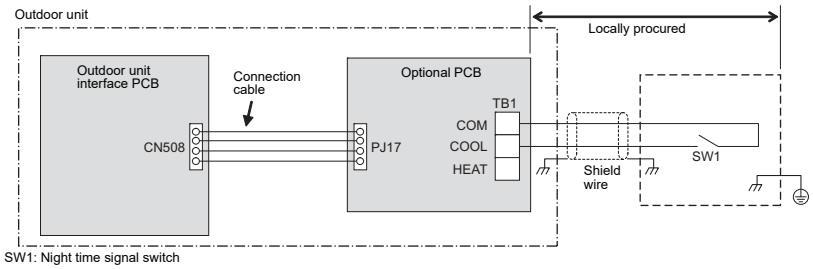
Terminal	Input signal	Operation
COOL (SW1)	ON / OFF	Turns on all indoor units
HEAT (SW2)	ON / OFF	Turns off all indoor units

The input signal is recognized during its falling phase. (After reaching the bottom of the falling edge, the signal must remain there for at least 100 ms.)

⚠CAUTION

(1) Do not turn on the COOL (SW1) and HEAT (SW2) terminals simultaneously.
(2) Be sure to provide a contact for each terminal.
External signal: No-voltage pulse contact

Night operation (sound reduction) control



SW1: Night time signal switch

Operation

This function decreases noise at night or other times as necessary.

Terminal	Input signal	Operation
COOL (SW1)	ON / OFF	Night time control
	ON / OFF	Normal operation

The input signal is recognized during its rising / falling phase.
(After reaching the top / bottom of the rising / falling edge, the signal must remain there for at least 100 ms.)

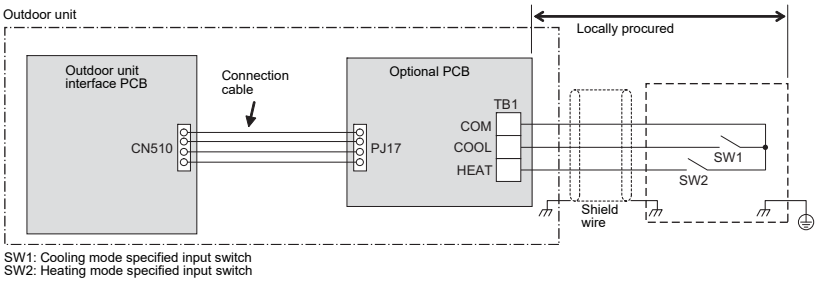
The system's capacity is reduced during low-noise operation.
The table below provides a rough guide to this capacity reduction.

The optional PCB should be connected to the header outdoor unit (U1).

Sound reduction and approximation capacity (reference)

➔ Please refer to the databook

Operation mode selection control



NOTE

SW1: COOL mode selection switch
SW2: HEAT mode selection switch

Input signal		Operation	Remarks
COOL (SW1)	HEAT (SW2)		
ON	OFF	Only cooling operation allowed	*
OFF	ON	Only heating operation allowed	*
OFF	OFF	Normal operation	

* The display " (Operation mode selection control in progress)" appears on the remote controller

Indoor unit operation intervention function [only supported by SHRM-e and SMMS-e

The statuses of indoor units operating in a mode different from the selected operation mode can be changed by changing the status of a jumper wire (J01) provided on the interface PCB of the header outdoor unit.

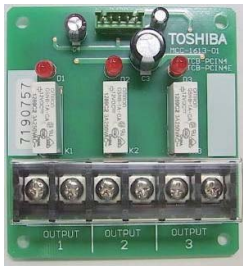
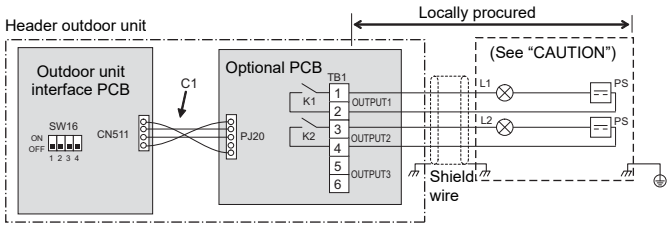
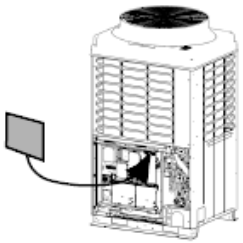
<table>
<tr><th>Jumper wire</th><th>Description of intervention</th></tr>
<tr><td>J01 connected (factory default)</td><td>All indoor units operating in a mode different from the selected operation mode (prohibited-mode indoor units) become non-priority units (thermostat OFF).
Prohibited-mode indoor units
<table>
<tr><th>Operation mode</th><th>Operation status</th><th>Remote controller display</th></tr>
<tr><td>COOL</td><td>Fan operation at air flow rate set via remote controller</td><td rowspan="3">" " operation ready</td></tr>
<tr><td>HEAT</td><td>Fan operation at extremely low air flow rate</td></tr>
<tr><td>FAN</td><td>Fan operation at air flow rate set via remote controller as normal</td></tr>
</table></td></tr>
<tr><td>J01 cut</td><td>The selected operation mode is imposed on all indoor units operating in a different mode.
<table>
<tr><th>Mode selected at PCB</th><th colspan="2">Remote controller operation / display</th></tr>
<tr><td>Normal</td><td>All modes (COOL, DRY, HEAT and FAN) available</td><td></td></tr>
<tr><td>COOL</td><td>Only COOL, DRY and FAN available</td><td rowspan="2">" operation mode control" (turned on during remote control operation)</td></tr>
<tr><td>HEAT</td><td>Only HEAT and FAN available</td></tr>
</table></td></tr>
</table>

The optional PCB should be connected to the header outdoor unit (U1).

8-4 Output control board TCB-PCIN4E

The Operation Output Control accessory PCB connects to connector CN511 of the Header Outdoor Unit PCB.
This PCB provides an output signal based on the ON/OFF status of the connected units and an error output signal based on detected faults on the system.
The operation ON/OFF output provides the ideal control external ventilation fans.
When connected to the SMMS-e, SHRM-e product, the TCB-PCIN4E can be used to output the ON/OFF operation status of the compressors and to output system operating rate.

Outline

Appearance	Function
	**[1] Error output control** ● **Functions** The operation error indication PCB can output operation and error states by connecting to the interface PCB of outdoor units. ● **Operation** Operation output: The operation indication is output when even one of the indoor units in the system is operating. Error output: The error indication is output when an error has occurred on even one of the indoor units or outdoor units in the system. (Wiring example) 
Application	
 * Install the optional PCB in the inverter assembly of the outdoor header unit. (except for compressor operation output) VRF	

C1	Connector cable 1 (1)
CN511	Connector on interface side (green)
K1, K2	Relays
L1	Error indication Lamp
L2	Operation indication Lamp
OUTPUT1	Error output
OUTPUT2	Operation output
PJ20	Connector on optional PCB side
PS	Power supply unit
TB1	Terminal block

* Connect optional boards to the center outdoor unit.
* [OUTPUT3] is normally output when power is turned on.

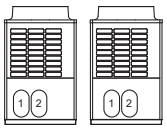
[2] Compressor operation status

● **Functions**

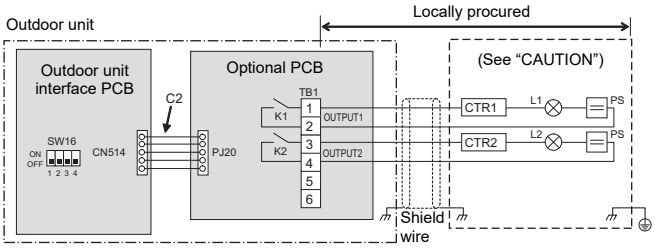
This function can be applied, for example, to the elapsed operation time count of each compressor mounted on an outdoor unit since the compressor in operation signal can be output externally.

● **Operation**

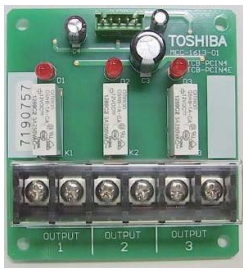
During compressor operation, the relay of the output terminal corresponding to that compressor turns ON (closes) and turns OFF (opens) when compressor operation stops.
As shown in the figure, the output terminals are "OUTPUT1" and "OUTPUT2" from the left compressor facing the front of the outdoor unit.



(Wiring example)



Appearance	Function



C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
CTR1	Elapsed operation counter 1
CTR2	Elapsed operation counter 2
CTR3	Elapsed operation counter 3
K1, K2	Relays
L1, L2, L3	Operation indication LEDs
OUTPUT1	Compressor 1 operation output terminal
OUTPUT2	Compressor 2 operation output terminal
PJ20	Connector on optional PCB side
PS	Power supply unit
TB1	Terminal block

Application

* Install the optional PCB in the inverter assembly of the outdoor header unit.

VRF

[3] Operation ratio control

● **Functions**

The operation state can be remotely checked since the system operating rate signal can be output externally.

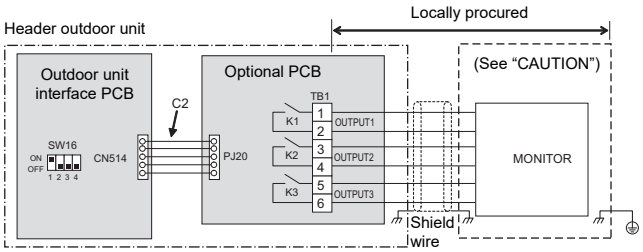
● **Operation**

As shown in the table, each of the output terminals turns ON (relay closes) and OFF (relay opens) according to the system operating rate.

Functions	SW16	OUTPUT1	OUTPUT2	OUTPUT3	Operating rate FA
System operating rate output	ON / OFF 1 2 3 4 bit 1: ON bit 2: OFF	OFF	OFF	OFF	FA = 0%
		ON	OFF	OFF	0% < FA < 20%
		OFF	ON	OFF	20% ≤ FA <3 5%
		ON	ON	OFF	35% ≤ FA < 50%
		OFF	OFF	ON	50% ≤ FA < 65%
		ON	OFF	ON	65% ≤ FA < 80%
		OFF	ON	ON	80% ≤ FA < 95%
		ON	ON	ON	95% ≤ FA

OFF = relay open ON = relay closed

(Wiring example)



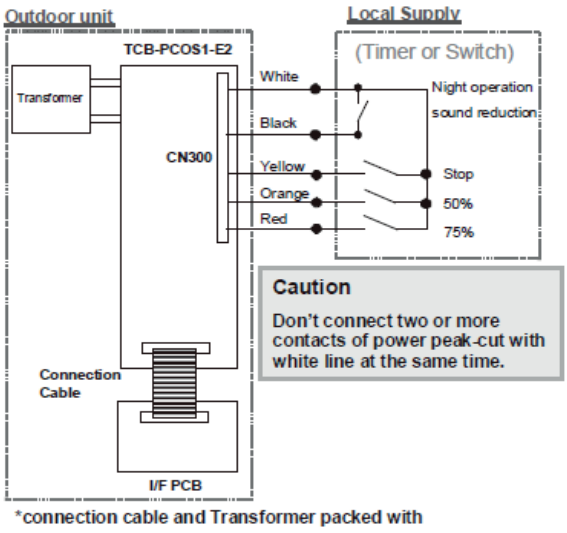
C2	Connector cable 2 (2)
CN514	Connector on interface side (green)
K1, K2, K3	Relays
MONITOR	Monitoring device
OUTPUT1	Output terminal for each function
OUTPUT2	Output terminal for each function
OUTPUT3	Output terminal for each function
PJ20	Connector on optional PCB side
TB1	Terminal block

* Connect optional boards to the center outdoor unit.

8-5 Digital Inverter Air Conditioner Application Control Kit

This application control PCB connects to the CN510 connector of the Outdoor Unit Interface PCB (DI Only). When connected the Sound Reduction & Demand control has 4 possible settings based on input connections (Volt Free Contact):

Outline

Appearance	Application
	

Specifications

Part name		Digital Inverter Air Conditioner Application Control Kit
Model Name		TCB-PCOS1E2
Power supply		No external power supply is required
Dimension		70 × 100 mm
Digital input / output	Night operation	1 / -
	Demand control has 3 steps	3 / -
	Compressor output	- / 1
Documents		Installation manual

Applicable models

RAV-SP40*ATP-* RAV-SP45*ATP-* RAV-SP56*ATP-* RAV-SM56*ATP-* RAV-SM80*ATP-* RAV-SM110*ATP-* RAV-SM140*ATP-* RAV-SM1103E1-* RAV-SM1403E1-*	RAV-GP561ATP-* RAV-GP801ATP-* RAV-GP1101ATP-* RAV-GP1401ATP-*	RAV-SP80*AT-* RAV-SP110*AT-* RAV-SP140*AT-*	RAV-SM224*AT8/7-* RAV-SM280*AT8/7-* RAV-SP110*AT8/7-* RAV-SP140*AT8/7-* RAV-SP160*AT8/7-*

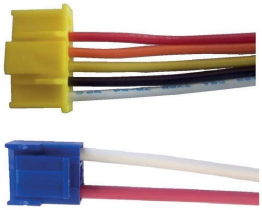
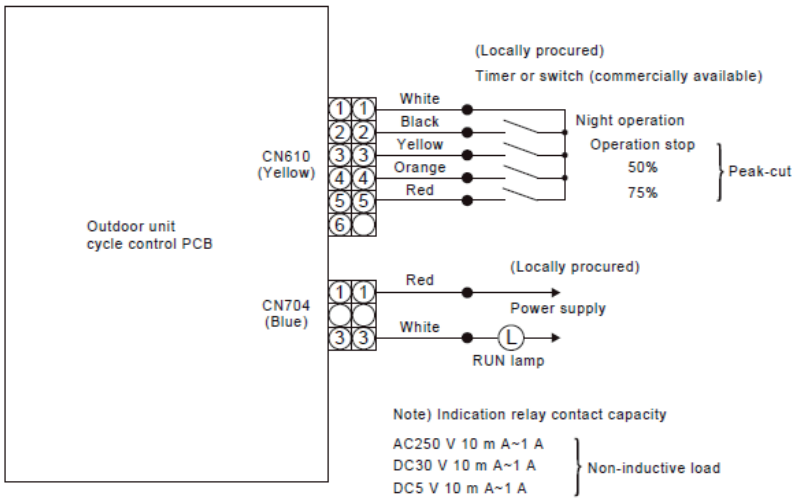
Main functions

Power peak-cut control	Correspond to the temporary power peak-cut control by controlling the capacity of the outdoor unit using an external signal. Capacity control is made in 3 steps of 75%, 50% and Operation stop.
Night operation (Sound reduction)	Sound reduction of 5 dB in cooling mode.
Compressor operation output	Outputs a dry contact ON signal when the compressor is in operation.

8-6 Optional Connector Cable

This accessory is compatible with Series 4 DI and SDI equipment (excludes SDI 1.5-1.7 RS Units) and can be used to provide three possible functions, these are:

Outline

Appearance	Application
	

Specifications

Part name		Optional Connector Cable
Model Name		TCB-KBOS4E
Power supply		No external power supply is required
Length		300 mm
Digital input / output	Night operation	1 / -
	Demand control has 3 steps	3 / -
	Compressor output	- / 1
Documents		Installation manual

Applicable models

RAV-SP80*AT-* RAV-SP110*AT-* RAV-SP140*AT-*	RAV-SM224*AT8/7-* RAV-SM280*AT8/7-* RAV-SP110*AT8/7-* RAV-SP140*AT8/7-* RAV-SP160*AT8/7-*

Main functions

Power peak-cut control	Saves the power of the outdoor unit by the external peak-cut signal to suppress temporary peak power dissipation. The power saving can be switched to three levels; 75%, 50%, and operation stop.
Night operation (Sound reduction)	Reduce the capacity of the air conditioner by the input signal from a commercially available timer (locally procured) regardless of the outside air temperature or load to reduce operating noise.
Compressor operation output	Turns on the no-voltage contact output while the compressor is operating.

9

Indoor unit controls

9-1 Setup of the selection function in the indoor unit

(Be sure to Execute Setup by a Wired Remote Controller RBC-AMT32E, RBC-AMS41E, NRC-01HE)

<Procedure> To be performed only when system at rest

1 **Push the TEST + SET + CL buttons simultaneously and hold for at least 4 seconds.**
The unit No. displayed first is the address of the header indoor unit in group control.
Then the fan and louver of the selected indoor unit move.

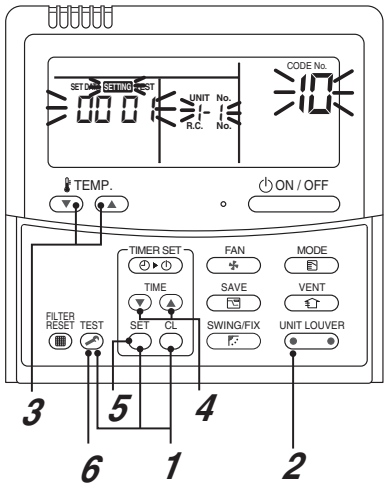
2 **Each time the UNIT LOUVER button (left side of the button) is pressed, one of the indoor unit Nos. under group control is displayed in turn. Then the fan and louver of the selected indoor unit move.**

3 **Use the TEMP. button to select the CODE No. (DN code) of the desired function.**

4 **Use the TIME button to select the desired SET DATA associated with the selected function.**

5 **Push the SET button. (The display changes from flashing to steady.)**
- To change the selected indoor unit, go back to step ***2***.
- To change the selected function, go back to step ***3***.

6 **When the SET button is pushed, the system returns to normal off state.**

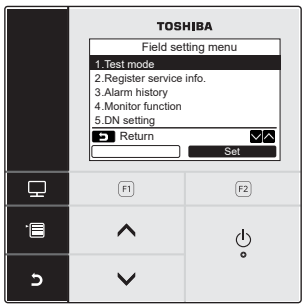


⚠CAUTION

Be sure to perform the item code (DN) set up as “Cooling Only” for the cooling only indoor unit in case of a heat recovery type. If this setting is not performed, error code [L18] may occur.

For operation of RBC-AMS54E

1. Field setting menu



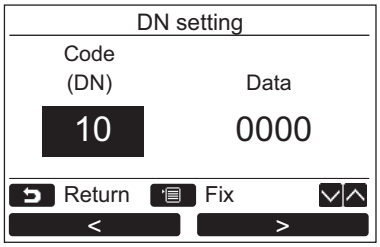
1 **Push the [MENU] button to display the menu screen.**

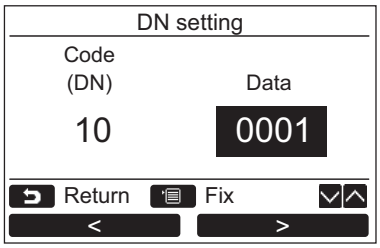
2 **Push and hold the [MENU] button and the [∨] button at the same time to display the "Field setting menu".**
→Push and hold the buttons for more than 4 seconds.

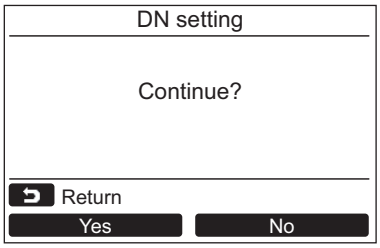
3 **Push the [CANCEL] button to return.**

2. DN setting

Perform the advanced settings for the air conditioner.
Carry out the setting operation while the indoor unit is stopped. (Turn off the air conditioning unit before starting the setting operation.)







1 **Push the [∧] / [∨] button to select "5. DN setting" on the "Field setting menu" screen, then push the "Set" [F2] button.**
→The fan and louver of the indoor unit operate. When the group control is used, the fan and louver of the selected indoor unit operate.
→Move the cursor to select "DN code" with the "<" [F1] button, then set "DN code" with the [∧] / [∨] button.
→Move the cursor to select "data" with the ">" [F2] button, then set "data" with the [∧] / [∨] button.

2 **Refer to the Installation Manual supplied with the indoor unit or service manual for details about the DN code and data.**

3 **Push the [MENU] button to set the other DN codes. After "Continue?" is displayed on the screen, push the "Yes" [F1] button.**

4 **Push the "No" [F2] button to finish the setting operation. " ⧖ " appears on the screen for a while, then the screen returns to the "Field setting menu" screen.**
→Pushing the "No" [F2] button displays the unit selection screen when the group control is used. Push the [CANCEL] button on the unit selection screen to finish the setting operation. " ⧖ " appears on the screen for a while, then the screen returns to the "Field setting menu" screen.

