



technical data

Centralised Control Systems

air conditioning systems

VRV[®] III-S

VRV[®] III

VRV[®] -WII

TABLE OF CONTENTS

Centralised control systems

1	Possible centralised control systems	2
2	DCS302C51: Centralised remote control	3
	Dimensional drawing	3
	Explanation of buttons and functions	4
3	DCS301B51: Unified on/off control	6
	Dimensional drawing	6
4	DST301B51: Schedule timer.....	7
	Dimensional drawing	7
	Explanation of buttons and functions	8
5	Survey of various control systems	9
6	Wiring example of centralised control systems.....	10
7	Length of transmission wiring.....	12
	Wiring example	12
	System example (1)	13
	System example (2)	14
	Number of connectable Units	15
	Flow chart to determine the number of units to be connected	16

1 Possible centralised control systems

Centralised control of the system can be achieved via 3 user friendly compact controls: centralised remote control, unified on/off control and schedule timer. These controls may be used independently or in combination where 1 group = several (up to 16) indoor units in combination and 1 zone = several groups in combination.

A centralised remote control is ideal for use in tenanted commercial buildings subject to random occupation, enabling indoor units to be classified in groups per tenant (zoning).

The schedule timer programmes the schedule and operation conditions for each tenant and the control can easily be reset according to varying requirements.



1

Centralised remote control - DCS302C51

Providing individual control of 64 groups (zones) of indoor units.

- A maximum of 64 groups (128 indoor units, max. 10 outdoor units) can be controlled.
- A maximum of 128 groups (128 indoor units, max. 10 outdoor units) can be controlled via 2 central remote controls in separate locations.
- Zone control
- Group control
- Malfunction code display
- Maximum wiring length of 1,000m (total:2,000m)
- HRV air flow direction & air flow rate can be controlled
- Expanded timer function

Unified on/off control - DCS301B51

Providing simultaneous and individual control of 16 groups of indoor units.

- A maximum of 16 groups (128 indoor units) can be controlled
- 2 remote controls in separate locations can be used
- Operating status indication (normal operation, alarm)
- Centralised control indication
- Maximum wiring length of 1,000m (total:2,000m)