Table: Function selecting item numbers (DN) for SMMS-e

Function CODE No. (DN code) Table (Includes All Functions Needed to Perform Applied Control on Site)

DN	Item	Description	At shipment
01	Filter display delay timer	0000: None 0001: 150H 0002: 2500H 0003: 5000H 0004: 10000H	According to type
02	Dirty state of filter	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	0001: No.1 unit to 0064: No.64 unit 0099: Unfixed	0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: No priority
06	Heating temp shift	0000: No shift 0001: +1°C 0002: +2°C to 0010: +10°C (Up to +6 recommended)	0002: +2°C (Floor type 0000: 0°C)
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump
10	Type	0001: 4-way Air Discharge Cassette (Refer to page 9-5)	Depending on model type
11	Indoor unit capacity	0000: Unfixed 0001 to 0034	According to capacity type
12	Line address	0001: No.1 unit to 0030: No.30 unit	0099: Unfixed
13	Indoor unit address	0001: No.1 unit to 0064: No.64 unit	0099: Unfixed
14	Group address	0000: Individual 0001: Header unit of group 0002: Follower unit of group	0099: Unfixed
19	Louver type (Air direction adjustment)	0000: No louver 0001: Swing only 0002: (1-way Air Discharge Cassette type, Under Ceiling type) 0003: (2-way Air Discharge Cassette type) 0004: (4-way Air Discharge Cassette type)	According to type
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000: 0 deg to 0010: 10 deg (For setup temperature, reversal of COOL/HEAT by ± (Data value)/2)	0003: 3 deg (Ts±1.5)
28	Automatic restart of power failure	0000: None 0001: Restart	0000: None
2A	Selection of option/error input (CN70)	0000: Filter input 0001: Alarm input 0002: None (Air washer, etc.)	0002: None
2E	HA terminal (CN61) select	0000: Usual 0001: Leaving-ON prevention control 0002: Fire alarm input	0000: Usual (HA terminal)
31	Ventilating fan control	0000: Unavailable 0001: Available	0000: Unavailable
32	TA sensor selection	0000: Body TA sensor 0001: Remote controller sensor	0000: Body TA sensor
33	Temperature unit select	0000: °C (at factory shipment) 0001: °F	0000: °C
92	External interlock release condition	0000: Operation stopped 0001: Release signal received	0000: Operation stopped
d0	Whether the power saving mode can be set by the remote control	0000: Invalid 0001: Valid	0001: Valid
F0	Swing mode	0001: Standard 0002: Dual swing 0003: Cycle swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td rowspan="2">5d</td><td>High-ceiling adjustment
(Air flow selection)</td><td>
1-way air discharge cassette (SH)
<table>
<tr><th>Value</th><th>Type</th><th>AP015, AP018</th><th>AP024</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td><td>3.8 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td><td>4.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>4.2 m or less</td><td>4.2 m or less</td></tr>
</table>
2-way air discharge cassette
<table>
<tr><th>Value</th><th>Type</th><th>AP007~AP030</th><th>AP036~AP056</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m or less</td><td>2.7 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.2 m or less (*)</td><td>3.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.8 m or less (*)</td><td>3.5 m or less</td></tr>
</table>
* The high-ceiling installation of model AP007 to AP012 can only be undertaken when the combined capacity of the indoor units connected is 100% or less than the capacity of the outdoor unit. Do not proceed with high-ceiling installation if this limit is exceeded.
4-way air discharge cassette
<table>
<tr><th rowspan="2">Value</th><th>Type</th><th colspan="3">AP009~AP012</th><th colspan="3">AP015~AP018</th></tr>
<tr><th>Air flow at outlet</th><th>4 directions</th><th>3 directions</th><th>2 directions</th><th>4 directions</th><th>3 directions</th><th>2 directions</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m</td><td>2.8 m</td><td>3.0 m</td><td>2.8 m</td><td>3.2 m</td><td>3.5 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>-</td><td>-</td><td>-</td><td>3.2 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>-</td><td>-</td><td>-</td><td>3.5 m</td><td>3.8 m</td><td>-</td></tr>
<tr><th rowspan="2">Value</th><th>Type</th><th colspan="3">AP024~AP030</th><th colspan="3">AP036~AP056</th></tr>
<tr><th>Air flow at outlet</th><th>4 directions</th><th>3 directions</th><th>2 directions</th><th>4 directions</th><th>3 directions</th><th>2 directions</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.6 m</td><td>3.8 m</td><td>-</td><td>3.6 m</td><td>3.8 m</td><td>-</td></tr>
</table>
Compact 4-way cassette
<table>
<tr><th>SET DATA</th><th>Type</th><th>AP005 to AP012</th><th>AP015</th><th>AP018</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m or less</td><td>2.9 m or less</td><td>3.5 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>-</td><td>3.2 m or less</td><td>-</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>-</td><td>3.5 m or less</td><td>-</td></tr>
</table>
Under ceiling
<table>
<tr><th>Value</th><th>Type</th><th>AP015~AP056</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td></tr>
</table>
</td><td rowspan="2">0000: Standard</td></tr>
<tr><td>Built-in filter</td><td>2-way air discharge cassette
0000: Standard filter (factory default)
0001: Super long-life filter
4-way air discharge cassette
0000: Standard filter (factory default)
Under ceiling
0000: Standard filter (factory default)</td></tr>
<tr><td></td><td>Static pressure selection</td><td>
Concealed duct standard
<table>
<tr><th>Set data</th><th>0000</th><th>0001</th><th>0002</th><th>0003</th><th>0004</th><th>0005</th><th>0006</th></tr>
<tr><td rowspan="2">External static pressure</td><td>40 Pa</td><td>30 Pa</td><td>65 Pa</td><td>50 Pa</td><td>80 Pa</td><td>100 Pa</td><td>120 Pa</td></tr>
<tr><td>AP024 ~ 030 (Factory default)</td><td>AP007 ~ 018 (Factory default)</td><td>-</td><td>AP036 ~ 056 (Factory default)</td><td>-</td><td>-</td><td>-</td></tr>
</table>
The list above is when SW501-1 and SW501-2 is OFF.
High static duct
<table>
<tr><th>Set data</th><th>0000</th><th>0001</th><th>0002</th><th>0003</th><th>0004</th><th>0005</th><th>0006</th></tr>
<tr><td rowspan="2">External static pressure</td><td>100 Pa</td><td>50 Pa</td><td>75 Pa</td><td>150 Pa</td><td>125 Pa</td><td>175 Pa</td><td>200 Pa</td></tr>
<tr><td>(Factory default)</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
</table>
The list above is when SW501-1 and SW501-2 is OFF.
Slim Duct
0000: Standard (factory default)
0001: High static pressure 1
0003: High static pressure 2
0006: High static pressure 3
</td></tr>
<tr><td>60</td><td>Timer setting
(wired remote controller)</td><td colspan="2">0000: Available (can be performed)
0001: Unavailable (cannot be performed)</td><td>0000: Available</td></tr>
</table>

Type
DN code “10”

Value	Type	Model
0000	1-way Air Discharge Cassette	MMU-AP∗∗∗SH
0001*1	4-way Air Discharge Cassette	MMU-AP∗∗∗H
0002	2-way Air Discharge Cassette	MMU-AP∗∗∗WH
0003	1-way Air Discharge Cassette (Compact)	MMU-AP∗∗∗YH
0004	Concealed Duct Standard	MMD-AP∗∗∗BH
0005	Slim Duct	MMD-AP∗∗∗SPH (SH)
0006	Concealed Duct High Static Pressure	MMD-AP∗∗∗H
0007	Under Ceiling	MMC-AP∗∗∗H
0008	High Wall	MMK-AP∗∗∗H
0010	Floor Standing Cabinet	MML-AP∗∗∗H
0011	Floor Standing Concealed	MML-AP∗∗∗BH
0013	Floor Standing	MMF-AP∗∗∗H
0014	Compact 4-way Air Discharge Cassette	MMU-AP∗∗∗MH
0015	Super Slim Duct	MMD-AP****M(P)HY
0016	Fresh Air Intake indoor unit (Duct type)	MMD-AP∗∗∗HFE
0018	Console	MML-AP****NH

*1 Default value stored in EEPROM mounted on service P.C. board

Indoor Unit Capacity
DN code “11”

Setup data	Model	
0000*	*Invalid	
0040	005 type	MMU-AP0054MH
		MMD-AP0054SPH
0041	005 type	MMU-AP0056MH
		MMU-AP0057MH
		MMD-AP0056SPH
0001	007 type	
0002	008 type	
0003	009 type	
0004	010 type	
0005	012 type	
0006	014 type	
0007	015 type	
0008	017 type	
0009	018 type	
0010	020 type	
0011	024 type	
0012	027 type	
0013	030 type	

Setup data	Model
0014	-
0015	036 type
0016	-
0017	048 type
0018	056 type
0019	-
0020	-
0021	072 type
0022	-
0023	096 type
0024	-
0025	-
0026	-
0027	-
0028	-
～	-
0034	-

*1 Default value stored in EEPROM mounted on service P.C. board

Table: Function selecting item numbers (DN) for SHRM-e

DN	Item	Description	At shipment
01	Filter display delay timer	0000: None 0001: 150H 0002: 2500H 0003: 5000H 0004: 10000H	According to type
02	Dirty state of filter	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	0001: No.1 unit to 0064: No.64 unit 0099: Unfixed	0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: No priority
06	Heating temp shift	0000: No shift 0001: +1°C 0002: +2°C to 0010: +10°C (Up to +6 recommended)	0002: +2°C (Floor type 0000: 0°C)
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0E	FS unit Connection set of multiple indoor units	0000: Standard (1 FS unit: 1 indoor unit) 0001: Multiple units connected (1 FS unit: Multiple indoor units)	0000: Standard
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump
10	Type	0001: 4-way Cassette	Depending on model type
11	Indoor unit capacity	0000: Unfixed 0001 to 0050	According to capacity type
12	Line address	0001: No.1 unit to 0030: No.30 unit	0099: Unfixed
13	Indoor unit address	0001: No.1 unit to 0048: No.48 unit	0099: Unfixed
14	Group address	0000: Individual 0001: Header unit of group 0002: Follower unit of group	0099: Unfixed
19	Group address	0000: No louver 0001: Swing only 0002: (1-way Cassette type, Ceiling type) 0003: (2-way Cassette type) 0004: (4-way Cassette type)	According to type
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000: 0 deg to 0010: 10 deg (For setup temperature, reversal of COOL/HEAT by } (Data value)/2)	0003: 3 deg (Ts±1.5)
28	Automatic restart of power failure	0000: None 0001: Restart	0000: None
2A	Selection of option/error input (CN70)	0000: Filter input 0001: Alarm input 0002: None (Air washer, etc.)	0002: None
2E	HA terminal (CN61) select	0000: Usual 0001: Leaving-ON prevention control 0002: Fire alarm input	0000: Usual (HA terminal)
31	Ventilating fan control	0000: Unavailable 0001: Available	0000: Unavailable
32	TA sensor selection	0000: Body TA sensor 0001: Remote controller sensor	0000: Body TA sensor
33	Temperature unit select	0000: °C (at factory shipment) 0001: °F	0000: °C
F0	Swing mode	0001: Standard 0002: Dual swing 0003: Cycle swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
92	External interlock release condition	0000: Operation stopped 0001: Release signal received	0000: Operation stopped
d0	Whether the power saving mode can be set by the remote control	0000: Invalid 0001: Valid	0001: Valid
77	Dusl set point	0000: Unavailable 0002: Available	0000: Unavailable
Fd	Priority operation mode (Flow Selector unit)	0000: Heating 0001: Cooling	0000: Heating
FE	Flow Selector unit address	0001: No.1 unit to 0064: No.64 unit 0099: Unfixed	0099: Unfixed

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td rowspan="2">5d</td><td>High-ceiling adjustment
(Air flow selection)</td><td>
1-way cassette (SH)
<table>
<tr><td>Value</td><td>Type</td><td>AP015, AP018</td><td>AP024</td></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td><td>3.8 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td><td>4.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>4.2 m or less</td><td>4.2 m or less</td></tr>
</table>
2-way cassette
<table>
<tr><td>Value</td><td>Type</td><td>AP007~AP030</td><td>AP036~AP056</td></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m or less</td><td>2.7 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.2 m or less (*)</td><td>3.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.8 m or less (*)</td><td>3.5 m or less</td></tr>
</table>
* The high-ceiling installation of model AP007 to AP012 can only be undertaken when the combined capacity of the indoor units connected is 100% or less than the capacity of the outdoor unit. Do not proceed with high-ceiling installation if this limit is exceeded.
4-way cassette
<table>
<tr><td rowspan="2">Value</td><td>Type</td><td colspan="3">AP009~AP012</td><td colspan="3">AP015~AP018</td></tr>
<tr><td>Air flow at outlet</td><td>4 directions</td><td>3 directions</td><td>2 directions</td><td>4 directions</td><td>3 directions</td><td>2 directions</td></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m</td><td>2.8 m</td><td>3.0 m</td><td>2.8 m</td><td>3.2 m</td><td>3.5 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>-</td><td>-</td><td>-</td><td>3.2 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>-</td><td>-</td><td>-</td><td>3.5 m</td><td>3.8 m</td><td>-</td></tr>
<tr><td rowspan="2">Value</td><td>Type</td><td colspan="3">AP024~AP030</td><td colspan="3">AP036~AP056</td></tr>
<tr><td>Air flow at outlet</td><td>4 directions</td><td>3 directions</td><td>2 directions</td><td>4 directions</td><td>3 directions</td><td>2 directions</td></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.6 m</td><td>3.8 m</td><td>-</td><td>3.6 m</td><td>3.8 m</td><td>-</td></tr>
</table>
Compact 4-way cassette
<table>
<tr><td>SET DATA</td><td>Type</td><td>AP005 to AP012</td><td>AP015</td><td>AP018</td></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m or less</td><td>2.9 m or less</td><td>3.5 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>-</td><td>3.2 m or less</td><td>-</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>-</td><td>3.5 m or less</td><td>-</td></tr>
</table>
Ceiling
<table>
<tr><td>Value</td><td>Type</td><td>AP015~AP056</td></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td></tr>
</table>
</td><td rowspan="2">0000: Standard</td></tr>
<tr><td>Built-in filter</td><td>2-way cassette
0000: Standard filter (factory default)
0001: Super long-life filter
4-way cassette
0000: Standard filter (factory default)
Ceiling
0000: Standard filter (factory default)
Concealed duct standard
0000: Standard filter (factory default)</td></tr>
<tr><td>60</td><td>Static pressure selection</td><td>
Concealed duct standard
<table>
<tr><td>Set data</td><td>0000</td><td>0001</td><td>0002</td><td>0003</td><td>0004</td><td>0005</td><td>0006</td></tr>
<tr><td rowspan="2">External static pressure</td><td>40 Pa</td><td>30 Pa</td><td>65 Pa</td><td>50 Pa</td><td>80 Pa</td><td>100 Pa</td><td>120 Pa</td></tr>
<tr><td>AP024 ~ 030 (Factory default)</td><td>AP007 ~ 018 (Factory default)</td><td>-</td><td>AP036 ~ 056 (Factory default)</td><td>-</td><td>-</td><td>-</td></tr>
</table>
The list above is when SW501-1 and SW501-2 is OFF.
High static duct
<table>
<tr><td>Set data</td><td>0000</td><td>0001</td><td>0002</td><td>0003</td><td>0004</td><td>0005</td><td>0006</td></tr>
<tr><td rowspan="2">External static pressure</td><td>100 Pa</td><td>50 Pa</td><td>75 Pa</td><td>150 Pa</td><td>125 Pa</td><td>175 Pa</td><td>200 Pa</td></tr>
<tr><td>(Factory default)</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
</table>
The list above is when SW501-1 and SW501-2 is OFF.
Slim Duct (AP007~AP018)
0000: Standard (factory default)
0001: High static pressure 1
0003: High static pressure 2
0006: High static pressure 3
</td></tr>
<tr><td>60</td><td>Timer setting
(wired remote controller)</td><td colspan="2">0000: Available (can be performed)
0001: Unavailable (cannot be performed)</td><td>0000: Available</td></tr>
</table>

Codes (DN codes) for changing settings (Necessary for local advanced control)

DN	Item	Description	At shipment
40	Humidifier type setting	0000: No humidifier 0001: Humidifier	Depends on the type
47	Ventilation fan speed during nighttime heat purge operation	0000: Always LOW 0001: Operate at ventilation fan speed set last time the operation was stopped	0000: Always LOW
48	Unbalanced fan speed ventilation	0000: Invalid 0001: SA > EA 0002: SA < EA	0000: Invalid
4C	Nighttime heat purge setting	0000: Invalid 0001: Start in 1 hour to 0048: Start in 48 hours	0000: Invalid
4E	Linkage with external devices	0000: ON/OFF linked 0001: ON linked 0002: OFF linked	0000: ON/OFF linked
5C	Damper output	0000: Normal 0001: Nighttime heat purge compatible	0000: Normal
60	Timer setting (Wired remote controller)	0000: Possible 0001: Not possible	0000: Possible
B3	Soft cooling	0000: Unavailable 0001: Available	0001: Available
B5	Occupancy sensor/ Wireless A-B selection Provided/None	0000: None 0001: Occupancy sensor provided 0002: Wireless remote controller provided	0000: None
B6	Occupancy sensor Enable/Invalid (Absence time judgment time)	0000: Invalid 0001: 30min. 0002: 60min. 0004: 120min. 0005: 150min.	0002: Enable (60 min.)
BB	Humidity judgment by outdoor temperature	0000: Not judged 0001: Judged	0000: Not judged
BD	Continuous humidifying time	0001: 1 hour to 0020: 20 hours	0006: 6 hours
BE	Delay after drainage	0015: 15 minutes to 0030: 30 minutes	0015: 15 minutes
C9	Air to Air intake temperature correction (Cool)	0000: No shift 0001: –0.5°C 0002: –1.0°C to 0007: –3.5°C	0004: –2.0°C
CA	Air to Air intake temperature correction (Heat)	0000: No shift 0001: 0.5°C 0002: 1.0°C to 0007: 3.5°C	0005: 2.5°C
D0	Power saving mode	0000: Invalid 0001: Valid	0001: Valid
EA	Current ventilation mode	0002: Heat exchange mode 0003: Automatic mode	0002: Heat exchange mode
EB	Current ventilation fan speed	0002: High 0003: Low 0004: Unbalanced	0002: High
ED	Operation output	0000: Normal operation only 0001: Normal + Nighttime heat purge 0002: Nighttime heat purge only 0003: Supplying fan linked 0004: Exhausting fan linked	0000: Normal operation only
EE	Abnormal signal / Bypass mode signal switch	0000: Abnormal signal output 0001: Bypass signal output	0000: Abnormal signal output

Type
DN code “10”

Value	Type	Model
0000	1-way Cassette MMU-AP	MMU-AP✻✻✻SH
0001*1	4-way Cassette MMU-AP	MMU-AP✻✻✻H
0002	2-way Cassette MMU-AP	MMU-AP✻✻✻WH
0003	1-way Cassette (Compact)	MMU-AP✻✻✻YH
0004	Concealed Duct Standard MMD-AP	MMD-AP✻✻✻BH
0005	Slim Duct MMD-AP	MMD-AP✻✻✻SPH (SH)
0006	Concealed Duct High Static Pressure	MMD-AP✻✻✻H
0007	Ceiling	MMC-AP✻✻✻H
0008	High Wall MMK-AP	MMK-AP✻✻✻H
0010	Floor Standing Cabinet MML-AP	MML-AP✻✻✻H
0011	Floor Standing Concealed MML-AP	MML-AP✻✻✻BH
0013	Floor Standing MMF-AP	MMF-AP✻✻✻H
0014	Compact 4-way Cassette	MMU-AP✻✻✻MH
0050	Air to Air Heat Exchanger with DX coil Unit	MMD-VN✻✻✻HEX✻

*1 Default value stored in EEPROM mounted on service P.C. board

Indoor Unit Capacity
DN code “11”

Value	Capacity
0000*1	Invalid
0001	007 type
0003	009 type
0005	012 type
0007	015 type
0009	018 type
0011	024 type
0012	027 type
0013	030 type
0015	036 type
0017	048 type
0018	056 type
0021	072 type
0023	096 type
~	-

*1 Default value stored in EEPROM mounted on service P.C. board

Table: Function selecting item numbers (DN) for Mini-SMMS-e (MCY-MAP0604HT*, MCY-MAP0804HT*)

(Items necessary to perform the applied control at the local site are described.)

DN	Item	Description	At shipment
01	Filter display delay timer	0000: None 0001: 150H 0002: 2500H 0003: 5000H 0004: 10000H	According to type
02	Dirty state of filter	0000: Standard 0001: High degree of dirt (Half of standard time)	0000: Standard
03	Central control address	0001: No.1 unit to 0064: No.64 unit 0099: Unfixed	0099: Unfixed
04	Specific indoor unit priority	0000: No priority 0001: Priority	0000: No priority
06	Heating temp shift	0000: No shift 0001: +1°C 0002: +2°C to 0010: +10°C (Up to +6 recommended)	0002: +2°C (Floor type 0000: 0°C)
0d	Existence of [AUTO] mode	0000: Provided 0001: Not provided (Automatic selection from connected outdoor unit)	0001: Not provided
0F	Cooling only	0000: Heat pump 0001: Cooling only (No display of [AUTO] [HEAT])	0000: Heat pump
10	Type	0001: 4-way Air Cassette	Depending on model type
11	Indoor unit capacity	0000: Unfixed 0001 to 0034	According to capacity type
12	Line address	0001: No.1 unit to 0030: No.30 unit	0099: Unfixed
13	Indoor unit address	0001: No.1 unit to 0064: No.64 unit	0099: Unfixed
14	Group address	0000: Individual 0001: Outdoor unit of group 0002: Follower unit of group	0099: Unfixed
19	Louver type (Air direction adjustment)	0000: No louver 0001: Swing only 0002: (1-way Air Cassette type, Ceiling type) 0003: (2-way Air Cassette type) 0004: (4-way Air Cassette type)	According to type
1E	Temp difference of [AUTO] mode selection COOL → HEAT, HEAT → COOL	0000: 0 deg to 0010: 10 deg (For setup temperature, reversal of COOL/HEAT by ± (Data value)/2)	0003: 3 deg (Ts±1.5)
28	Automatic restart of power failure	0000: None 0001: Restart	0000: None
2A	Selection of option/error input (CN70)	0000: Filter input 0001: Alarm input 0002: None (Air washer, etc.)	0002: None
31	Ventilating fan control	0000: Unavailable 0001: Available	0000: Unavailable
32	TA sensor selection	0000: Body TA sensor 0001: Remote controller sensor	0000: Body TA sensor
33	Temperature unit select	0000: °C (factory default) 0001: °F	0000: °C
F0	Swing mode	0001: Standard 0002: Dual swing 0003: Cycle swing	0001: Standard
F1	Louver fixed position (Louver No.1)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F2	Louver fixed position (Louver No.2)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F3	Louver fixed position (Louver No.3)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed
F4	Louver fixed position (Louver No.4)	0000: Release 0001: Horizontal discharge position 0005: Downward discharge position	0000: Not fixed