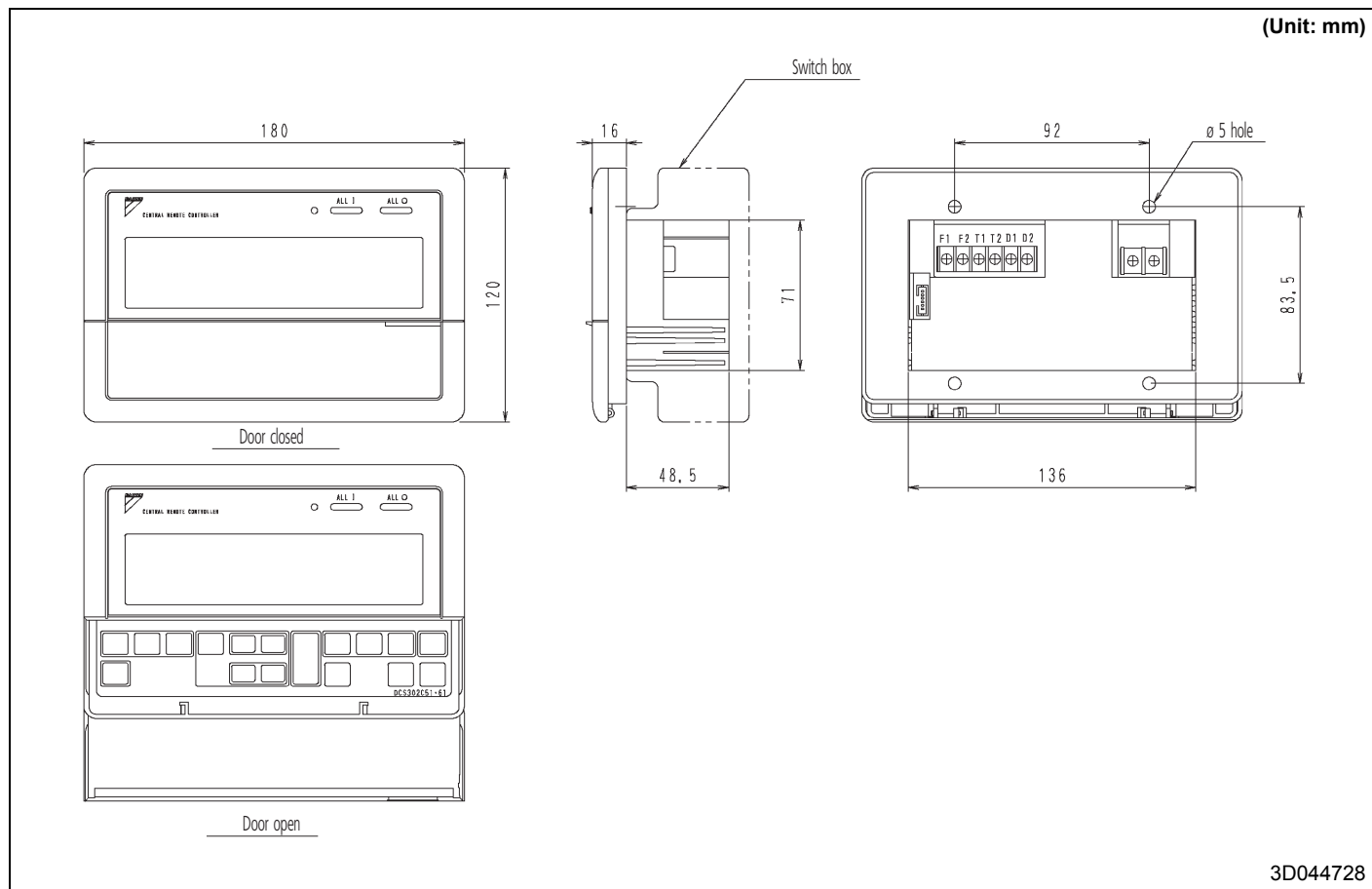
Schedule timer - DST301B51

Enabling 64 groups to be programmed.

- A maximum of 128 indoor units can be controlled
- 8 types of weekly schedule
- A maximum of 48 hours back up power supply
- A maximum wiring length of 1,000m (total:2,000m)

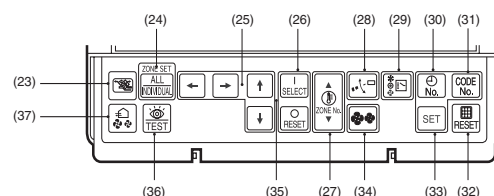
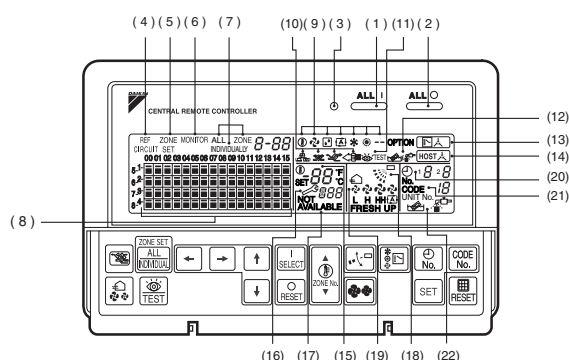
2 DCS302C51: Centralised remote control






























2 - 1 Dimensional drawing



2 DCS302C51: Centralised remote control

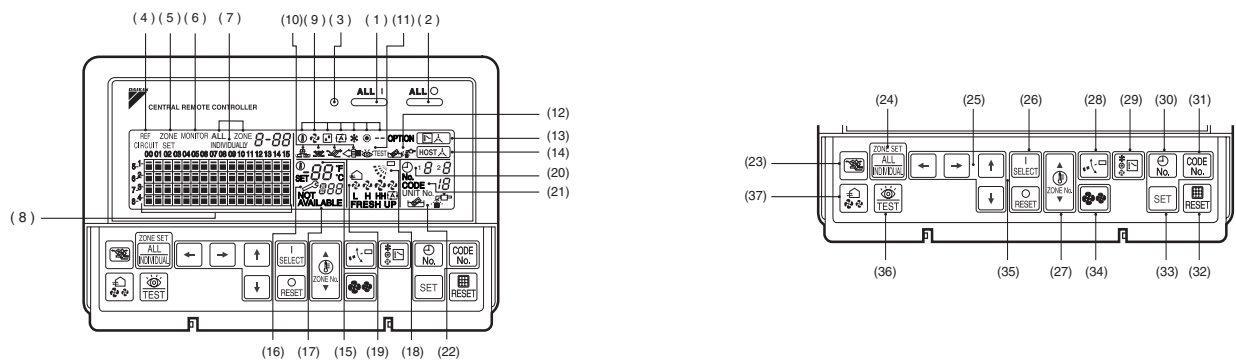
2 - 2 Explanation of buttons and functions