<table>
<tr><th>DN</th><th>Item</th><th>Description</th><th>At shipment</th></tr>
<tr><td rowspan="3">5d</td><td>High-ceiling adjustment
(Air flow selection)</td><td>1-way air cassette (SH)
<table>
<tr><th>Value</th><th>Type</th><th>AP015, AP018</th><th>AP024</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td><td>3.8 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td><td>4.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>4.2 m or less</td><td>4.2 m or less</td></tr>
</table>
2-way air cassette
<table>
<tr><th>Value</th><th>Type</th><th>AP007~AP030</th><th>AP036~AP056</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m or less</td><td>2.7 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.2 m or less (*)</td><td>3.0 m or less</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.8 m or less (*)</td><td>3.5 m or less</td></tr>
</table>
* The high-ceiling installation of model AP007 to AP012 can only be undertaken when the combined capacity of the indoor units connected is 100% or less than the capacity of the outdoor unit. Do not proceed with high-ceiling installation if this limit is exceeded.
4-way air cassette
<table>
<tr><th rowspan="2">Value</th><th>Type</th><th colspan="3">AP009~AP012</th><th colspan="3">AP015~AP018</th></tr>
<tr><th>Air flow at outlet</th><th>4 directions</th><th>3 directions</th><th>2 directions</th><th>4 directions</th><th>3 directions</th><th>2 directions</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>2.7 m</td><td>2.8 m</td><td>3.0 m</td><td>2.8 m</td><td>3.2 m</td><td>3.5 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>-</td><td>-</td><td>-</td><td>3.2 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>-</td><td>-</td><td>-</td><td>3.5 m</td><td>3.8 m</td><td>-</td></tr>
<tr><th rowspan="2">Value</th><th>Type</th><th colspan="3">AP024~AP030</th><th colspan="3">AP036~AP056</th></tr>
<tr><th>Air flow at outlet</th><th>4 directions</th><th>3 directions</th><th>2 directions</th><th>4 directions</th><th>3 directions</th><th>2 directions</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td><td>3.0 m</td><td>3.3 m</td><td>3.6 m</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td><td>3.3 m</td><td>3.5 m</td><td>3.8 m</td></tr>
<tr><td>0003</td><td>High-ceiling (3)</td><td>3.6 m</td><td>3.8 m</td><td>-</td><td>3.6 m</td><td>3.8 m</td><td>-</td></tr>
</table>
Ceiling
<table>
<tr><th>Value</th><th>Type</th><th>AP015~AP056</th></tr>
<tr><td>0000</td><td>Standard (factory default)</td><td>3.5 m or less</td></tr>
<tr><td>0001</td><td>High-ceiling (1)</td><td>4.0 m or less</td></tr>
</table></td><td rowspan="3">0000: Standard</td></tr>
<tr><td>Built-in filter</td><td>2-way air cassette
0000: Standard filter (factory default)
0001: Super long-life filter
4-way air cassette
0000: Standard filter (factory default)
Ceiling
0000: Standard filter (factory default)
Concealed duct standard
0000: Standard filter (factory default)</td></tr>
<tr><td>Static pressure selection</td><td>Concealed duct standard
0000: Standard (factory default)
0001: High static pressure 1
0003: High static pressure 2
0006: Low static pressure</td><td>Slim Duct
0000: Standard (factory default)
0001: High static pressure 1
0003: High static pressure 2
0006: High static pressure 3</td></tr>
<tr><td>60</td><td>Timer setting
(wired remote controller)</td><td>0000: Available (can be performed)</td><td>0001: Unavailable (cannot be performed)</td><td>0000: Available</td></tr>
<tr><td>92</td><td>External interlock release condition</td><td>0000: Operation stopped</td><td>0001: Release signal received</td><td>0000: Operation stopped</td></tr>
<tr><td>D0</td><td>Whether the power saving mode can be set by the remote controller</td><td>0000: Invalid</td><td>0001: Valid</td><td>0000: Valid</td></tr>
</table>

Table 1. Setting data (CODE No. table (example)) SDI

CODE No. (DN)	Item	Setting data	Factory-set value
01	Filter sign lighting time		Depending on Type
02	Filter pollution level		0000: standard
03	Central control address		0099: Not determined
06	Heating suction temperature shift		0002: +2 ˚C
0F	Cooling only		0000: Heat pump
10	Type		Depending on model type
11	Indoor unit capacity		Depending on capacity type
12	System address		0099: Not determined
13	Indoor unit address		0099: Not determined
14	Group address		0099: Not determined
19	Louver type (wind direction adjustment)		Depending on Type.
1E	Temperature range of cooling/heating automatic SW control point		0003: 3 deg (Ts ±1.5)
28	Power failure automatic recovery		0000: None
2b	Thermo output SW (T10 ③)		0000: Thermo ON
31	Ventilation fan (standalone)		0000: Not available
32	Sensor SW (Selection of static pressure)		0000: Body sensor
5d	High ceiling SW		0000: Standard
60	Timer setting (wired remote controller)		0000: Available
77	Dual set point		0000: Unavailable
8b	Correction of high heat feeling		0000: None
b3	Soft cooling		0001: Available
b5	Occupancy sensor: Provided/None		0000: None
b6	Occupancy sensor: Enable/Invalid (Judgment time of absence)		0002: Enable (60 min.)
b7	Occupancy sensor: Operation at absent time		0000: Stand by
C2	Demand setting (outdoor unit current demand)		0075: 75 %
d0	Remote controller operation save function		0001: Enable
d1	Frost protection function		0000: None
F0	Swing mode		0001: Standard
F1	Louver fixing position (Flap No. 1)		0000: Not fixed
F2	Louver fixing position (Flap No. 2)		0000: Not fixed
F3	Louver fixing position (Flap No. 3)		0000: Not fixed
F4	Louver fixing position (Flap No. 4)		0000: Not fixed
F6	Presence of Application control kit		0000: None

Table 2. Type: CODE No. 10

Setting data	Type	Type name abb.
0001∗	4-way Cassette Type	RAV-GM∗∗∗UT∗

∗ ⚠ CAUTION
<Model name: RAV-GM***UT*>
For above models, set the CODE No. to " CE " and the setting data " 0000 " (initial) to " 0001 ".

Table 3.
Indoor unit capacity: CODE No. 11

Setting data	Type
0000∗	Disable
0009	56
0012	80
0015	110
0017	140

∗ EEPROM initial value on the P.C. board for indoor unit servicing.

◆ Monitoring function of remote controller switch

When using the remote controller (Model Name: RBC-AMT32E, RBC-AMS41E, NRC-01HE), the following monitoring function can be utilized.

Wired remote controller: Refer to the installation manual of RBC-AMS54E

Calling of display

<Contents>

The temperature of each sensor of the remote controller, indoor unit and outdoor unit and the operating status can be checked by calling the service monitor mode from the remote controller.

<Procedure>

1 **Push TEST + CL buttons simultaneously for 4 seconds or more to call up the service monitor mode.**
The service monitor goes on and firstly the temperature of the CODE No. 00 is displayed.

⇩

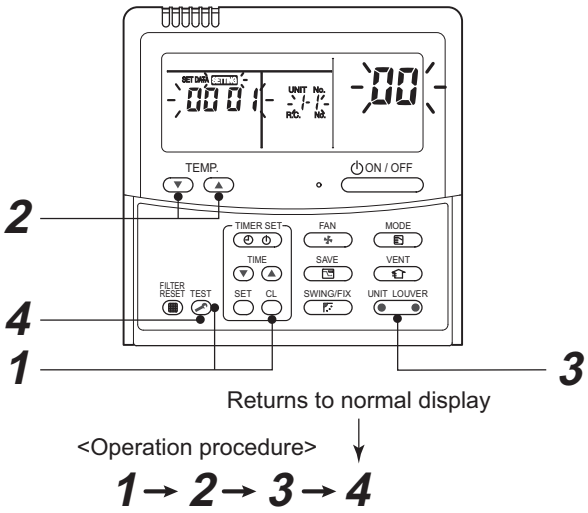
2 **Push TEMP. button to change CODE No. (CODE No.) to the CODE No. to be monitored.**
For display code, refer to the following table.

⇩

3 **Push UNIT LOUVER button to change to item to be monitored.**
The sensor temperature of indoor unit or outdoor unit in its refrigerant line and the operating status are monitored.

⇩

4 **Push TEST button to return the status to the normal display.**



Code example for SHRM-e, refer to other document for target model.

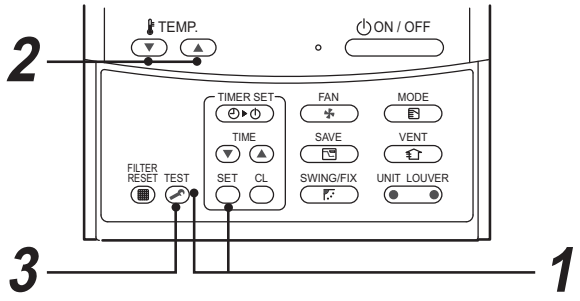
	CODE No.	Data name	Unit	Display form
Indoor unit data	00	Room temp. (Under control) (Note 1)	°C	× 1
	01	Room temp. (Remote controller)	°C	× 1
	02	Indoor suction temp. (TA)	°C	× 1
	03	Indoor coil temp. (TCJ)	°C	× 1
	04	Indoor coil temp. (TC2)	°C	× 1
	05	Indoor coil temp. (TC1)	°C	× 1
	08	Indoor PMV opening degree	pls	× 1 / 10
	F2	Indoor fan accumulated operation time	h	× 100
	F3	Filter sign time	h	× 1
System data	0A	No. of connected indoor units	unit	
	0B	Total HP of connected indoor units	HP	× 10
	0C	No. of connected outdoor units	unit	
	0D	Total HP of connected outdoor units	HP	× 10

	CODE No.	Data name	Unit	Display form
Individual outdoor unit data (Note 3, 4)	10	Compressor 1 discharge temp. (Td1)	°C	× 1
	11	Compressor 2 discharge temp. (Td2)	°C	× 1
	12	High pressure sensor detection pressure (Pd)	Mpa	× 100
	13	Low pressure sensor detection pressure (Ps)	Mpa	× 100
	14	Suction temp. (TS)	°C	× 1
	15	Outdoor coil temp. (TE)	°C	× 1
	16	Liquid side temp. (TL)	°C	× 1
	17	Outside temp. (TO)	°C	× 1
	18	Low pressure saturation temp. (TU)	°C	× 1
	19	Compressor 1 current (I1)	A	× 10
	1A	Compressor 2 current (I2)	A	× 10
	1B	PMV1 + 2 opening degree	pls	× 1 / 10
	1D	Compressor 1, 2 ON/OFF	–	(Note 2)
	1E	Outdoor fan mode	–	0 to 31
	1F	Outdoor unit HP	HP	× 1

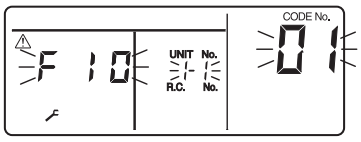
(Note 1) In the group connection, only data of the header indoor unit is displayed.
(Note 2) 01: Only compressor 1 is ON.
10: Only compressor 2 is ON.
11: Both compressor 1 and 2 are ON.
(Note 3) For the CODE No., an example of header unit is described.
(Note 4) Upper girder of CODE No. indicates the outdoor unit No..
1: Header unit (A)
2: Follower unit (B)
3: Follower unit (C)
4: Follower unit (D)

Confirmation of error history (RBC-AMT32E, RBC-AMS41E, NRC-01HE)

When a trouble occurred on the air conditioner, the trouble history can be confirmed with the following procedure. (The trouble history is stored in memory up to 4 troubles.)
The history can be confirmed from both operating status and stop status.



Wired remote controller: Refer to the installation manual of RBC-AMS54E

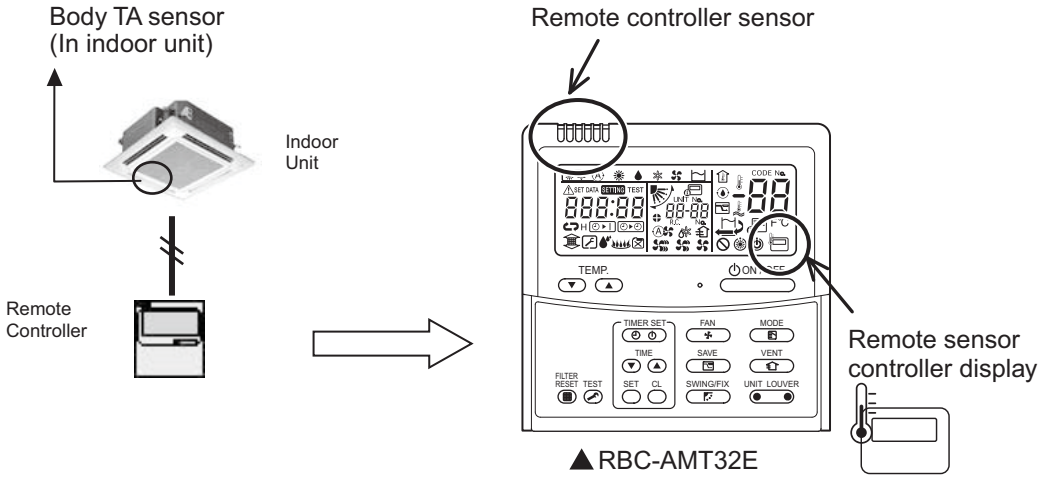
Procedure	Description
1	When pushing SET and TEST buttons at the same time for 4 seconds or more, the following display appears. If [Service check] is displayed, the mode enters in the trouble history mode. • [01: Order of trouble history] is displayed in CODE No. window. • [Check code] is displayed. • [Indoor unit address in which an error occurred] is displayed in UNIT No.. 
2	Every pushing of [▼ / ▲] button used to set temperature, the trouble history stored in memory is displayed in order. The numbers in CODE No. indicate CODE No. [01] (latest) → [04] (oldest). **CAUTION** Do not push CL button because all the trouble history of the indoor unit will be deleted.
3	After confirmation, push TEST button to return to the usual display.

◆ Selection of indoor air temperature sensor

(How to select “body TA sensor” or “remote controller sensor”)

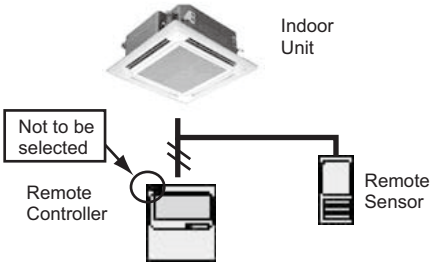
Remote controller (wired or wireless) has the sensor to detect the air temperature.
Either the body TA sensor or remote controller sensor can be selected by item code (DN) setting from the wired remote controller.

DN	32	0000	Body TA sensor	At shipment
		0001	Remote controller sensor	



Note

In case of using the remote sensor “TCB-TC41LE”,
don’t select “remote controller sensor” by item code (DN) setting.
You can use only one remote controller sensor (set as the Header remote) together with the remote sensor.



Ventilation fan control from remote controller

[Function]

- The start / stop operation can be operated from the wired remote controller when air to air heat exchanger or ventilating fan is installed in the system.
- The fan can be operated even if the indoor unit is not in operation.
- Use a fan which can receive the no-voltage A contact as an outside input signal.
- In a group control, the units are collectively operated and as such cannot be individually operated.

(1) Operation

Handle a wired remote controller in the following procedure.

* Set up the wired remote controller only when the system is not in operation.
* Be sure to set up the wired remote controller to the header indoor unit. (Same in group control)
* In a group control, if the wired remote controller is set up to the header indoor unit, both header and follower units are simultaneously operable.

1 **Push concurrently the SET + CL + TEST buttons for 4 seconds or more.**

The unit No. displayed firstly indicates the header indoor unit address in the group control.
In this time, the fan of the selected indoor unit will turn on.

2 **For every push of the UNIT button, the indoor unit numbers in the group control are displayed successively.**

In this time, the fan of the selected indoor unit only will turn on.

3 **Use the TEMP. buttons to specify the item code 31.**

4 **Using the TIME button, select the setup data. (At shipment: 0000)**

The setup data is as follows:

Setup data	Handling of operation of air to air heat exchanger or ventilating fan
0000	Unavailable (At shipment)
0001	Available

5 **Push the SET button. (OK if display goes on.)**

- To change the selected indoor unit, go to procedure ***2***.
- To change the item that is to be set up, go to procedure ***3***.

6 **Pushing the TEST returns the status to the usual stop status.**

Leaving-ON prevention control

[Function]

- This function controls the indoor units individually. It is connected to the control P.C. board of the indoor unit.
- In a group control, it is connected by cable to the indoor unit (Control P.C. board), and the item code 2E is set to the connected indoor unit.
- It is used when the start operation from the outside is unnecessary but the stop operation is required.
- Using a card switch box, card lock, etc, the leaving-ON of the indoor unit can be protected.
  - When inserting a card, the start/stop operation from the remote controller is allowed.
  - When taking out a card, the system stops if the indoor unit is operating and the start/stop operation from the remote controller is forbidden.

(1) Control items

1) Outside contact ON : The start/stop operation from the remote controller is allowed.
(The card is inserted into the card switch box)

2) Outside contact OFF : If the indoor unit is operating, it is stopped forcedly.
(Start/Stop function is prohibited by the remote controller)
(The card is taken out from the card switch box)

∗ When the card switch box does not perform the above contact operation, convert it using a relay with contact.

(2) Operation

Handle the wired remote controller switch in the following procedure.

∗ Set the wired remote controller switch only when the unit is not in operation.

1 Push concurrently SET + CL + TEST buttons for 4 seconds or more.

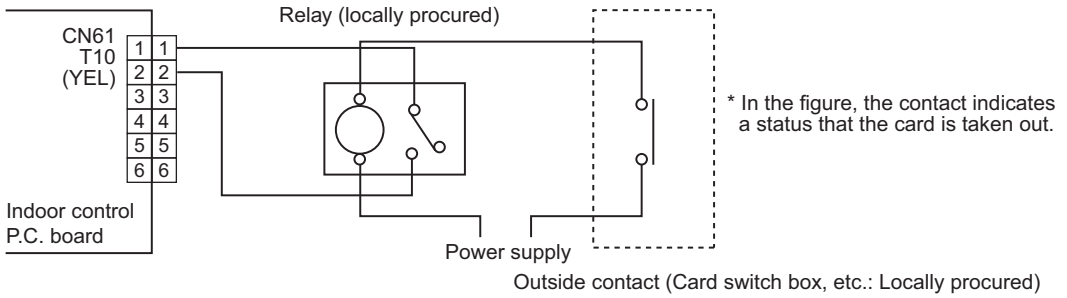
2 Using the TEMP. button, specify the item code 2E.

3 Using the timer time TIME button, set 0001 to the setup data.

4 Push the SET button.

5 Push the TEST button. (The status returns to the usual stop status.)

(3) Wiring

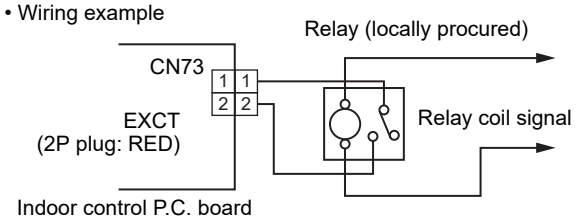


Note) Determine the cable length between the indoor control P.C. board and the relay so that they are within 2 m.

Power peak-cut from indoor unit

When the relay is turned on, a forced thermostat-OFF operation will begin.

• Wiring example

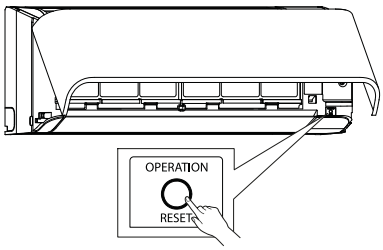


Note) Determine the cable length between the indoor, outdoor control P.C. board and the relay so that they are within 2 m.

Auto restart function setting

Auto restart function allows the air conditioner to resume the set operating conditions in the event of a supply power shutdown without the use of the remote controller. The operation will resume without warning three minutes after the power is restored.

<table>
<tr><th rowspan="2">Category</th><th rowspan="2">Indoor type</th><th colspan="2">Setting Procedure for auto restart</th></tr>
<tr><th>User interface</th><th>How</th></tr>
<tr><td>VRF</td><td>All</td><td>Wired remote controller</td><td>Set DN code by wired remote controller.
Code: automatic restart of power failure DN=28
Setting value: 0001: Restart
0000: none (default)</td></tr>
<tr><td rowspan="3">DI
SDI</td><td>Excluding Hi wall</td><td>ditto</td><td>ditto</td></tr>
<tr><td rowspan="2">Hi wall</td><td>ditto</td><td>ditto</td></tr>
<tr><td>Body button

Indicator: operation lamp
 
</td><td>No automatic restart setting at shipment

HOW TO SET THE AUTO RESTART
To set the auto restart function, proceed as follows:
The power supply to the unit must be on the function will not set if the power is off.
To enable the auto restart function, push the TEMPORARY button continually for more than 3 seconds, less than 10 seconds.
The air conditioner will acknowledge the setting and beep 2 times (first long, second short sound) and ⏻ lamp is flashing 5 seconds (5 Hz).
The system will now restart automatically. The above auto restart settings can be carried out:

HOW TO CANCEL THE AUTO RESTART
To cancel the auto restart operation, proceed as follows:
Repeat the setting procedure: the air conditioner will acknowledge the instruction and beep 2 times (first long, second short sound).
The air conditioner will now require to be manually restarted with the remote controller after the main supply is turned off.
Cancellation is carried out:</td></tr>
</table>

9-2 Indoor Model Compatibility for remote controller, central controller and remote sensor

Indoor Category \ Option Category			Wired Remote Controller	Wireless Remote Controller						TCC-LINK ADAPTOR (for central control) TCB-PCNT30TLE2	Remote sensor TCB-TC41LE	Central control
			RBC-AMT32E, RBC-AMS41E, RBC-AMS55E-ES/EN, NRC-01HE, RBC-AS41E, RBC-ASC11E	RBC-AX32U(W/WS)-E	RBC-AX33CE	TCB-AX32E2	RBC-AX32UW(W)-E	WH-L11SE	WH-H2UE			
SMMS-e/ SHRM-e/ Mini-SMMS-e	4-way Air Discharge Cassette Type	4 series	✓	✓	-	✓	-	-	-	-	✓	✓
	Compact 4-way Cassette Type	4 series	✓	-	-	✓	-	-	-	-	✓	✓
		6 series	✓	-	-	✓	-	-	-	-	✓	✓
	2-way Air Discharge Cassette Type	2 series	✓	-	-	✓	✓	-	-	-	✓	✓
	1-way Air Discharge Cassette Type	4 YH series	✓	-	-	✓	-	-	-	-	✓	✓
		4 SH series	✓	-	✓	✓	-	-	-	-	✓	✓
	Concealed Duct Type	6 series	✓	-	-	✓	-	-	-	-	✓	✓
	Concealed Duct High Static Pressure Type	6 series	✓	-	-	-	-	-	-	-	✓	✓
	Slim Duct Type	4 series	✓	-	-	✓	-	-	-	-	✓	✓
	Ceiling Type	7 series	✓	-	✓	✓	-	-	-	-	✓	✓
	High-wall Type	3 series	✓	-	-	✓	-	✓ (Packed)	-	-	✓	✓
		4 series	✓	-	-	✓	-	-	✓ (Packed)	-	✓	✓
	Floor Standing Concealed Type	4 series	✓	-	-	✓	-	-	-	-	✓	✓
	Floor Standing Cabinet Type	4 series	✓	-	-	✓	-	-	-	-	✓	✓
	Floor Standing Type	4 series	✓	-	-	✓	-	-	-	-	✓	✓
	Console Type	4 series	✓	-	-	✓	-	✓ (Packed)	-	-	✓	✓
	Fresh Air Intake Indoor Unit Type	-	✓	-	-	✓ (Set as follower)	-	-	-	-	-	✓
	Air to Air Heat exchanger with DX-coil Type	-	✓	-	-	✓ (Set as follower)	-	-	-	-	-	✓
SMMS-e	Large Capacity Floor Standing Type	4 series	✓	-	-	✓	-	-	-	-	✓	✓
DI / SDI (R32)	4-way Air Discharge Cassette Type	1 series	✓	✓	-	✓	-	-	-	✓ (Need TCB-PX30MUE)	✓	✓ (With adaptor)
	Compact 4-way Cassette Type	1 series	✓	-	-	✓	-	-	-	✓ (Need TCB-PX30MUE)	✓	✓ (With adaptor)
	Concealed Duct Type	1 series	✓	-	-	✓	-	-	-	✓	✓	✓ (With adaptor)
	Concealed Duct High Static Pressure Type	1 series	✓	-	-	-	-	-	-	✓	✓	✓ (With adaptor)
	Slim Duct Type	1 series	✓	-	-	✓	-	-	-	✓	✓	✓ (With adaptor)
	Ceiling Type	1 series	✓	-	✓	✓	-	-	-	✓	✓	✓ (With adaptor)
	High-wall Type	1 series	✓	-	-	✓	-	✓ (Packed)	-	-	✓	✓ (Without adaptor)

10

Outdoor unit controls for VRF

10-1 Applied control for outdoor unit

■ SMMS-e

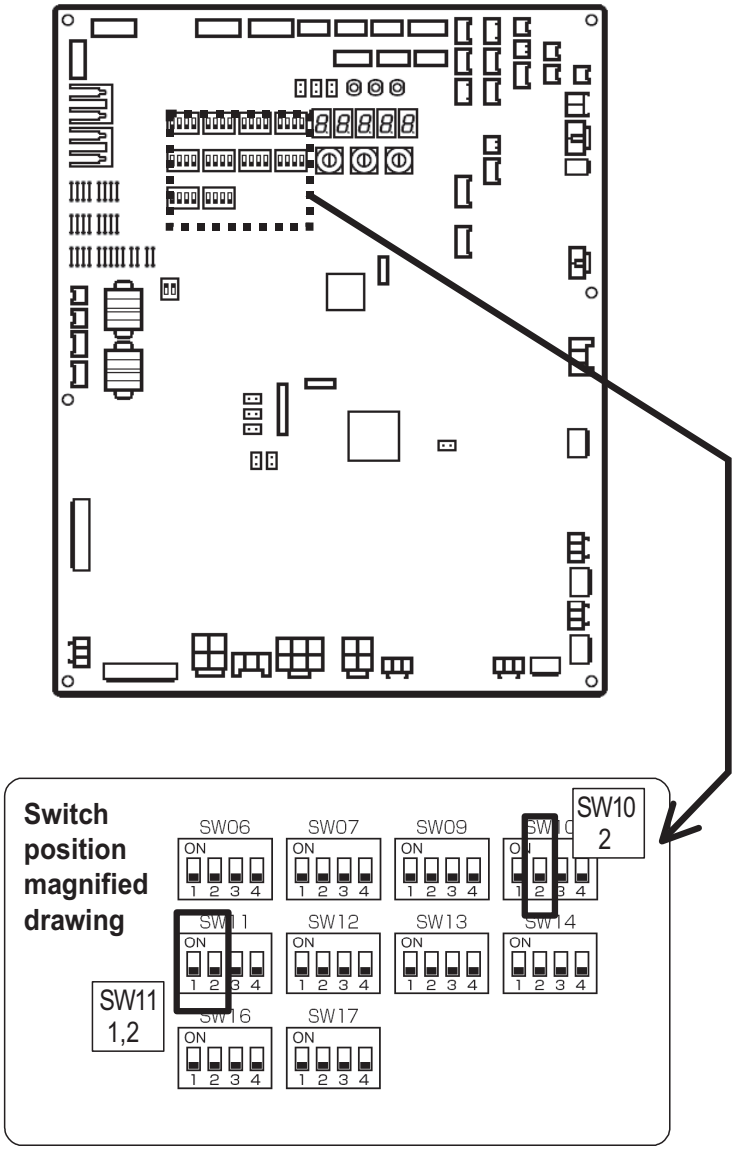
The outdoor fan high static pressure support and priority operation mode setting (cooling / heating / number of units / or priority indoor unit) functions are made available by setting relevant switches provided on the interface PCB of the outdoor unit.

The following functions become available by setting the switches on the outdoor interface PCB.

No.	Function	Switch No.	Bit
1	Outdoor fan high static pressure shift	SW10	2
2	Cooling priority, Heating priority control	SW11	1, 2

Interface PCB of outdoor unit

<SMMS-e, SHRM-e>

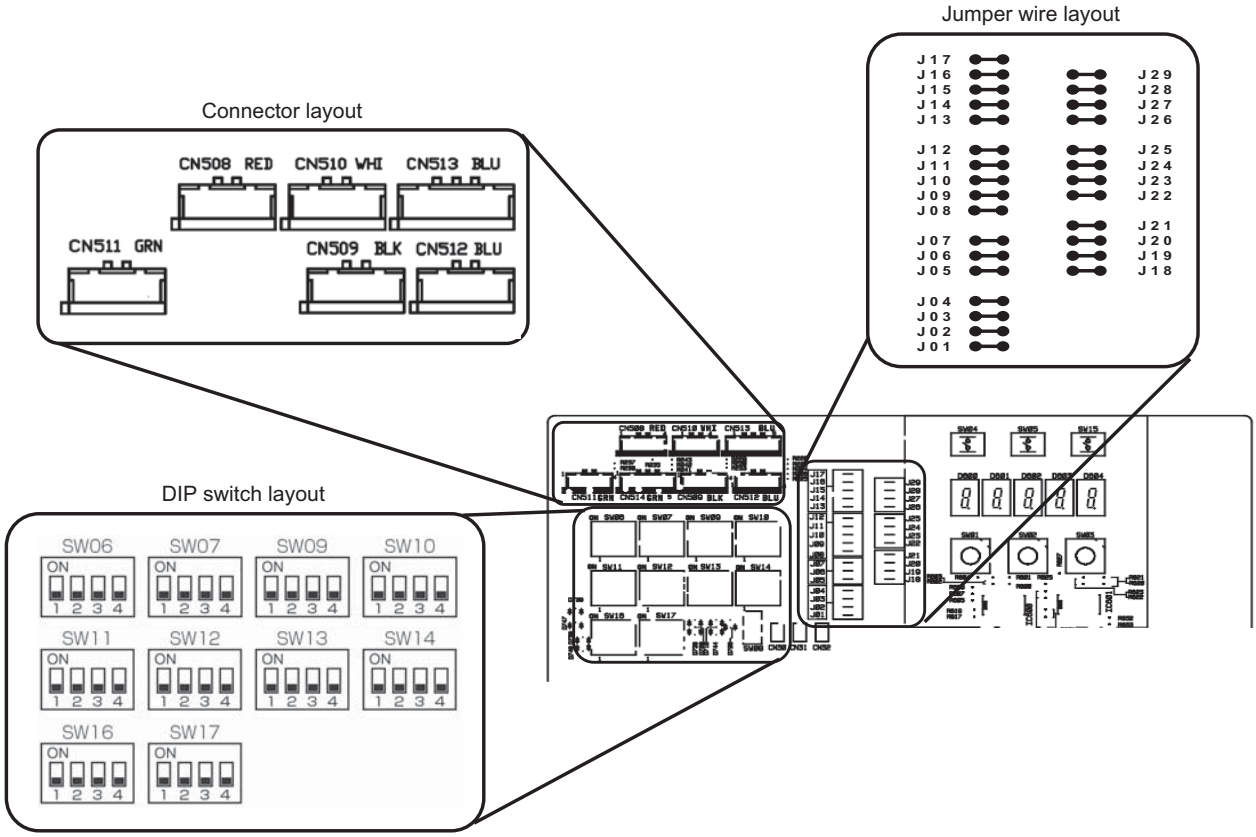


■ Mini-SMMS-e

The outdoor fan high static pressure support and priority operation mode setting (cooling / heating / number of units / or priority indoor unit) functions are made available by setting relevant switches provided on the interface PCB of the outdoor unit.

The following functions become available by setting the switches on the outdoor interface PCB.

No.	Function	Switch No.	Bit
1	Outdoor fan high static pressure shift	SW10	2
2	Cooling priority, Heating priority control	SW11	1, 2



10-2 Outdoor fan high static pressure shift

Purpose / characteristics

This function is set when connecting a duct to the discharge port of the outdoor unit.

Setup

Turn “Bit 2” on the Dip switch [SW10] on the interface PCB on the outdoor unit to the ON side. For the outdoor units which are connected with the ducts, set this function regardless of the header unit or follower unit.

Specification

Increase the speed of the propeller fan units on the outdoor fan to allow the installation of a duct with a maximum external static pressure not greater than specified in the table below. If a discharge duct with a resistance greater than 15 Pa (1.5 mmAq) is to be used, enable this function. The maximum external static pressures of base units are shown Data book. In the case of combined use of multiple outdoor units, set all the units to the same maximum external static pressure as the one with the lowest maximum external static pressure.

Databook

➔Please refer the databook

10-3 Priority operation mode setting

■ SMMS-e, Mini-SMMS-e

Purpose/characteristics

This function allows switching between priority cooling and priority heating.
Four patterns of priority operation mode setting are available as shown in the table below. Select a suitable priority mode according to the needs of the customer.

Setup

⚠CAUTION

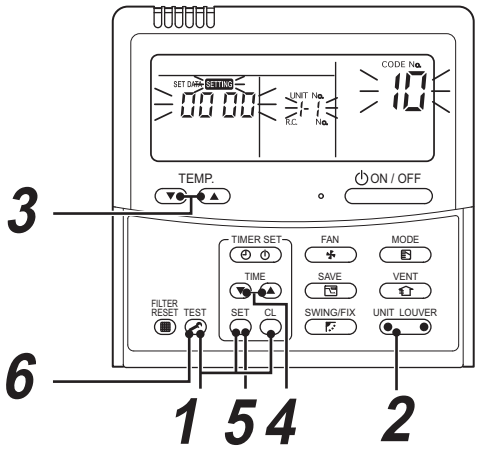
In the case of the priority indoor unit mode, it is necessary to set up the specific indoor unit chosen for priority operation (a single unit only).

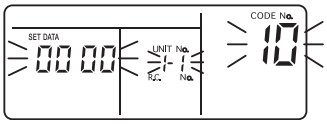
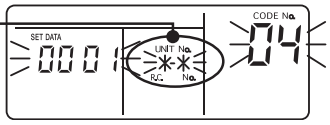
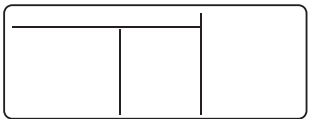
(1) Outdoor unit setup method (header unit)

SW11		Operation
Bit 1	Bit 2	
OFF	OFF	Priority heating (factory default)
ON	OFF	Priority cooling
OFF	ON	Priority operation based on No. of units in operation (priority given to the operation mode with the largest share of units in operation)
ON	ON	Priority indoor unit (priority given to the operation mode of the specific indoor unit set up for priority operation)

10-4 Indoor unit setup in “Specific indoor unit priority” mode (Except SHRM-e)

(1) Setup switch (sw11) on interface PCB of header outdoor unit. (SW11 bit1=ON, bit2=ON)
(2) The setup can be changed when the system is not in operation. (Be sure to stop the system.)



Procedure	Operation contents
1	When pushing the SET + CL + TEST buttons at the same time for 4 seconds or more, as shown in the figure, the display section flashes and after a short period of time the following confirmation code should be displayed [10]. • When the item code is one other than [10], push the TEST button to eliminate the display and then repeat the procedure from the first step. (The remote controller operation is not accepted for approx. 1 minute after pushing the TEST button.) (In a group control, the indoor unit with its number displayed first is set to the header unit.) 
2	For every push of the UNIT, the indoor unit numbers in the group control are successively displayed. Select the indoor unit of which setup is to be changed. In this time, the fan and louver of the selected indoor unit will operate allowing you to identify the position of the indoor unit of which the setup is to be changed. 
3	Using the TEMP. buttons, specify the item code [04].
4	Using the TIME buttons, select the setup data [0001]. Priority: 0001, No priority: 0000
5	Push the SET button. In this time, the setup operation finishes when the display changes from flashing to lighting.
6	After setup operation has finished, push the TEST button. (Setup is determined.) When pushing the TEST button, the display disappears and the status returns to the usual stop status. (The remote controller operation is not accepted for approx. 1 minute.) 

(Note) Only one indoor unit can be set to “Priority”. If the multiple indoor units are accidentally set to “Priority”, an error code (L05 or L06: Duplicated indoor unit priority) is displayed.
If a unit is displaying “L05”, [0001 (Priority)] setup. Identify the unit which you will give priority to from the other indoor units and return the setup data for all other indoor units to [0000 (No priority)].

Error code	Error contents
L05	Indoor unit priority duplication ([0001] is set up.)
L06	Indoor unit priority duplication ([0000] is set up.)

11

Outdoor unit controls for DI/SDI

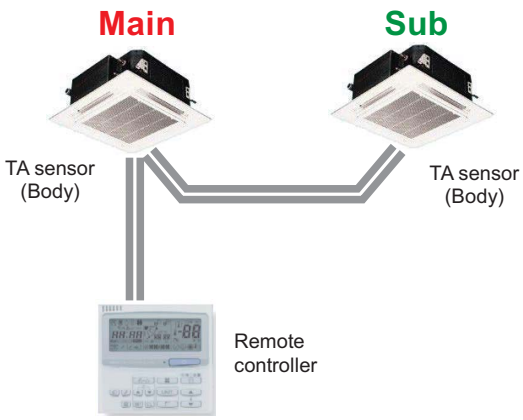
11-1 Category Compatibility list for DI/SDI Optional Control for Outdoor unit

<table>
<tr><th rowspan="2">Function
Outdoor</th><th>TCB-KBOS1E (cable)</th><th>TCB-PCOS1E2 (Board)</th><th colspan="8">Setting</th></tr>
<tr><td>Peak cut/night operation/ Compressor on status</td><td>Peak cut/night operation/ Compressor on status</td><td>Applicable model</td><td>High static pressure</td><td>Existing piping</td><td>Power saving</td><td>Snow-proof Fan control</td><td>Defrost Time change</td><td>Max frequency change</td><td>Cooling only</td></tr>
<tr><td rowspan="2">DI 4 series</td><td rowspan="2">yes</td><td rowspan="2">no</td><td>All</td><td>-</td><td>Sw802 no3</td><td>Sw802 no2</td><td>Sw802 no1</td><td>J805, 806</td><td>J807</td><td>J808</td></tr>
<tr><td>-</td><td>Note1</td><td>Note2</td><td>Note3</td><td>Note4</td><td>Note5
<table><tr><td></td><td colspan="2">RAV-SM224</td><td colspan="2">RAV-SM280</td></tr><tr><td></td><td>COOL</td><td>HEAT</td><td>COOL</td><td>HEAT</td></tr><tr><td>No cut</td><td>78.0</td><td>74.4</td><td>91.2</td><td>96.0</td></tr><tr><td>cut</td><td>66.6</td><td>66.6</td><td>76.8</td><td>76.8</td></tr></table></td><td>Note6</td></tr>
<tr><td rowspan="6">SDI 4 series</td><td rowspan="6">yes
excluding 1.5-1.7 HP</td><td rowspan="6">yes
only following model
RAV-SP404AT-E/ATZ-E/ ATZG-E, SP454AT-E/ATZ-E/ ATZG-E, SP564AT-E/ATZ-E/ ATZG-E</td><td rowspan="2">SP56</td><td>-</td><td>Sw801 no3 on sub PCB</td><td>Sw801 no2 on sub PCB</td><td>-</td><td>-</td><td>-</td><td>Sw801 no1 on sub PCB</td></tr>
<tr><td>-</td><td>Turn off. 19.1 Ø can not be used.</td><td>Note2</td><td>-</td><td>-</td><td>-</td><td>Turn ON when Cooling only DN “0F” also can set.</td></tr>
<tr><td rowspan="2">SP80</td><td>Sw802 no4</td><td>Sw802 no3</td><td>Sw802 no2</td><td>Sw802 no1</td><td>J805, 806</td><td>J807</td><td>J808</td></tr>
<tr><td>Note8</td><td>Note1</td><td>Note2</td><td>Note3</td><td>Note4</td><td>Note5
<table><tr><td></td><td colspan="2">RAV-SP80</td></tr><tr><td></td><td>COOL</td><td>HEAT</td></tr><tr><td>No cut</td><td>72.0</td><td>99.6</td></tr><tr><td>cut</td><td>72.0</td><td>79.2</td></tr></table></td><td>Note6</td></tr>
<tr><td rowspan="2">SP110
SP140
SP160</td><td>Sw802 no4</td><td>Sw802 no3</td><td>Sw802 no2</td><td>Sw802 no1</td><td>J805, 806</td><td>J807</td><td>J808</td></tr>
<tr><td>Note8</td><td>Note1</td><td>Note2</td><td>Note3</td><td>Note4</td><td>Note5
<table><tr><td></td><td colspan="2">RAV-SP1104</td><td colspan="2">RAV-SP1404</td><td colspan="2">RAV-SP1604</td></tr><tr><td></td><td>COOL</td><td>HEAT</td><td>COOL</td><td>HEAT</td><td>COOL</td><td>HEAT</td></tr><tr><td>No cut</td><td>53.4</td><td>71.4</td><td>64.2</td><td>96.0</td><td>74.4</td><td>100.2</td></tr><tr><td>cut</td><td>53.4</td><td>64.2</td><td>64.2</td><td>72.0</td><td>74.4</td><td>79.8</td></tr></table></td><td>Note6</td></tr>
</table>

Note1: Turn on when 19.1 Ø is used for existing pipe. In this case, the heating capacity may be lower according to outside temp and indoor temperature in heating operation.
Note2: Turn on for power saving. The control to lower the compressor frequency 10% is performed by indoor Heat exchanger temperature in heating operation.
Note3: Turn on for snow-proof. When snow enters, the control to prevent generation of motor lock is validated. When outside temperature is below 0°C though the compressor stops, the outdoor fan operates with W5 (5th out of total 15 fan tap levels).
Note4: The defrost interval is cut to shorten it than the standard status. The contents of control and cutting method, refer to the section “Defrost control” in service manual.
Note5: When it is needed to lower the maximum value of the compressor frequency, cut the JP wire. Max frequency at cooling/heating is lowered. In this case max capacity decreases.
Note6: When fixing the operation mode as cooling only, cut the JP wire. DN “0F” also can set.
Note7: When fixing the operation mode as cooling only, turn on no1 position. DN “0F” also can set.
Note8: Turn the sw to ON when mounting a duct to the discharge port of the outdoor unit. Add 3 taps to the upper limit values of the outdoor fan tap. The operation is performed with max upper fan: 890 rpm/lower fan; 910 rpm (WF). In this case, the upper limit value of static pressure for duct is 5 Pa or less on 25°C and please use straight duct. In this case, the outdoor noise level may increase.

11-2 DI/SDI Twin, Triple system control logic

Control logic



	Main	Sub
Line address	1	1
Indoor address	1	2

Main indoor unit
= Communicate with outdoor unit
(Serial communication)
= Communicate with salve indoor

Sub indoor unit
= No Communication with outdoor unit
(No error judgment of serial signal)
= Communication with master indoor
= No error detection of serial communication

Thermo control

Thermo-off = "Off priority"
Main / Sub = ON/OFF → Thermo-OFF
Main / Sub = OFF / ON → Thermo-OFF

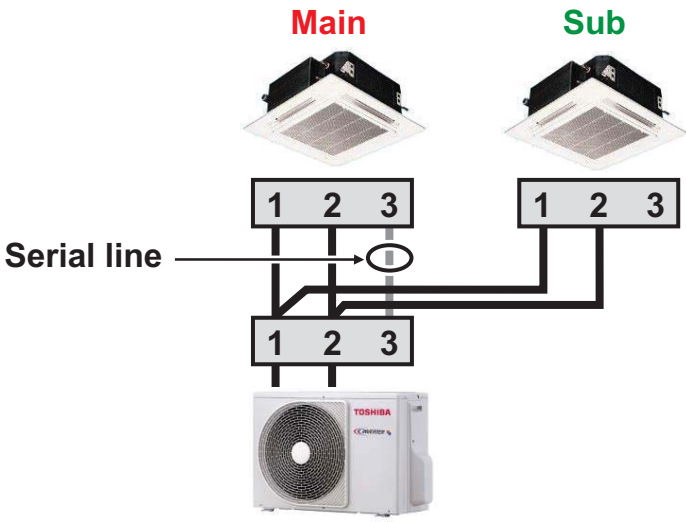
Thermo ON control
Main / Sub = ON/ON → Thermo-ON
Main / Slave = OFF/ON → Thermo-OFF
Main / Slave = ON/OFF → Thermo-OFF

(Note) When remote controller sensor is selected, both indoor units use remote controller sensor as "TA sensor".

< Auto mode >
Main indoor unit decides operation mode.

< Auto fan speed >
Fan speed control is performed individually among main/sub indoor units.

< Sub indoor unit >
- Indoor unit without serial communication become Sub indoor unit.
- The data of sub indoor unit is not memorized in EEPROM.
  When turned on the power, judgment of main/sub indoor unit is performed every time.