1	UNIFIED OPERATION BUTTON Press to operate all indoor units.	17	"NOT AVAILABLE" DISPLAY (NO FUNCTION DISPLAY) If a function is not available in the indoor unit even if the button is pressed, "NOT AVAILABLE" is may be displayed for a few seconds.
2	UNIFIED STOP BUTTON Press to stop all indoor units.	18	" " DISPLAY (FAN DIRECTION SWING DISPLAY) This displays whether the fan direction is fixed or set to swing.
3	OPERATION LAMP (RED) Lit while any of the indoor units under control is in operation.	19	" " " " "FRESH UP" DISPLAY (VENTILATION STRENGTH/SET FAN STRENGTH DISPLAY) This displays the set fan strength.
4	" "CIRCUIT" DISPLAY (REFRIGERANT SYSTEM DISPLAY) The indication in the square is lit while the refrigerant system is being displayed.	20	" No. " DISPLAY (TIME NO.) Displays the operation timer No. when used in conjunction with the shedule timer.
5	"ZONE SET" DISPLAY (ZONE SETTING) The lamp is lit while setting zones.	21	"CODE No.  " DISPLAY (OPERATION CODE AND UNIT NUMBER DISPLAY) The method of operation (remote controller prohibited, central operation priority after-press operation priority, etc.) is displayed by the corresponding code. This displays the numbers of any indoor units which have stopped due to an error.
6	"MONITOR" DISPLAY (OPERATION MONITOR) The lamp is lit while operation is being monitored.	22	" " " DISPLAY (TIME TO CLEAN AIR CLEANER ELEMENT/TIME TO CLEAN AIR FILTER) Displayed to notify the user it is time to clean the air filter of air cleaner element of the group displayed.
7	"ALL" "ZONE" "INDIVIDUALLY" DISPLAY The status displays indicates either batch functions or which zone or individual unit (or group) are being used.	23	VENTILATION MODE BUTTON This is pressed to switch the ventilation mode of the total enthalphy heat exchanger.
8	OPERATION MONITOR Each square displays the state corresponding to each group.	24	ALL/INDIVIDUAL BUTTON Pressing this button scrolls through the "all screen", "zone screen", and "individual screen"/
9	" " " " " " " " -- " DISPLAY (OPERATION MODE) Displays operating state.	25	ARROW KEY BUTTON This button is pressed when calling an individual indoor unit or a zone.
10	" " " " " <  " DISPLAY (VENTILATION CLEANING DISPLAY) This is displayed when a Ventair total enthalphy heat exchanger unit or other such unit is connected.	26	ON/OFF BUTTON Starts and stops ALL, ZONE, and INDIVIDUAL units.
11	" TEST " DISPLAY (INSPECTION/TEST) Pressing the maintenance/test run button (for service) displays this. This button should not normally be used.	27	TEMPERATURE ADJUSTMENT BUTTON (ZONE NUMBER BUTTON) This button is pressed when setting the temperature. Select the zone number if any zones have been registered.
12	" " " DISPLAY (TIME TO CLEAN) It lights up when any individual unit (group) has reached the time for the filter or element to be cleaned.	28	FAN DIRECTION ADJUSTMENT BUTTON (ZONE NUMBER BUTTON) This button is pressed when setting the fan direction to "fixed" or "swing".
13	" " " DISPLAY (COOLING/HEATING SELECTION PRIVILEGE NOT SHOWN) For zones or individual units (groups) for which this is displayed, cooling and heating cannot be selected.	29	OPERATION MODE SELECTOR BUTTOB This sets the operation mode. The dry setting cannot be done.
14	"H ST  " DISPLAY (UNDER HOST COMPUTER INTEGRATED COTROL) While this display is lit up, no setting can be made. It lights up when the upper central machines are present on the same air conditioning network.	30	TIME NO. BUTTON Selects time No. (Use in conjunction with the shedule timer only.)
15	" " " DISPLAY (PRESET TEMPERATURE) Displays the preset temperature.	31	CONTROL MODE BUTTON Selects control mode.
16	" " " DISPLAY (MALFUNCTION CODE) The displays (flashes) the content of errors when an error failure has occurred. In maintenance mode, it displays the latest error content.		