12

Common function and specification

12-1 List of application control function

✓: Command / Monitoring
△: Operation only
◇: Monitoring only

Type	Model Name		System	Function																												AtoA			I/O port				Outdoor unit									Remarks
				Relay Interface BMS-IFLSV4E	Schedule timer TCB-EXS21TLE	TCC-link line	Indoor unit	On / Off	Mode	Setting Temperature	Fan Speed	Timer Function	Schedule Function	Multi language	Energy Save Function	Permit/Prohibit function	Filter sign	Error Display	Error history	Return back	Room temperature monitoring	Ventilation with Indoor	DN code	WEB connection	Option interface connection with BMS-IFDD03E	Digital I/O Relay Interface BMS-IFDD03E	Energy monitoring with BMS-IFWH5E	Energy monitoring Relay Interface BMS-IFWH5E	Demand function	Data analyzer	Error information transfer function by E-mail	On / Off	Mode	Fan Speed	DI	DO	AI	AO	Power peak cut	Snowfall fan	External master ON/OFF	Night operation	Operation mode selection	Error/Operation output	Compressor operation status	Operation output ratio	
1:1	Wired remote controller	RBC-AMT32E	VRF,DI,SDI	-	✓	-	1	✓	✓	✓	✓	✓	-	-	✓	-	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Wired remote controller	RBC-AMS55E-ES/EN		-	-	-	1	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	
	Compact wired remote controller	RBC-ASC11E		-	-	-	1	✓	-	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Remote controller with weekly timer	RBC-AMS41E		-	-	-	1	✓	✓	✓	✓	✓	✓	-	✓	-	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Wired remote controller for Air to Air Heat Exchanger with DX coil unit	NRC-01HE		-	-	-	1	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	
	Simple wired remote controller	RBC-AS41E		-	-	-	1	✓	-	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Wireless remote controller kit	RBC-AX32U(W/WS)-E		-	-	-	1	✓	✓	✓	✓	✓	-	-	-	-	-	✓ (*1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		RBC-AX33CE		-	-	-	1	✓	✓	✓	✓	✓	-	-	-	-	-	✓ (*1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		TCB-AX32E2		-	-	-	1	✓	✓	✓	✓	✓	-	-	-	-	-	✓ (*1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		RBC-AX32UW(W)-E		-	-	-	1	✓	✓	✓	✓	✓	-	-	-	-	-	✓ (*1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		RBC-AX32UM(W)-E		-	-	-	1	✓	✓	✓	✓	✓	-	-	-	-	-	✓ (*1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		RBC-AX41U(W)-E	SDI(R32)	-	-	-	1	✓	✓	✓	✓	✓	-	-	-	-	-	✓ (*1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CRC (*6)	Schedule timer	TCB-EXS21TLE	VRF,DI,SDI	-	-	1	64	✓	-	-	-	✓	✓	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Central remote controller	TCB-SC643TLE		-	✓	1	64	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	3	2	-	-	-	-	-	-	-	-	-	-	
	Smart BMS manager	BMS-SM1280HTLE		-	✓	2	128	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	4	✓	4	✓	-	-	✓	✓	✓	3	2	-	-	-	-	-	-	-	-	-	-	
	Smart BMS manager with data analyzer	BMS-SM1281ETLE		-	✓	2	128	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	4	✓	4	✓	✓	✓	✓	✓	✓	3	2	-	-	✓	-	-	-	-	-	-	-	
	Touch Screen Controller	BMS-CT1280E		-	✓	2	128	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	4	✓	4	✓	✓	✓	✓	✓	✓	8	4	-	-	✓	-	-	-	-	-	-	-	
		BMS-CT5121E		✓	-	12	512	✓	✓	✓	✓	✓	✓	-	-	✓	✓	✓	✓	-	✓	-	-	-	✓	8	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-	-	-	-	-	
	Smart device control interface	BMS-IWF0320E		-	✓	1	32	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	
BMS (*6)	Lon Interface	TCB-IFLN642TLE		-	-	1	64	✓	✓	✓	✓	-	-	-	-	✓	✓	✓	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	BN Interface	BMS-IFBN640TLE		-	-	1	64	✓	✓	✓	✓	-	-	-	-	✓	✓	✓	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Modbus Interface	TCB-IFMB641TLE		-	-	1	64	✓	✓	✓	✓	-	-	-	-	✓	✓	✓	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Analog Interface	TCB-IFCB640TLE		-	-	1	64	✓	✓	✓	✓	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	5	8	5	-	-	-	-	-	-	-	-	
	KNX Interface	BMS-IFKX1TLR-E		-	-	-	1	✓	✓	✓	✓	-	-	-	-	✓	✓	✓	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Connect to remote controller bus
	Modbus Interface	BMS-IFM0TLR-E		-	-	-	1	✓	✓	✓	✓	-	-	-	-	✓	✓	✓	-	-	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Connect to remote controller bus
	KNX Interface	BMS-IFKX0AWR-E	Air to Water (Estia)	-	-	-	-	✓	✓	✓	-	-	-	-	-	-	-	✓	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	For ESTIA
	Modbus Interface	BMS-IFMB0AWR-E		-	-	-	-	✓	✓	✓	-	-	-	-	-	-	-	✓	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	For ESTIA

Indoor unit	Remote location ON/OFF Control box	TCB-IFCB-4E2	VRF,DI,SDI	-	-	-	1	✓	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	
	General Purpose Interface	TCB-IFCG1TLE		-	-	1	63	✓ (*4)	✓ (*4)	✓ (*4)	✓ (*4)	-	-	-	-	✓ (*4)	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	4	4 (*5)	2 (*5)	-	-	-	-	-	-	-	-	
	GSM Phone Control Interface	TCB-IFGSM1E		-	-	-	1	✓	-	-	-	-	-	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	GSM SMS
	Remote sensor	TCB-TC41LE		-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Remote sensing of indoor air temperature
	Central control with "1:1 model"	TCB-PCNT30TLE2	DI,SDI	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Connection Interface Kit	TCB-PX30MUE		-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	For 4-way cassette 4series,Compact 4-way cassette 2series
	Connectors	TCB-KBCN32VEE	VRF,DI,SDI (Not all)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	△	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	CN32 on indoor unit
		TCB-KBCN60OPE		-	-	-	1	◇	◇	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	CN60 on indoor unit
		TCB-KBCN61HAE		-	-	-	1	✓	-	-	-	-	-	-	-	△	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	CN61 on indoor unit
		TCB-KBCN70OAE		-	-	-	1	-	-	-	-	-	-	-		-	△	△	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	CN70 on indoor unit
		TCB-KBCN73DEE		-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	△	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	CN73 on indoor unit
		TCB-KBCN80EXE		-	-	-	1	-	-	-	-	-	-	-	-	-	-	△	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	CN80 on indoor unit
Outdoor unit	Power peak-cut control board	TCB-PCDM4E	VRF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	✓	-	-	-	-	-	-	-	CN513 on Outdoor unit
	External master ON/OFF control board	TCB-PCMO4E		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-	△	△	△	△	-	-	-	CN509,CN512,CN508,CN510 on Outdoor unit
	Output control board	TCB-PCIN4E		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	◇	◇	◇	CN511,CN514 on Outdoor unit
	Digital Inverter Air Conditioner Application Control Kit	TCB-PCOS1E2	DI-1phase (R410A), SDI-1phase, 1.5-5HP (R410A), SDI (R32(1))	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-	-	△	-	-	△	-	-	◇	-	
	Optional Connector Cable	TCB-KBOS1E		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-	-	△	-	-	△	-	-	◇	-	
	Optional Connector Cable	TCB-KBOS4E	DI-3phase (4)(6), SDI-1phase 3-5HP(4), SDI-3phase(4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	-	-	△	-	-	△	-	-	◇	-	

(*1) : The error indication is displayed with LED of the receiver unit.
(*2) : Error can be recognized by blink of the button on the remote controller. However, error code is not displayed.
(*3) : Schedule timer (TCB-EXS21TLE) needed.
(*4) : Operation of specified indoor units can be controlled with input ports. Setting parameters by programming tool.
(*5) : Accessible to all I/Os from Modbus System TCB-IFMB641TLE.
(*6) : Central control device : Up to 10 units can be connected in one line (TCC-link)

12-2 Specification for Co-existence of each system on the same TCC-link bus line

✓: Command / Monitoring

Model Name	**Central remote controller TCB-SC643TLE**	Schedule timer TCB-EXS21TLE	Smart BMS manager BMS-SM1280HTLE	Smart BMS manager with data analyzer BMS-SM1281ETLE	**Touch Screen Controller BMS-CT1280E**	Touch Screen Controller BMS-CT5121E	**Smart device control interface BMS-IWF0320E**	LonWorks LN Interface TCB-IFLN6427TLE	Modbus Interface TCB-IFMB640TLE	BN interface BMS-IFBN640TLE	Analog Interface TCB-IFCB640TLE	General Purpose Interface TCB-IFCG1TLE	Central remote controller TCB-SC642TLE2	ON-OFF controller TCB-CC163TLE2	Compliant manager BMS-CM1280TLE	BACnet Server BMS-LSV9E+BMS-STBN10E
Central remote controller TCB-SC643TLE	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	-	-	✓	✓	✓	✓
Schedule timer TCB-EXS21TLE	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Smart BMS manager BMS-SM1280HTLE	✓	✓	-	-	✓	-	-	-	-	✓	-	✓	✓	✓	✓	✓
Smart BMS manager with data analyzer BMS-SM1281ETLE	✓	✓	-	-	✓	-	-	-	-	✓	-	✓	✓	✓	✓	✓
Touch Screen Controller BMS-CT1280E	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Touch Screen Controller BMS-CT5121E	✓	✓	-	-	✓	-	-	-	-	✓	-	✓	✓	✓	✓	✓
Smart device control interface BMS-IWF0320E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LonWorks LN Interface TCB-IFLN642TLE	✓	✓	-	-	✓	-	-	-	-	-	-	-	✓	✓	✓	-
Modbus Interface TCB-IFMB640TLE	✓	✓	-	-	-	-	-	-	-	-	-	✓	✓	✓	✓	-
BN interface BMS-IFBN640TLE	✓	✓	✓	✓	✓	✓	-	-	-	-	-	✓	✓	✓	✓	-
Analog Interface TCB-IFCB640TLE	-	✓	-	-	-	-	-	-	-	-	-	✓	✓	✓	✓	-
General Purpose Interface TCB-IFCG1TLE	-	✓	✓	✓	✓	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓
Central remote controller TCB-SC642TLE2	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
ON-OFF controller TCB-CC163TLE2	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compliant manager BMS-CM1280TLE	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
BACnet Server BMS-LSV9E+BMS-STBN10E	✓	✓	✓	✓	✓	-	-	-	-	-	-	✓	✓	✓	✓	-

* TCB-IFMB0TLR-E, TCB-IFKX1TLRE, BMS-IFMB0AWR-E, BMS-IFMB0AWR-E are connected on the AB line.

12-3 System wiring diagram and control wiring method

12-3-1 Applicable model and connectable units

1) Applicable model

- VRF system.....Super modular multi system-e (SMMS-e)
  Super heat recovery multi system-e (SHRM-e)
  Super modular multi system-7(SMMS-7)
  Mini-SMMS-e
- 1:1 model.....Super digital inverter, Digital inverter

2) The number of connectable units

[1] For only VRF system

	Connected unit	No. of units	Note
1	Outdoor unit (Header unit)	Up to 16 units	
2	Outdoor unit (Follower unit)	Up to 3 units	In the same refrigerant system
3	Indoor unit	Up to 64 units	• Max. 64 units in case of group control* • Max. indoor units depends on VRF system
4	Group control for indoor units	Up to 8 units	
5	Central control device	Up to 10 units	• Central remote controller • BMS I/F included

* A Follower indoor unit in a group control must be counted as one indoor unit.

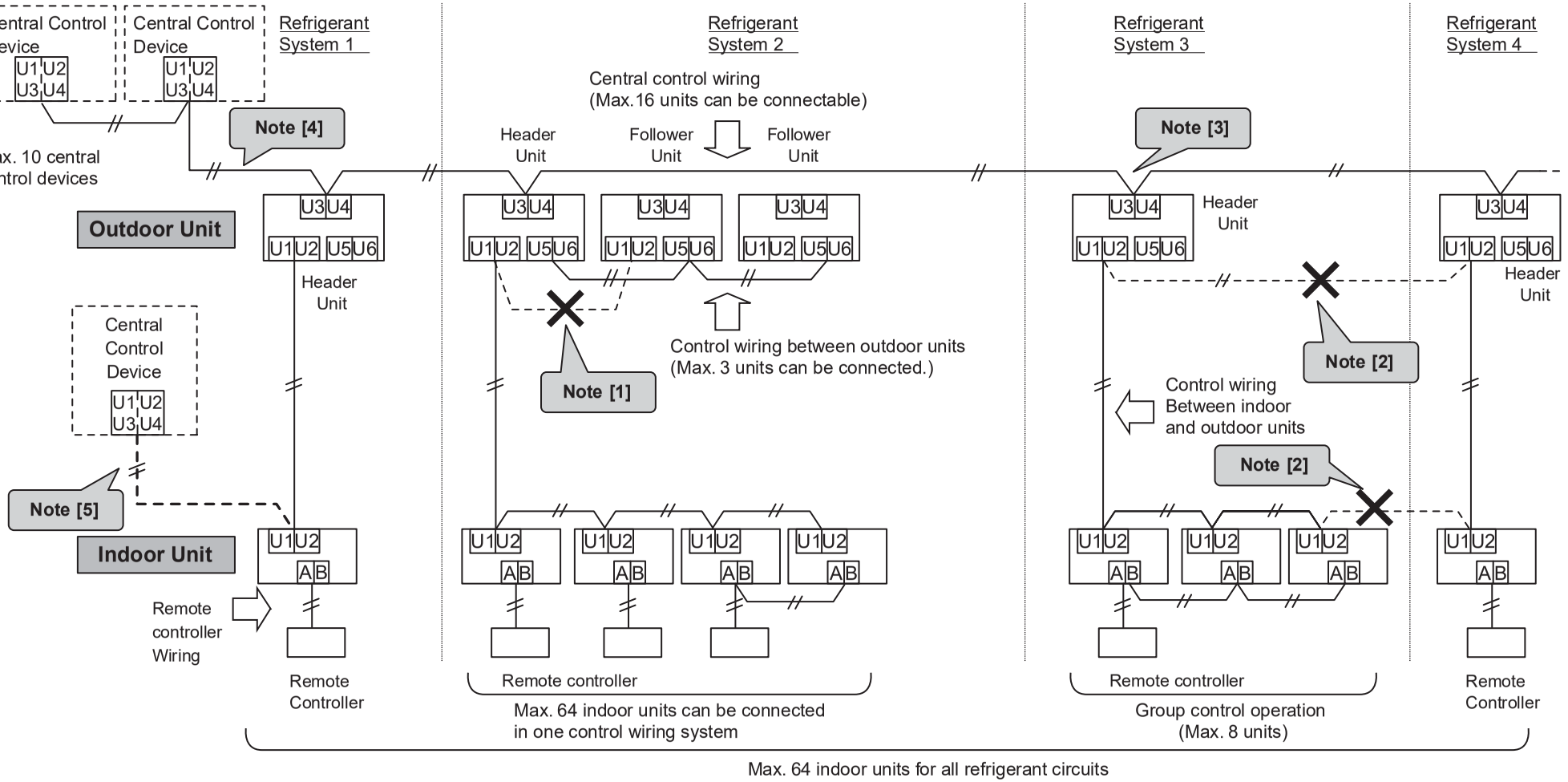
[2] For combined system with Digital Inverter / Super Digital Inverter

	Connected unit	No. of units	Note
1	Outdoor unit (Header unit for VRF system)	Up to 16 units	
2	Outdoor unit (Follower unit for VRF system)	Up to 3 units	In the same refrigerant system
3	Indoor unit	Up to 64 units	• Max. 64 indoor units for both systems. * For 1:1 model, follower indoor units of twin control and group control must not be counted. • For VRF system, Max. 48 indoor units in one refrigerant system.
4	Group control for indoor units	Up to 8 units	
5	Central control device	Up to 10 units	• Central remote controller • BMS I/F included

* Max. 64 refrigerant system can be controlled in total. (VRF and 1:1 model combination).
  (However, for VRF system, up to 16 refrigerant system are connectable.)
* “1:1 model” interface connection is connected to the indoor units.

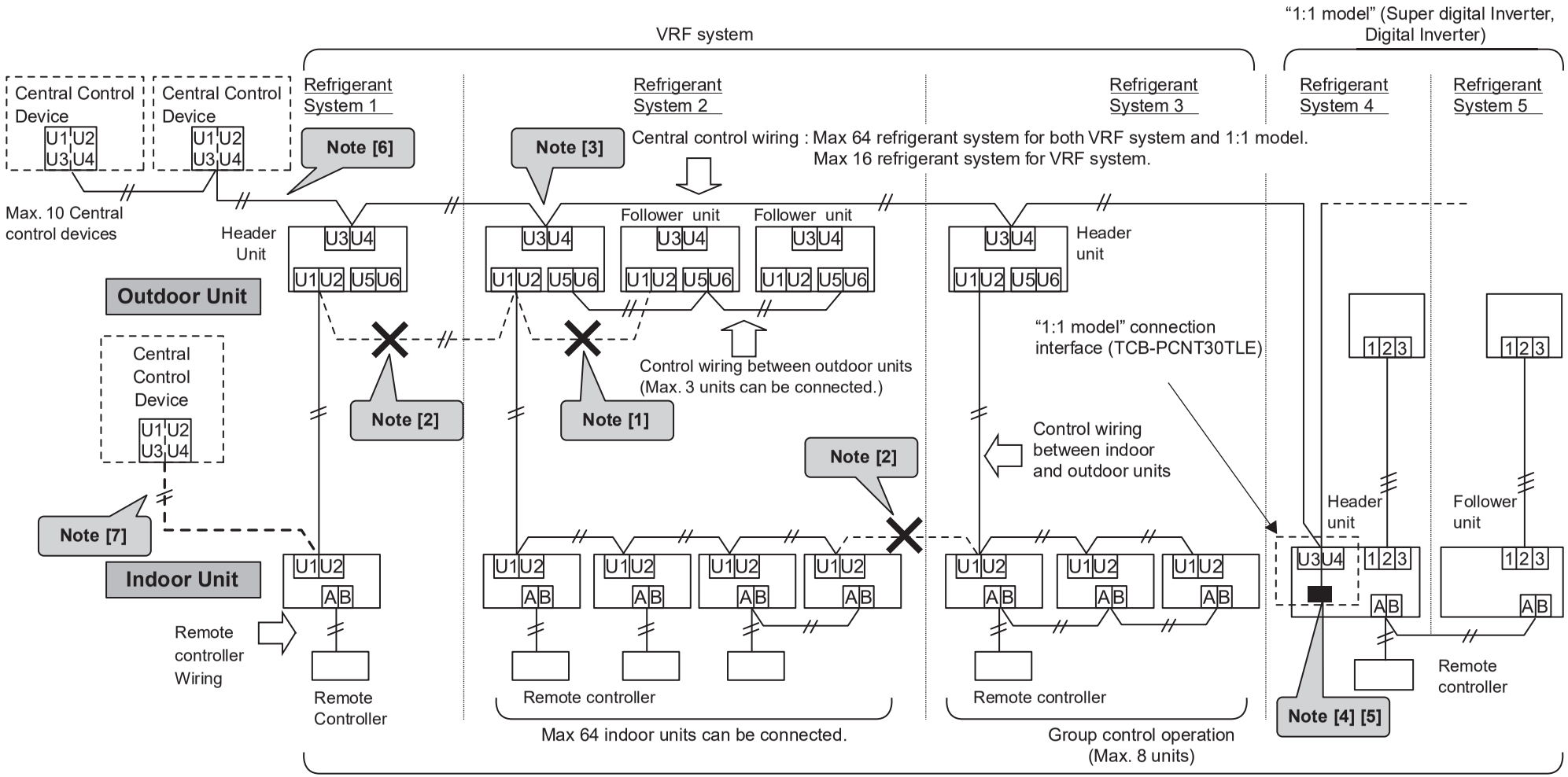
12-3-2 System wiring diagram

For VRF system only



Note) [1] Do not connect indoor/outdoor control wiring to more than one outdoor unit.
(The connection of the indoor/outdoor control wiring will automatically set the outdoor unit as the header unit.)
[2] Do not connect the control wiring between indoor and outdoor units to other refrigerant systems.
[3] Connect central the control wiring to the outdoor header unit.
[4] Connect central control devices to central control wiring.
[5] Central control the devices can be connected to control wiring of indoor and outdoor units.

For combined system with “1:1 model”



Note) [1] Do not connect indoor/outdoor control wiring to more than one outdoor unit.
(The connection of the indoor/outdoor control wiring will automatically set the outdoor unit as the header unit.)
[2] Do not connect control wiring between indoor and outdoor units to other refrigerant systems.
[3] Connect the central control wiring to the outdoor header unit.
[4] When “1:1 model” is controlled by a central control device, “1:1 model” a connection interface will be necessary.
[5] In case of twin control on a 1:1 model, connect “1:1 model” Interface connection to the indoor Header unit.
[6] Connect central control devices to the central control wiring.
[7] Central control devices can also be connected to the control wiring between the indoor and outdoor units.

*** In case of 1:1 model, Re-address setup is necessary for wired controllers.**

12-3-3 Design of control wiring

1. All control wiring is 2-core and non-polarity wire.
2. Ensure use of shielded wire for the following wiring to prevent noise issues.
   - Outdoor-outdoor / indoor-indoor / outdoor-indoor control wiring, Central control wiring.

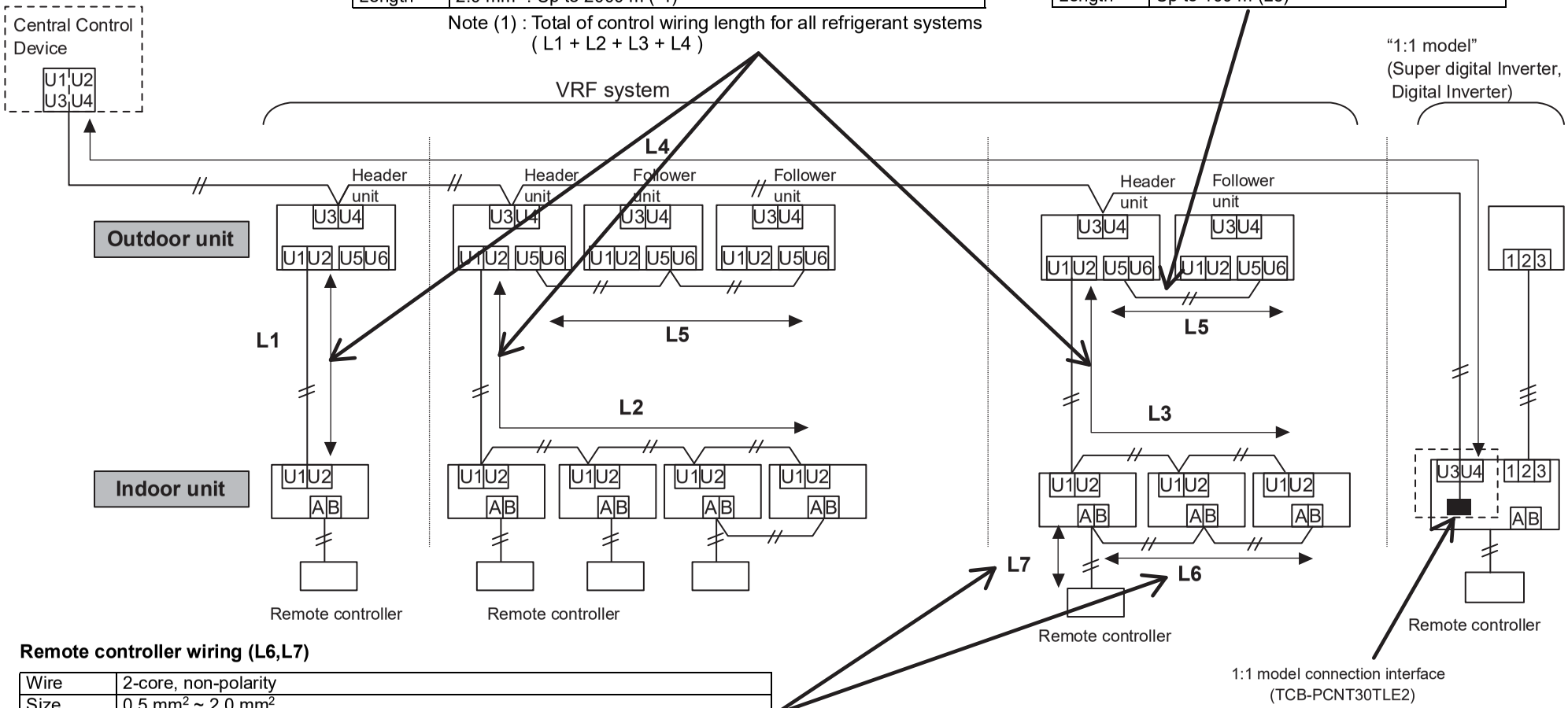
Control wiring between indoor and outdoor units (L1,L2,L3), Central control wiring (L4)

Wiring	2-core, non-polarity
Type	Shield wire
Size	1.25 mm^2 : Up to 1000 m
Length	2.0 mm^2 : Up to 2000 m (*1)

Note (1) : Total of control wiring length for all refrigerant systems (L1 + L2 + L3 + L4)

Control wiring between outdoor units (L5)

Wiring	2-core, non-polarity
Type	Shield wire
Size	1.25 mm^2 ~ 2.0 mm^2
Length	Up to 100 m (L5)

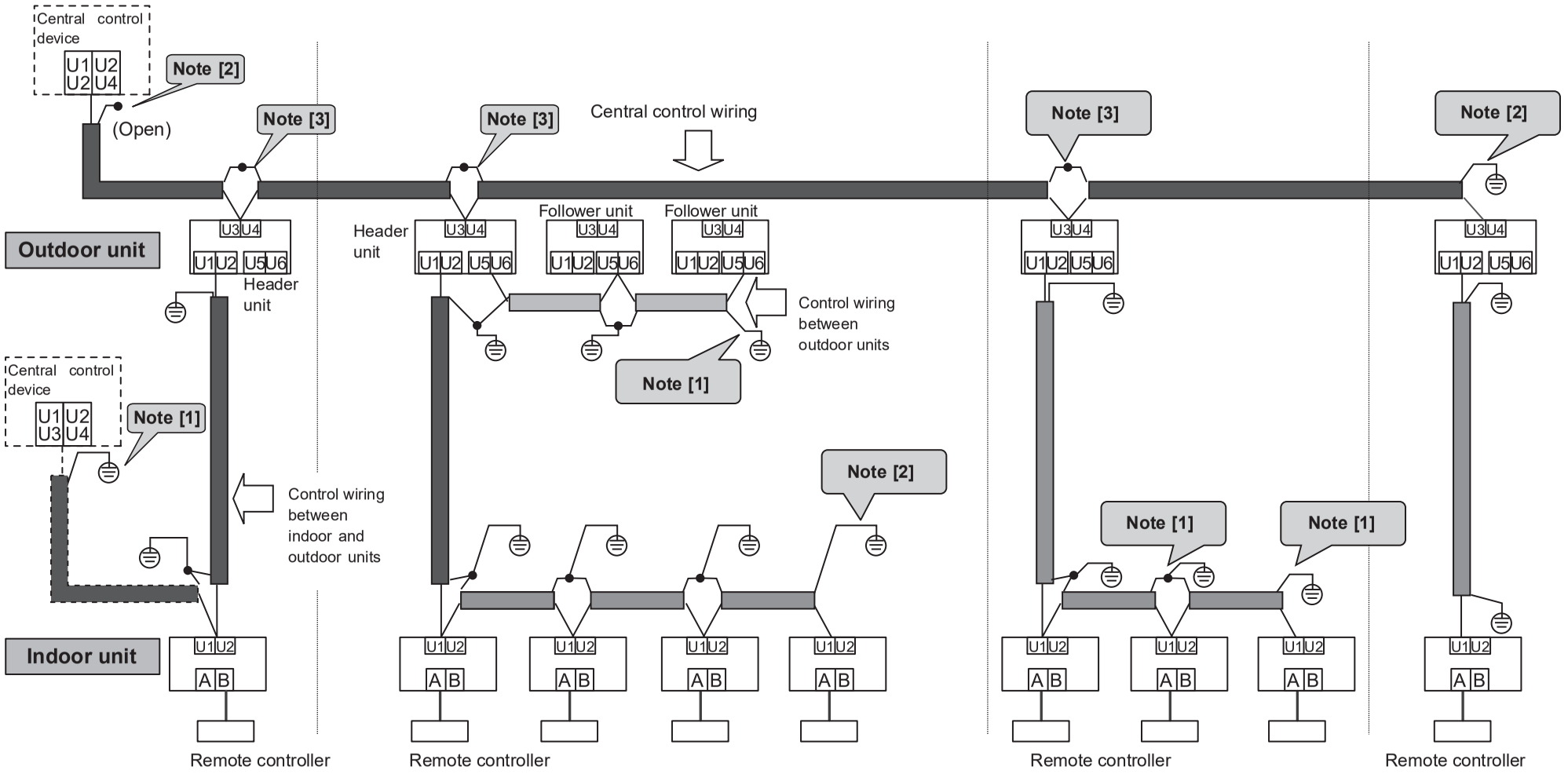


Remote controller wiring (L6,L7)

Wire	2-core, non-polarity
Size	0.5 mm^2 ~ 2.0 mm^2
Length	Up to 500 m (L6 + L7) Up to 400 m when wireless remote controller exists in a group control. Up to 200 m total length of control wiring between indoor units (L6)

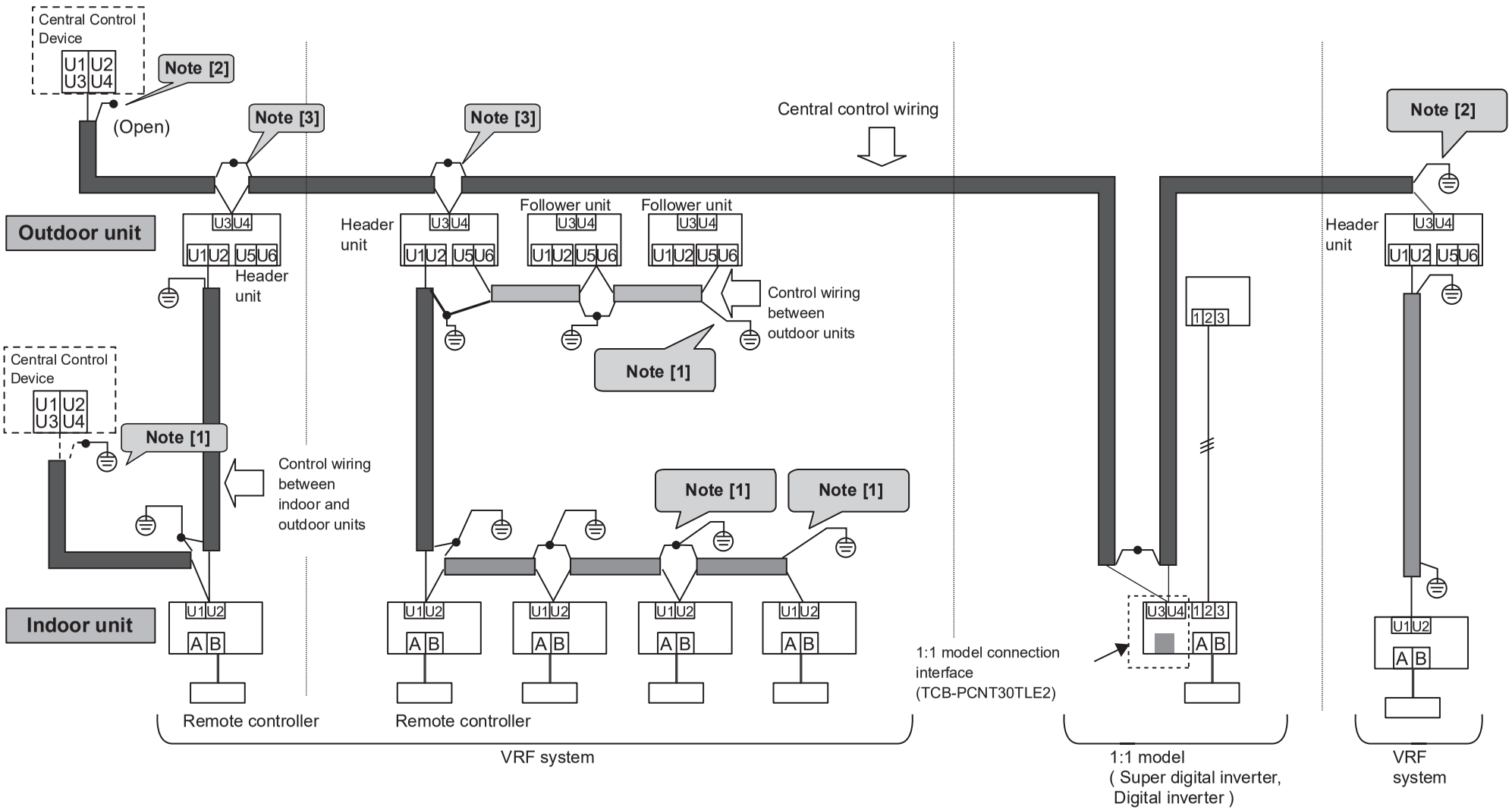
12-3-4 Earth method of shield wiring

For VRF system only



Note) [1] Be sure to close (connect) the end of the shielded wires, and perform the functional earthing for the end of wires which are connected to both indoor and outdoor units.
[2] For the shield wires which are connected between the central remote controller and the outdoor units, perform the functional earthing at only one end of central control wiring. Leave the other end of the wire at its final termination as an open wire.
[3] For the shield wires which are connected only between header outdoor units.

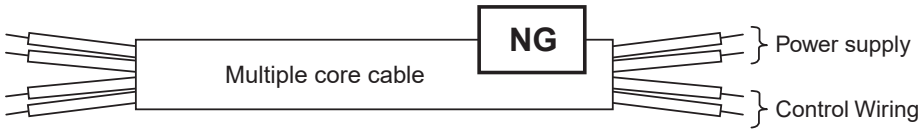
For combined system with "1:1 model"



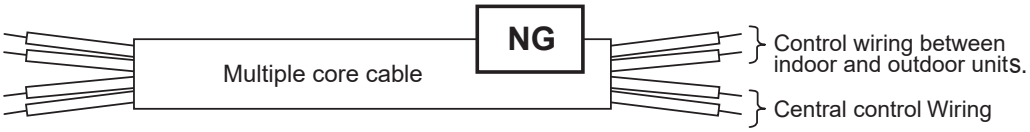
Note) [1] Be sure to close (connect) the end of the shielded wires, and perform the functional earthing for the end of wires which are connected to both indoor and outdoor units.
[2] For the shield wires which are connected between the central remote controller and the outdoor units, perform the functional earthing at only one end of central control wiring. Leave the other end of the wire at its final termination as an open wire.
[3] For the shield wires which are connected only between header outdoor units.

12-3-5 General requirements for control wiring

1) Separate the control wiring and the power supply line to prevent malfunction.
2) Power supply line of the air conditioner must be a minimum of 50 mm.
3) 300 mm or more must be needed from other power source.
4) Ensure the shielded wires on both the indoor and outdoor units are earthed.
5) Control wiring and power supply line should not be wired in the same multiple core cable.

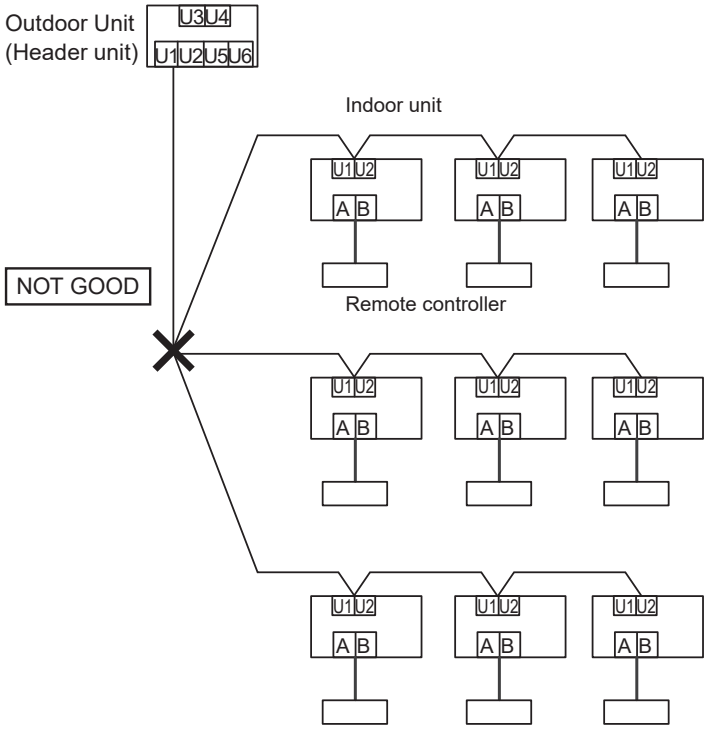


6) Do not wire two or more control wires in the same multiple core cable.



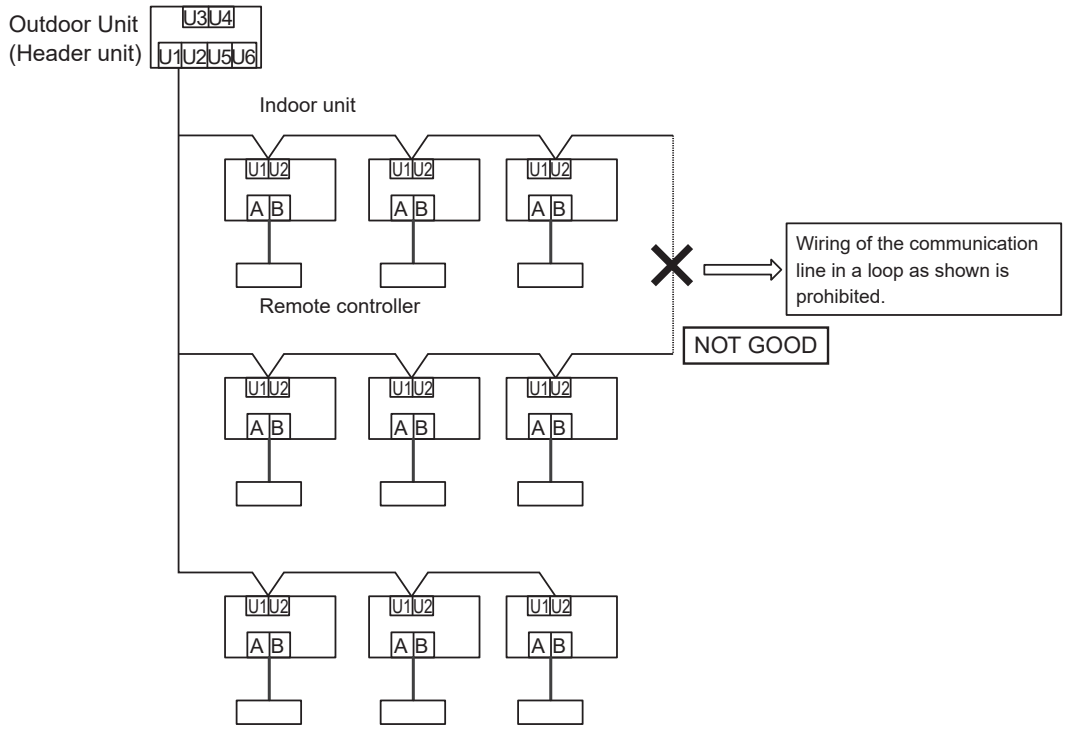
7) When high harmonic devices are located near to the air conditioner, the air conditioner must be re-located to a minimum of 3 m from these devices.

Connection of four or more control wires to one terminal is prohibited.



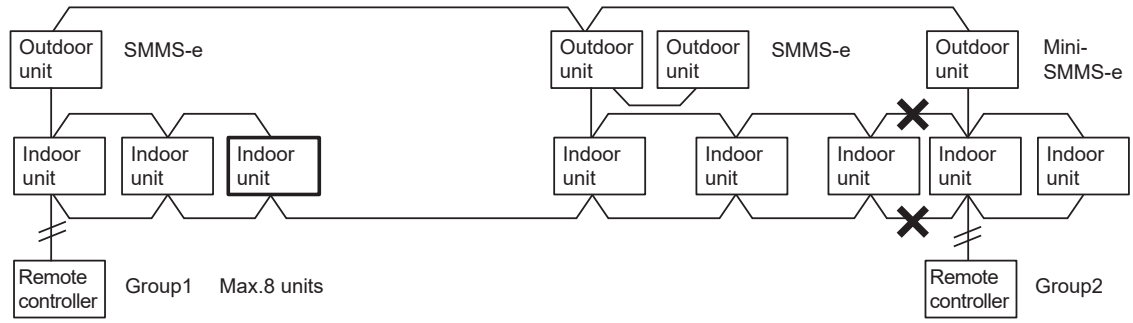
NOTE

Looped wiring of control wires is prohibited.



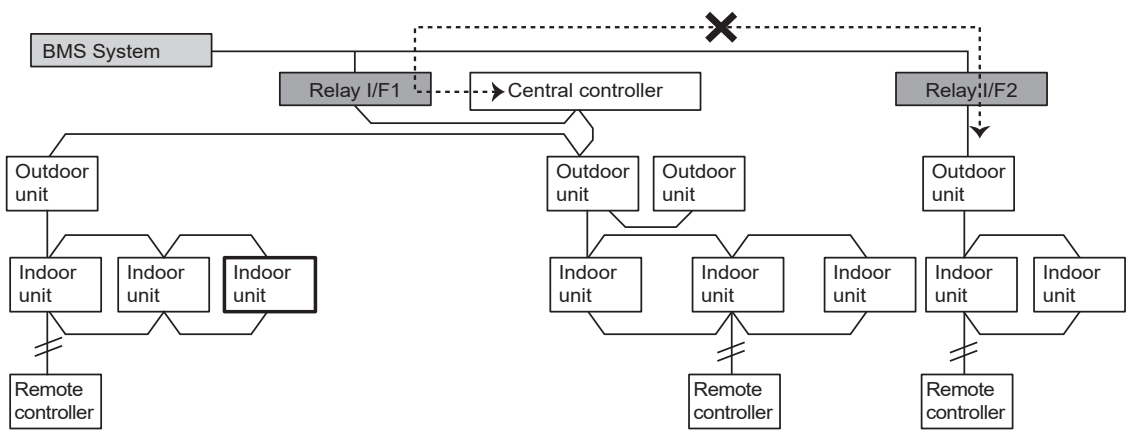
NOTE

Do not mix two or more of the following types of indoor units in a group: SMMS-e, Mini-SMMS-e, SHRM-e and DI/SDI.

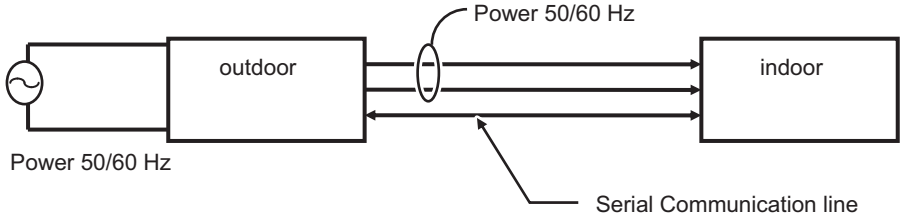


NOTE

Relay I/Fs do not relay communication between separated TCC-Link buses. (The central controller in the figure below cannot control the indoor units under Relay I/F2.)



12-4 Indoor / outdoor, Central control Communication Specification

<table>
<tr><th>Category</th><th>Portion</th><th colspan="3">Specification</th></tr>
<tr><td rowspan="8">DI/SDI</td><td>Indoor/outdoor</td><td colspan="3"> 

<table>
<tr><td>Communication method</td><td>Power-supply synchronous full duplex communication</td></tr>
<tr><td>Communication speed</td><td>50/60 bps (Power-supply frequency 50/60 Hz)</td></tr>
<tr><td>Power-supply frequency</td><td>50/60 Hz</td></tr>
</table></td></tr>
<tr><td rowspan="3">Central control</td><td>Max Indoor/outdoor number</td><td colspan="2">See 2.1</td></tr>
<tr><td>Communication speed</td><td colspan="2">9600 bps</td></tr>
<tr><td>Physical specification</td><td colspan="2">2 wires HBS</td></tr>
<tr><td rowspan="3">Remote controller</td><td>Max Remote controller number</td><td colspan="2">2</td></tr>
<tr><td>Communication speed</td><td colspan="2">2400 bps</td></tr>
<tr><td>Physical specification</td><td colspan="2">2 wires +18 v signal on power</td></tr>
<tr><td rowspan="3">VRF</td><td>Indoor/outdoor Central control</td><td colspan="3">See 2.1
Same as DI/SDI’s Central control</td></tr>
<tr><td rowspan="2">Indoor-sub bus remote controller</td><td>Max Indoor/outdoor Remote controller number</td><td colspan="2">Remote controller: 2, indoor: 8, others, total max 10</td></tr>
<tr><td colspan="3">Other :Same as DI/SDI remote controller bus</td></tr>
</table>

Control wiring (TCC-Link)
Main bus

Connection devices	Type	Q’ty	Size total length			Polarity	Others
			Up to 100 m	Up to 1000 m	Up to 2000 m		
Control wiring (Outdoor to Indoor / Indoor to Indoor / Central Control wiring)	Shield wire	2 cores	-	1.25 mm^2	2.0 mm^2	Non Polarity	Locally procured
Control wiring (Outdoor to Outdoor)		2 cores	1.25 to 2.0 mm^2	-			

Sub bus (remote controller)

Connection devices	Type	Q’ty	Size total length		Polarity	Others
			Indoor A/B Terminal - Remote controller Terminal			
			Up to 200 m	Up to 300 m		
Remote controller wiring (Indoor to Remote Controller wiring)	Shield wire	2 cores	IN CASE OF INCLUDING WIRELESS	IN CASE OF ONLY WIRED	Non Polarity	Locally procured
			Up to 200 m total length of control wiring between indoor units			
			0.5 to 2.0 mm^2			

BMS-related wiring
For details, refer to the Installation Manual of each BMS device.

Connection devices	Type	Q'ty	Size	Length	Polarity	Others
Power line for BMS	H07 RN-F or 245IEC66 AC220 V-240 V 50 Hz/60 Hz	2 cores	0.75 mm^2	Max 50 m	Non Polarity	Locally procured
RS485 for BMS	Shield wire	2 cores	1.25 mm^2	Max total 500 m	With Polarity	Locally procured
Digital Input / Output signal Line for Compliant Manager / Touch screen	227IEC75	2 cores	0.5 mm^2	Max 100 m	Non Polarity	Locally procured
Power meter for Energy monitoring Relay I/F	227IEC75	2 cores	0.3 mm^2	Max 100 m	Non Polarity	Locally procured
Digital I/O for Relay I/F to Input / Output signal	227IEC75	2 cores	0.3 mm^2	Max 100 m	With Polarity For output	Locally procured
Controller to Schedule Timer	-	4 cores	-	-	-	Attached with Schedule Timer
Ethernet line for Compliant Manager / Touch screen / Web based	Category 5 or 6 UTP straight-cable or Cross cable	8 cores	-	Max 100 m	-	Locally procured

12-5HA Terminal Specification

Compliant to JEM 1427 STANDARD (Partial)

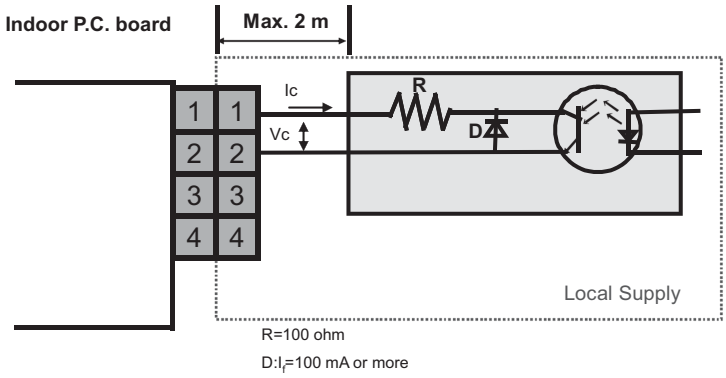
1. General outline of operation input / output terminal

Applicable Housing XHP-4 (vender:JST 2.5 mm pitch)

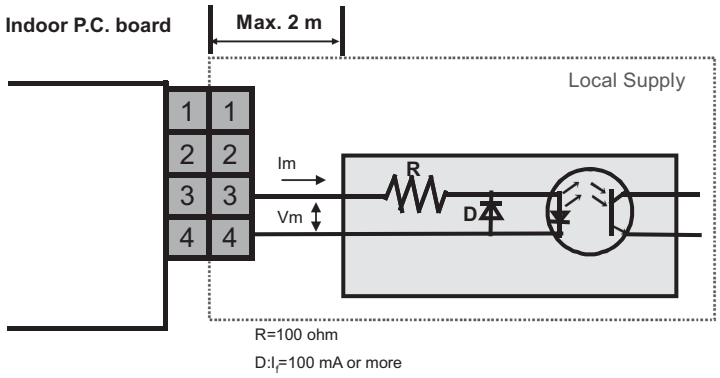
HA Terminal Standard JEM1427 (Japan Electrical Manufacturer's Association)					
Pin No.	**Mark**	**Specification**	**Notes**		
1	**C1**	**Input signal**	Pulse duration	200 to 300 ms	The terminal can input a pulse signal. When indoor unit receives a pulse signal, Indoor unit turns over status of operation or stop. -If the operation of indoor unit is running, then indoor unit terns off. -If the operation of indoor unit is stopped, then indoor unit turns on.
2	**C2**		Pulse interval	200 ms or more	
3	**M1**	**Output signal**	The terminal can output the status signal of operation or stop. When indoor unit is running, a signal is ON. When indoor unit is stopped, a signal is OFF.		
4	**M2**				

2. Structure of operation input / output terminal

2-1. Input signal terminal of operation status



2-2. Output signal terminal of operation status



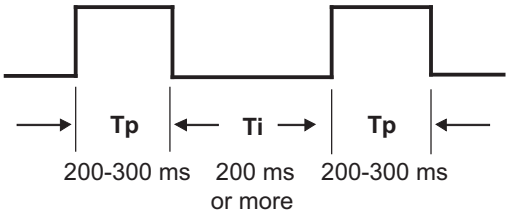
3. The connection condition and specifications of operation input / output terminal

3-1. Input signal terminal of operation status

1. Input pulse signal specifications

Item	Mark	Specification
Pulse duration	Tp	200 ms - 300 ms
Pulse interval	Ti	200 ms or more

2. Input pulse pattern



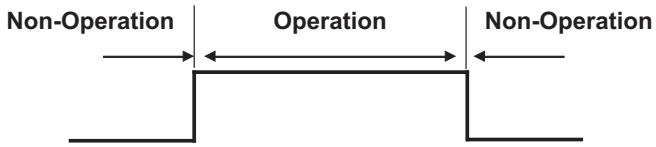
The terminal can input a pulse signal.
When indoor unit receives a pulse signal, Indoor unit turns over status of operation or stop.
- If the operation of indoor unit is running, then indoor unit turns off.
- If the operation of indoor unit is stopped, then indoor unit turns on.

3-2. Output signal terminal of operation status

1. Output signal specification

Item	Specification
Output signal	While indoor unit runs, the signal ON. While indoor unit stop, the signal is OFF.

2. Output signal pattern



The terminal can output the status signal of operation or stop.
When indoor unit is running, a signal is ON. When indoor unit is stopped, a signal is OFF.

3-3. Input and output specification for external circuitry

Terminal	External Photo Coupler Status		Specification		Note
1,2 PIN C1 C2	Ic	ON	Output current	More than 2 mA	
			Max tolerance current	5 mA	
		OFF	Leak current	Less than 50 ìA at Vc=30 v	
	Vc	ON	Operating voltage	Less than 0.6 v at Ic=2 mA	
		OFF	Surge tolerance voltage	More than 30 V	
3,4 PIN M1 M2	Im	ON	Max ON detection current	2 mA	
			Max tolerance current	20 mA	
			Max peak current	50 mA	Average is max 20 mA.
		OFF	Leak current	Less than 10 ìA	
	Vm	ON	Operating voltage	Less than 1.6 v at Im=2 mA	
		OFF	Max voltage	0.3 v	Typical value

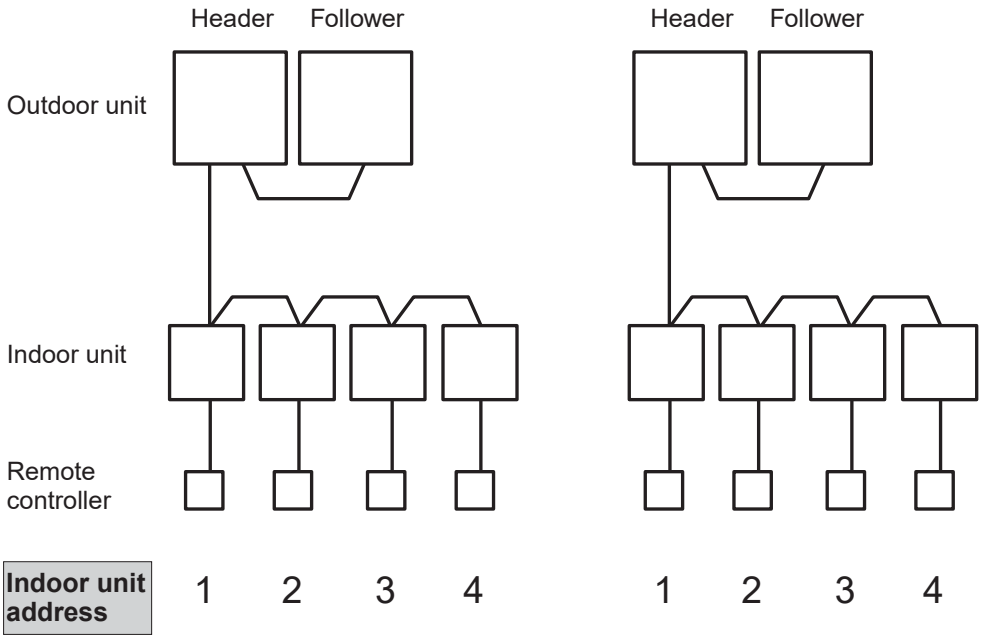
12-6Address Setup

12-6-1 Definition of address

Indoor unit address

<u>"Indoor unit address" This enables the outdoor unit to recognize each individual indoor unit.</u>

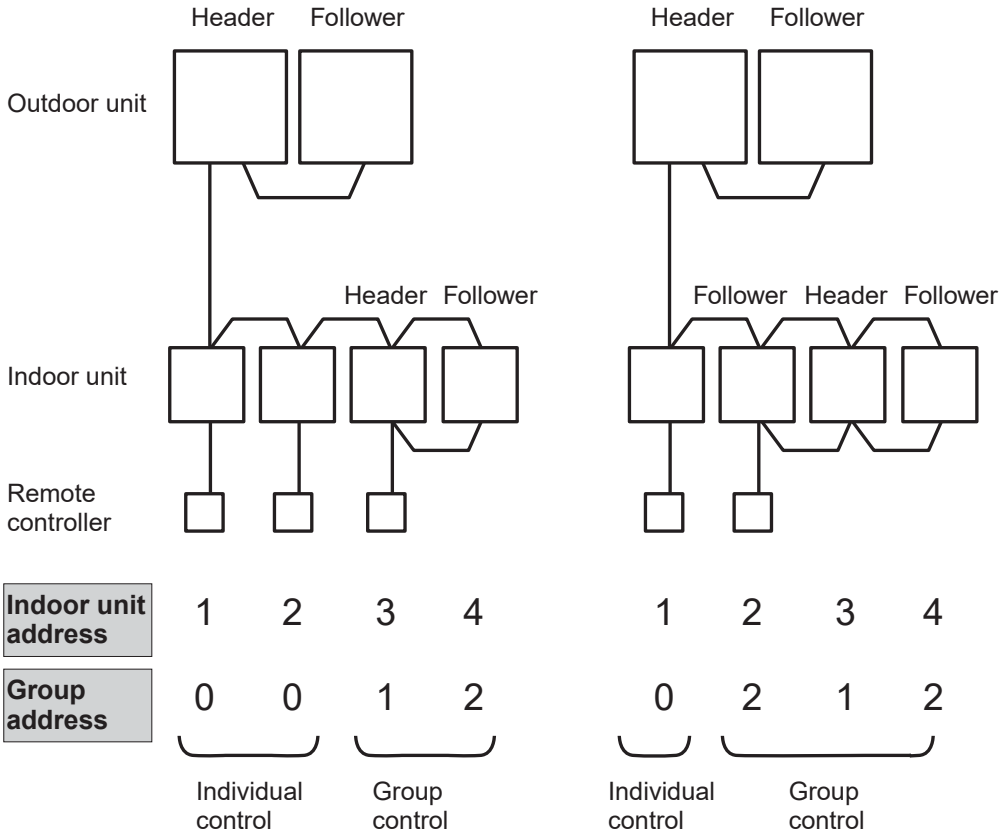
An unique address is allocated to every indoor unit within a refrigeration system.



Group address

<u>"Group address" This is the address that recognizes the group control and determines the header indoor unit and follower indoor unit.</u>

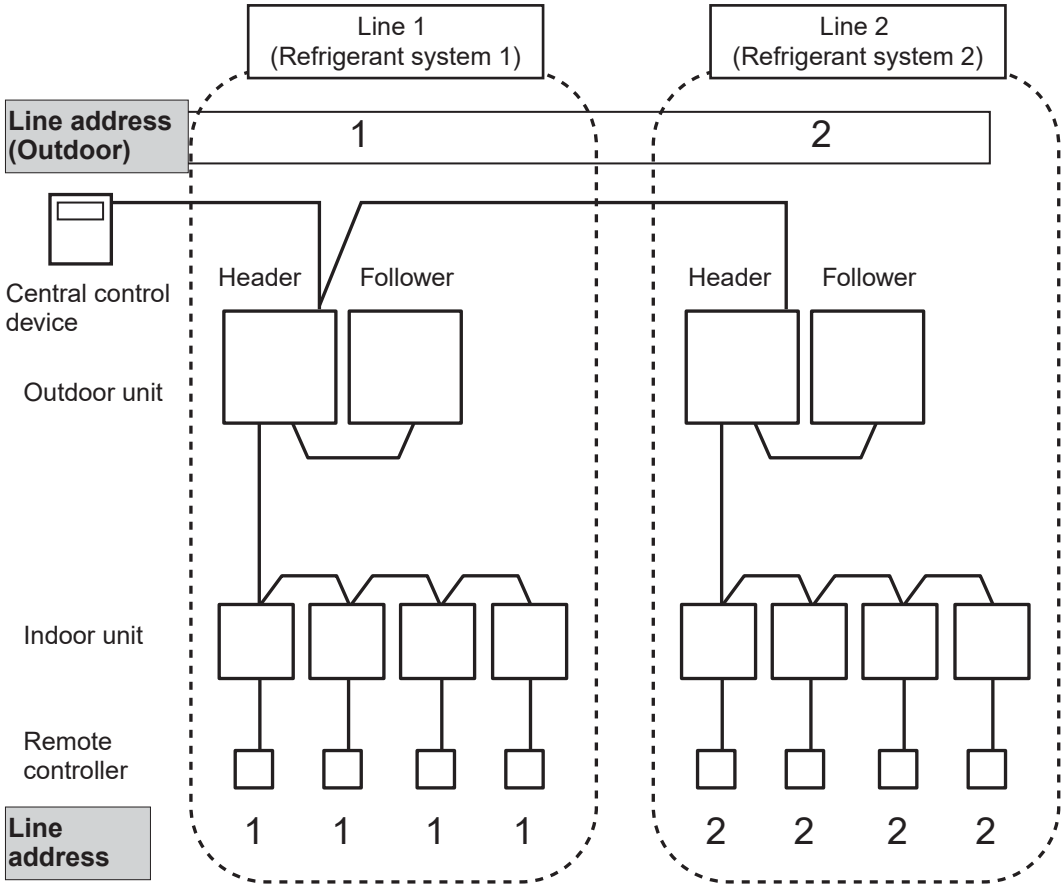
Group address and the header indoor unit is decided automatically when the automatic address setting is performed.
(Which indoor unit becomes the header unit is indefinite when automatic address setting is performed.)
Indoor unit of individual control: Group address = 0
Header indoor unit of group control: Group address = 1
Follower indoor unit of group control: Group address = 2



Line address (System address)

<u>"Line address" is the address in which the line (refrigerant system) indoor units are connected.</u>

This line address is set by a switch setting on the interface P.C. board on the header outdoor unit factory default : Line address is '1'.

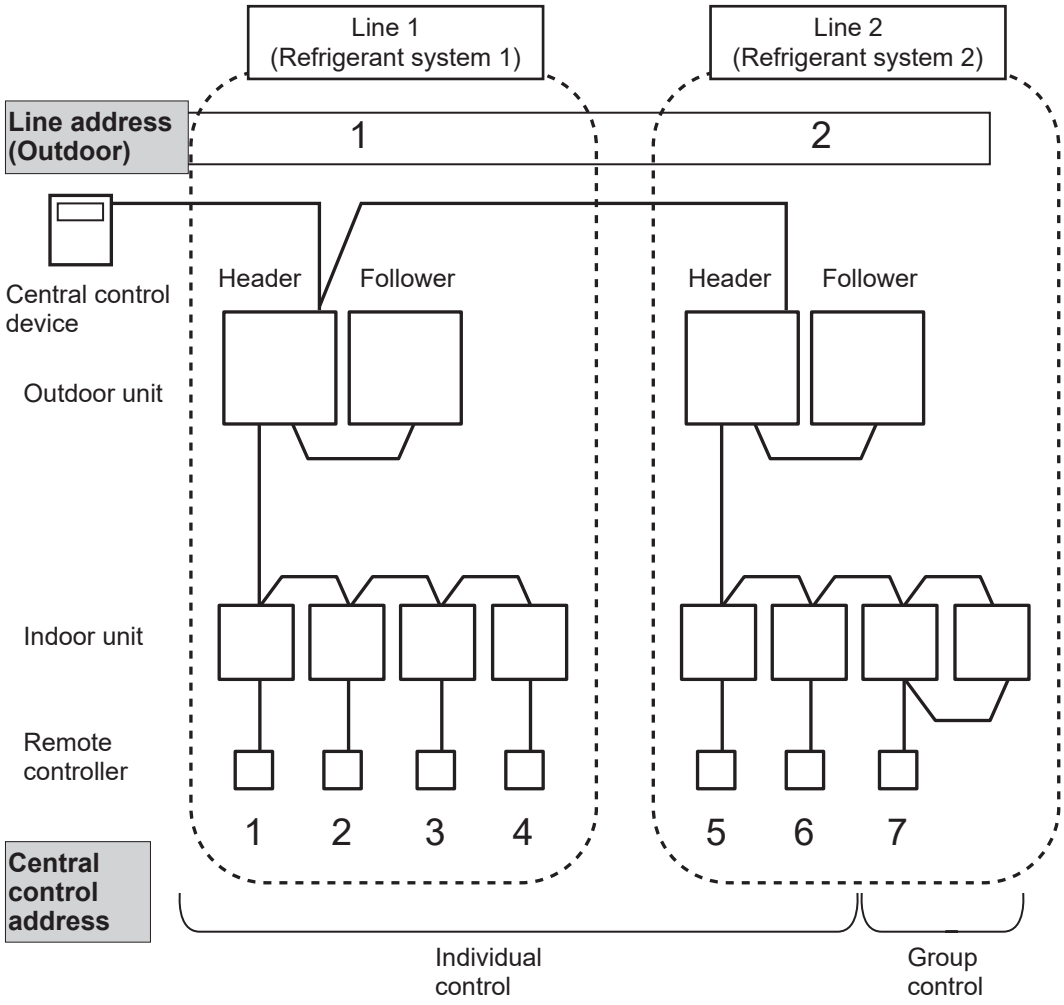


Central control address

“Central control address” is used to make the central control devices recognize each indoor unit.

This address can be set from the central control devices either automatically or manually, or from wired remote controller devices manually.

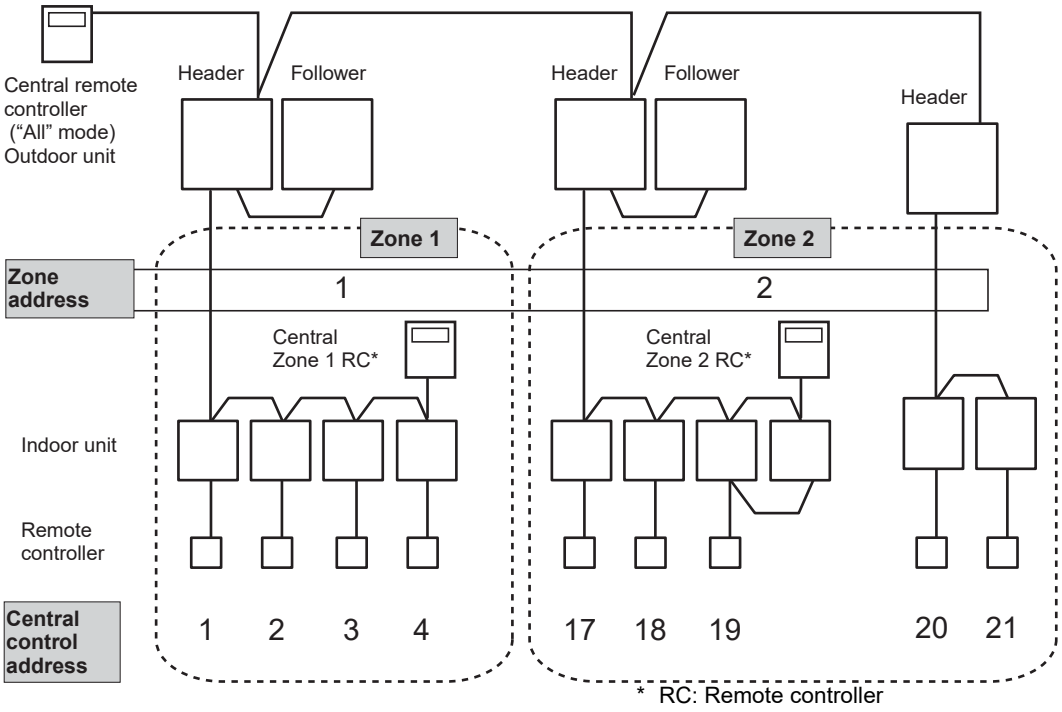
In the case of group control in the VRF systems, one central control address is allocated to each indoor unit in a group control.



Zone address (Zone No.)
<u>"Zone address" is to be set when the central remote controller is used for each zone.</u>
Zone address is set by a switch setting on the central remote controller.

Central remote controller can divide all indoor units into a max. 4 zones.
The zone to which the indoor unit belongs is decided by its central control address.

Central control address	Zone No.
1 to 16	Zone 1
17 to 32	Zone 2
33 to 48	Zone 3
49 to 64	Zone 4



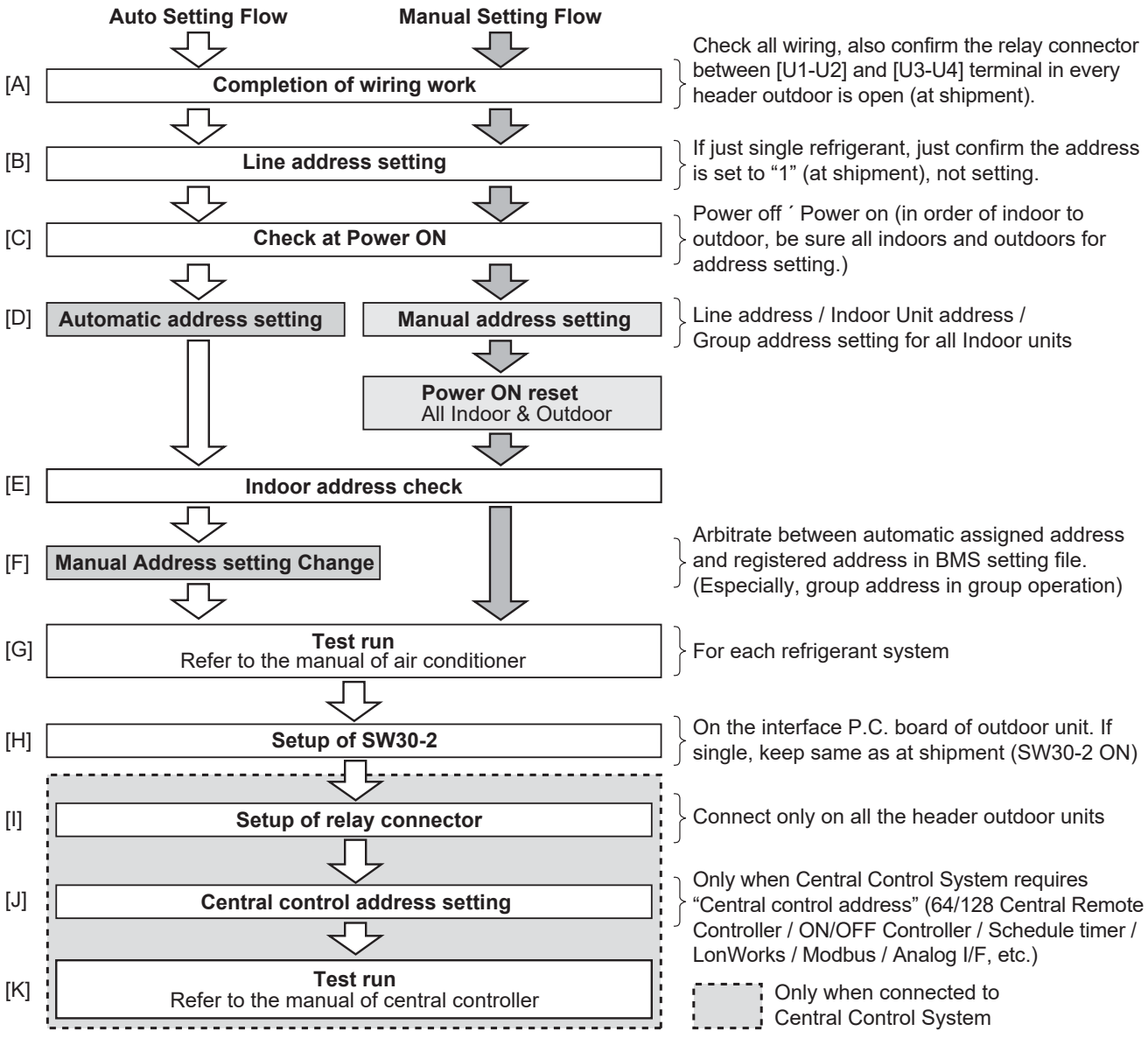
12-6-2 Address setup procedure (For VRF)

In this air conditioner, it is required to set up address the indoor unit before starting the unit.
Set up the units address according to the following setup procedure.

CAUTIONS

1. Set up the address after the wiring work has been completed.
2. Be sure to turn on the power in order of the indoor unit → outdoor unit. If turning on the power in the reverse order, a check code [E19-00] (Error of No. of header units) is displayed. When a check code is displayed, turn on the power again, butt in the correct order.
3. It requires a maximum of 10 minutes (Usually, approx. 5 minutes) to set up automatically an address to 1 line.
4. To set up an address automatically, the setup of the outdoor side is necessary.
   (Address setup cannot be performed by power-ON only.)
5. To set up an address, it is unnecessary to operate the air conditioner.
6. Manual address setup is also available besides automatic setup.
   Automatic address : Setup from SW15 on the interface P.C. board on the header unit
   Manual address : Setup from the wired remote controller
   * It is temporarily necessary to set the indoor unit 1 by 1.
7. When turning on the power after automatic address setting, it takes up to about 10 minutes (usually about 3 minutes) before indoor units start running.

Address setting flow



12-6-3 Address setup procedure (when using DI/SDI only, or using DI/SDI and VRF)

When an outdoor unit and an indoor unit are connected, or when an outdoor unit is connected to each indoor unit respectively in the group operation even if multiple refrigerant lines are provided, the automatic address setup completes with power -ON of the outdoor unit after group construction check (refer to the note below). The operation of the remote controller is not accepted while automatic address works. (Approx.4 to 5 minutes)

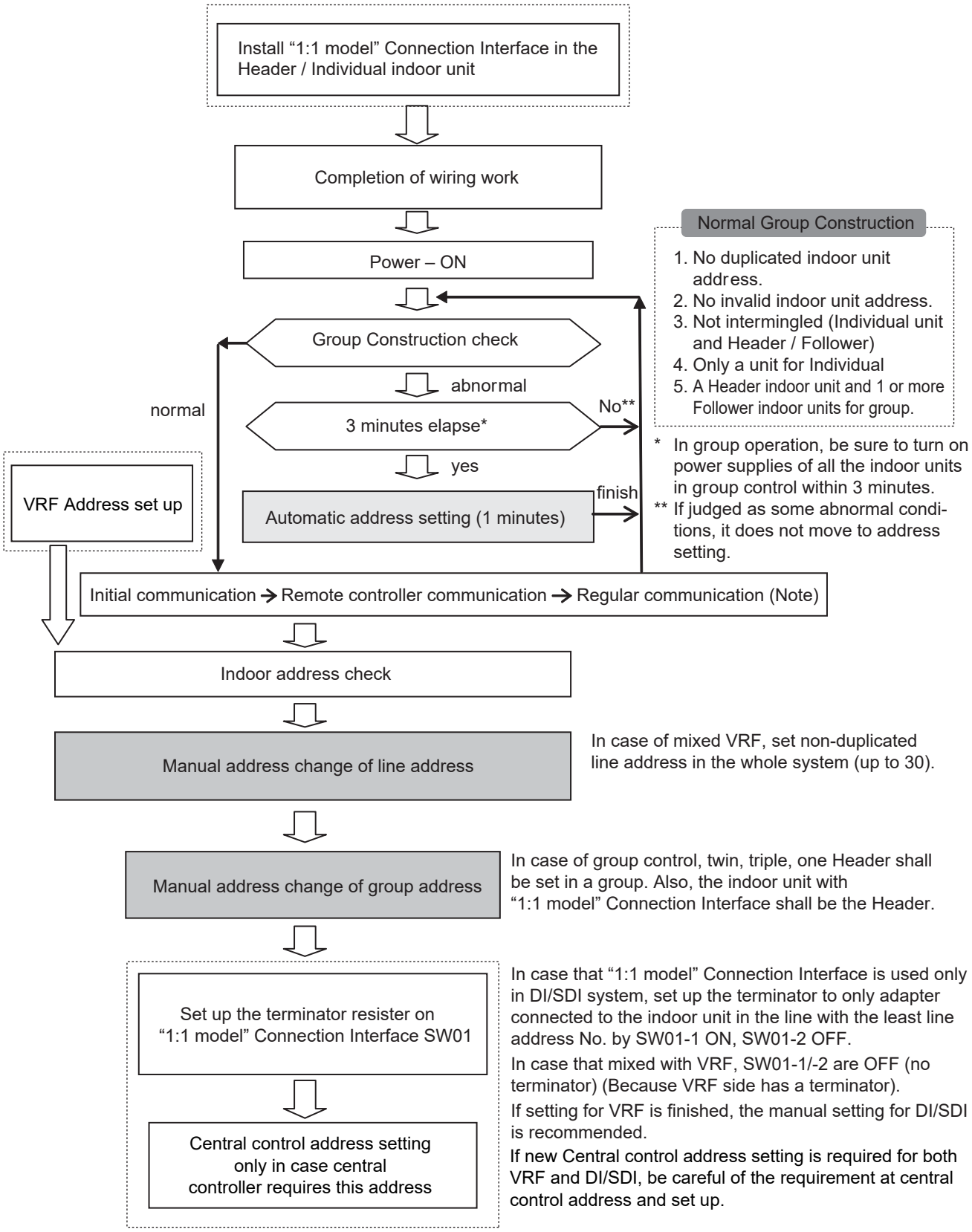
CAUTIONS

1. Set up the address after the wiring has been completed.
2. "1:1 model" Connection Interface TCB-PCNT30TLE2 is necessary for DI/SDI for central control.
   Some of Hi-wall Type does not need "1:1 model" Connection Interface. Please refer to the installation manual of each model.
   Connect the central control devices to U3/U4 wires of the central control system.
3. When "1:1 model" Connection Interface is used for the group control or twin system or triple system, the interface must be connected to the Header unit of the indoor unit. (Connection to Follower unit is unavailable). One "1:1 model" Connection Interface per one group.
4. In group operation, be sure to turn on power supplies of all the indoor units in group control within 3 minutes. When power supply of the Header unit is not turned on, there is a possibility that the Header unit exchanges with Follower unit. (If Header unit is exchanged, the central control is unavailable.)

Note)
If group construction is abnormal, the automatic address sequence starts automatically.
Normal condition is below.

1. **There is no duplicated indoor unit address.**
2. **There is no invalid indoor unit address.**
3. **Individual unit and Header/Follower units are not intermingled.**
4. **Only a unit for Individual.**
5. **A Header indoor unit and 1 or more Follower indoor units for group.**

Address setting flow



12-7 The difference between VRF & DI/SDI in Energy Save operation

[1] The difference between VRF & DI/SDI in Energy Save operation
Please note that the control method in Energy saving operation is different between VRF & DI/SDI.
However the purpose of this function, Energy saving, is same and this function is operated by Remote controller.

<DI/SDI>The method to control power consumption by limiting the peak of the compressor's electric current.
= To control peak current by limiting **% of the current release

<VRF>The style to control FCU capacity
= To control FCU Capacity by limiting **% of the Max capacity

[2] The list of FCU function
-E: For EMEA sales area, Asia (except for Korea, China), and South America.

<DI/SDI>

Energy Save Operation

	RBC-AMS55E-ES/EN	RBC-AMT32E/RBC-AMS41E
O	0%, 50%, Option 50-100% per 1%	Option 50-100% per 1%
#	0%, 50%, Option (Only 75% *4)	Option (only 75% *4)
×	NA	NA

			FCU only function	Combination function with CDU					
				SDI / DI BIG	DI	SDI / DI BIG	DI	SDI / DI BIG	DI
		Series	Linked with A2A HEX by TCC link *1	Energy save operation (Limit the peak of electric current)		Night Operation by only New Controller *2		Frost Protection (8 °C set temp. in heating mode)	
4way	RAV-RM**UTP-E	1	×	O	O	O	O	O *3	O *3
Slim duct	RAV-RM**SDT-E	1							
High static duct	RAV-RM**DTP-E	1							
Compact 4way	RAV-RM**MUT-E	1	O	O	O	O	O	O *3	O *3
Std Duct	RAV-RM**BTP-E	1							
Ceiling	RAV-RM**CTP-E	1							
High Wall	RAV-RM**KRTP-E	1	×						

*1) A2A HEX: VN-M**HE
*2) New Controller: RBC-AMS55E-ES, RBC-AMS55E-EN. This function is only DI/SDI combination SDI, DI BIG.
*3) Initial setting OFF. If you would like to set up 8°C, please set up according to Installation Manual of indoor units.
*4) Only 75%: Even if save ratio is set over 50%, the save operation will be 75% automatically.

<VRF>

Energy Save Operation		RBC-AMS55E-ES/EN	RBC-AMT32E/RBC-AMS41E
	O	0%, 50%, Option (Only 75%) *2	Option (Only75%) *2
	×	NA	NA

			FCU only function	Combination function with CDU	
				SMMS-e	Mini-SMMS-e
		Series	Linked with A2A HEX by TCC link *1	Energy save operation (Limit the FCU capacity)	
2way	MMU-AP***WH	2	×	O	×
Console	MML-AP***NH-E	4			
High Wall	MMK-AP***H	3			
4-way	MMU-AP***HP-E	4	O	O	×
Compact 4way	MMU-AP**MH-E	4			
Slim duct	MMD-AP**SPH-E	4			
Std duct	MMD-AP**BHP-E	6			
High static duct	MMD-AP***HP-E	6			
Ceiling	MMC-AP***HP-E	8			
Floor standing	MMF-AP***H-E	6			
Floor standing concealed type	MML-AP***H-E	4			
Floor standing cabinet type	MML-AP***BH-E	4			
1way YH/SH	MMU-AP***YH-E	4			
High Wall	MMK-AP***MH-E	4	×		

*1) A2A HEX: VN-M**HE
*2) Only 75%: Even if save ratio is set over 50%, the save operation will be 75% automatically.

12-8 Outline of Energy monitoring and billing system

[1] Calculation concept

The following indicates how the energy monitoring system counts for each indoor unit's consumption.

1. **A power meter measures total outdoor power consumption of the corresponding refrigerant systems. Integrated value of pulse signal from power meter is stored in the controller.**
   For example, 40 HP system, a power meter measures power supply line consumption for 40 HP outdoor units.

2. **The controller with energy monitoring function can collect information of how much each indoor unit requests the cooling/heating capacity to the system (demand data) and each unit rating (HP). For example, 40 HP system has 10 units of 4 HP indoor units, each indoor unit has its own capacity request to the system according to the room temp and setting temp history, this demand data are sent to the controller. And all necessary data (demand data, unit rating, power consumption) is stored in the controller.**

3. **The following calculation is performed in Report Creation Software by using stored data in the controller. Demand ratio is the percent figure and calculated by demand data divided by full demand data.**

4. **Calculation**

$$\Psi_A = P_{IN}\left[\frac{R_A \times S_A}{\sum_{n=1}^{n} R_n \times S_n}\right]$$

Where: P_{IN} = Total Power Consumption from power meter (kW) during a period of time

R_n = Unit rating (HP)

S_n = Demand ratio (%)

$_n$ = Number of unit

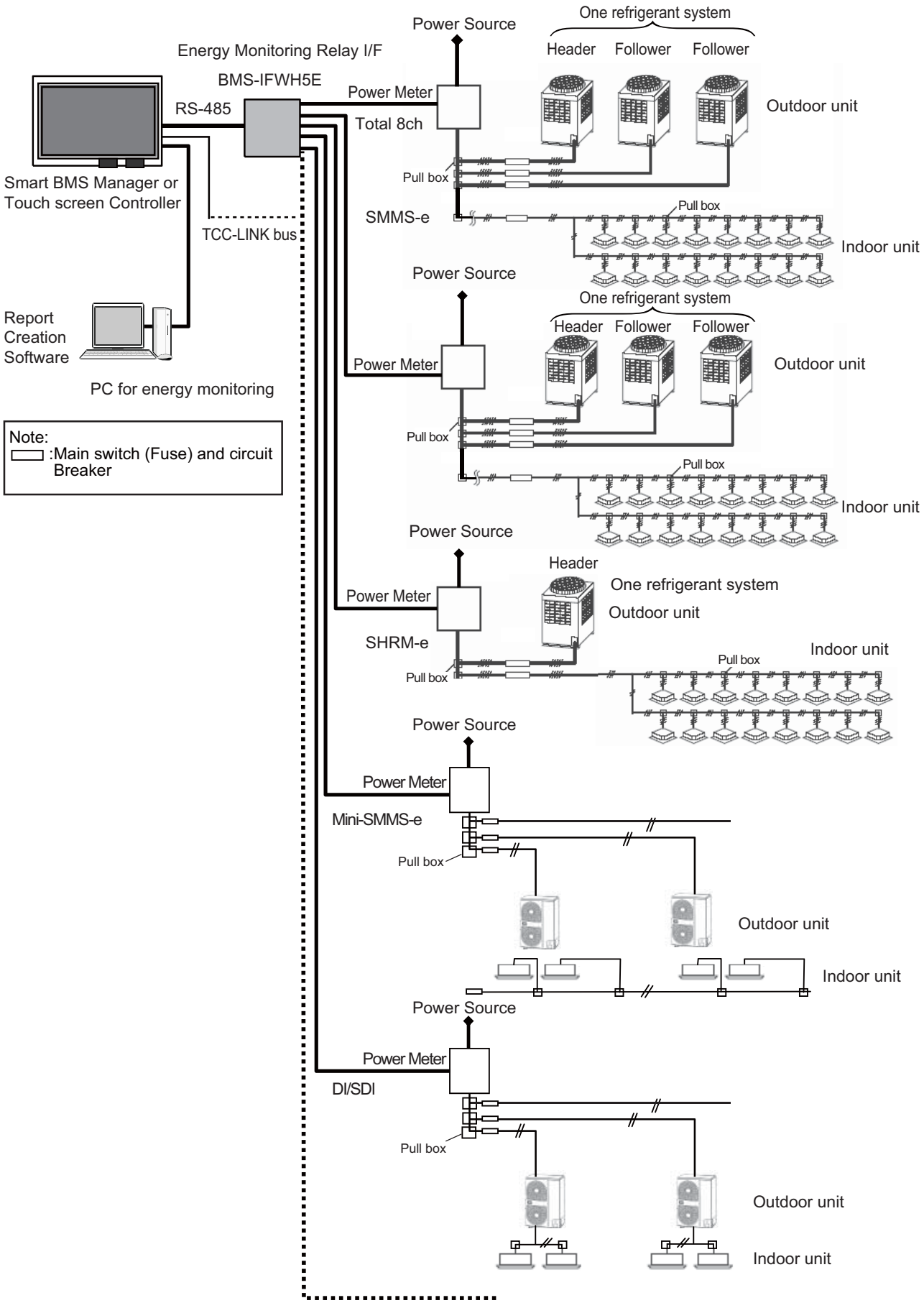
$Ø_A$ = Energy consumption (kW) for a period of time

[2] Power meter Selection and Setting concept

For electricity meters, select an appropriate product which has a non-voltage oscillator output terminal (see note below), considering the required accuracy, phase and wiring of the system and the maximum capacity. Refer to the figure below for installation of electricity meters. Normally, each refrigerant line requires one electricity meter in a SMMS-e/SHRM-e system. Please note that if one refrigerant line consists of plural outdoor units, electricity meter can't be installed on each outdoor unit because of the setting file limitation. In an SMMS-e system, using one meter for two or more refrigerant lines is acceptable if power consumption is expected to be within the range of the measurement accuracy of the meter. In a DI/SDI/Mini-SMMS system, normally one electricity meter is used for two or more outdoor units. The pulse generator constants of the electricity meters must be registered on the setting file of the controller. The constants are separated by the channels of the relay I/F connected to the meters.

[NOTE] The pulse width must be 50-1000 ms and the pulse generator constant (kWh/pulse) must be 0.1-99.9.

[Layout]


Power Source
One refrigerant system
Header
Follower
Follower
Energy Monitoring Relay I/F
BMS-IFWH5E
Power Meter
RS-485
Total 8ch
Outdoor unit
Pull box
Smart BMS Manager or
Touch screen Controller
SMMS-e
Pull box
TCC-LINK bus
Indoor unit
Power Source
One refrigerant system
Header
Follower
Follower
Report
Creation
Software
Power Meter
Outdoor unit
Pull box
Pull box
Indoor unit
PC for energy monitoring
Note:
:Main switch (Fuse) and circuit Breaker
Power Source
Header
One refrigerant system
Power Meter
Outdoor unit
SHRM-e
Indoor unit
Pull box
Pull box
Power Source
Power Meter
Mini-SMMS-e
Pull box
Outdoor unit
Indoor unit
Power Source
Power Meter
DI/SDI
Pull box
Outdoor unit
Indoor unit

12-9 Software Combination for BMS

Software name		Explanation
Smart BMS manager		
	Setting File Creation Software for BMS System	This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.
	Report Creation Software	This software is a piece of software that is used in a PC to arrange the indoor unit operation results that where tallied up by the Smart BMS Manager in a report format. This software will also allow you to print these reports.
	Section Changeover Software	This software renames the zones (Floor, Tenant, Area, Monthly report tenant), and targets.
Smart BMS manager with data analyzer		
	Setting File Creation Software for BMS System	This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.
	Report Creation Software	This software is a piece of software that is used in a PC to arrange the indoor unit operation results that where tallied up by the Smart BMS Manager in a report format. This software will also allow you to print these reports.
	Section Changeover Software	This software renames the zones (Floor, Tenant, Area, Monthly report tenant), and targets.
	Data Analyzer	This software displays a history graph of operating power consumption or time of air conditioners managed with Smart BMS Manager.
Touch screen controller system		
	Setting File Creation Software for BMS System	This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.
	Report Creation Software	This software is a piece of software that is used in a PC to arrange the indoor unit operation results that where tallied up by the Touch screen controller in a report format. This software will also allow you to print these reports.
	Data Analyzer	This software displays a history graph of operating power consumption or time of air conditioners managed with Smart BMS Manager.
BACnet Server		
	Setting File Creation Software for BMS System	This software creates a setting file to be used for the air-conditioning management system. Copies created data using the respective system upload function.

APPLICATION CONTROL MANUAL

October, 2021

Toshiba Carrier Corporation