2 DCS302C51: Centralised remote control

2 - 2 Explanation of buttons and functions



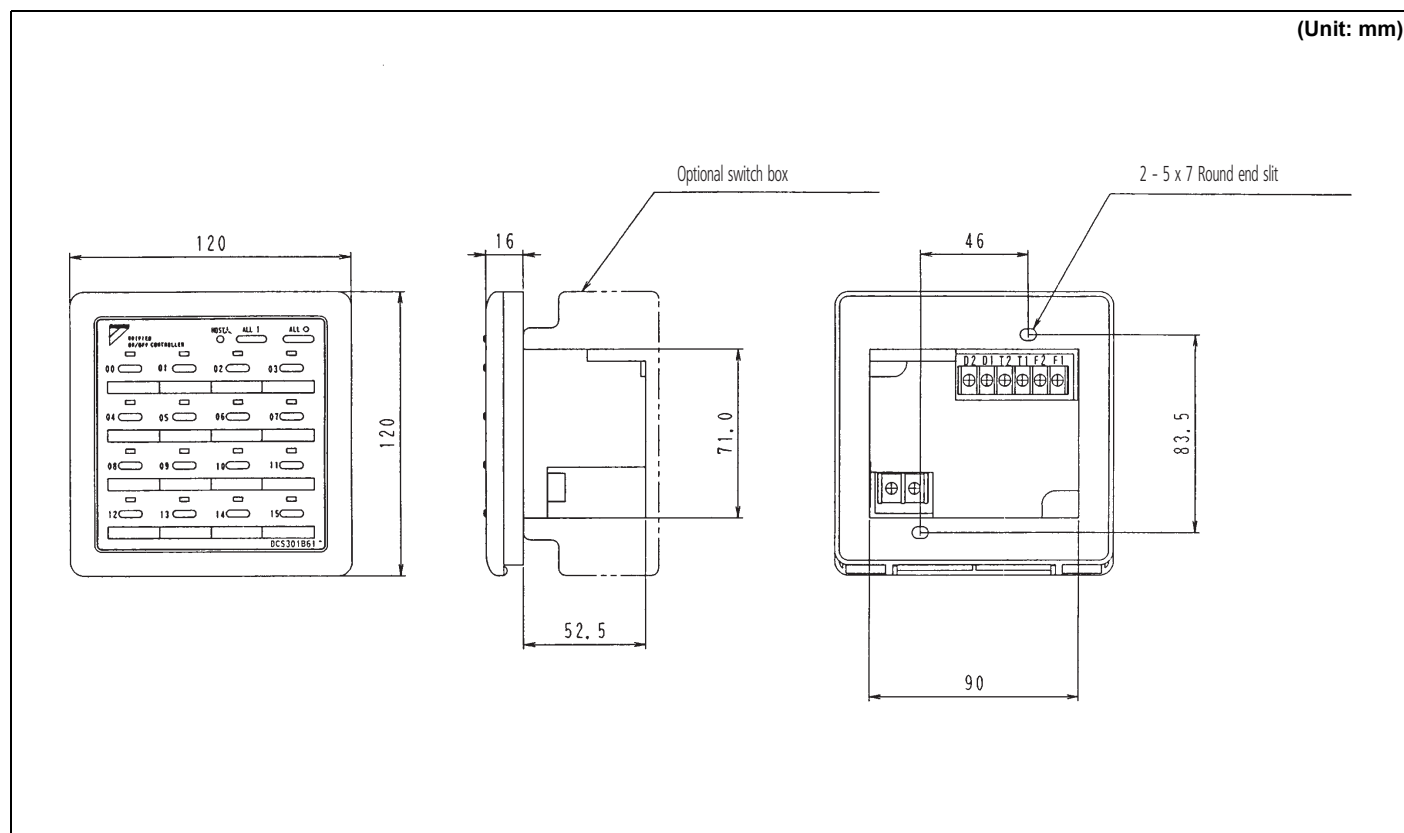
32	FILTER SIGN RESET BUTTON	36	INSPECTION/TEST RUN BUTTON (FOR SERVICE)
	This button is pressed to erase the "clean filter" display after cleaning or replacement.		Pressing this button scrolls through "inspection", "test run", and "system display". This button is not normally used.
33	SET BUTTON	37	VENTILATION STRENGTH ADJUSTMENT BUTTON
	Sets control mode and time No.		This button is pressed to switch the ventilation strength ("fresh up") of the total enthalpy heat exchanger.
34	FAN STRENGTH ADJUSTMENT BUTTON		
	Pressing this button scrolls through "weadé", "strong", and "fast".		
35	ZONE SETTING BUTTON		
	Zone registration mode can be turned on and off by pressing the start and stop buttons simultaneously for at least four seconds.		

NOTES

- 1 Please note that the display shows all indications for the purpose of explanation only. This is contrary to actual running situations.
- 2 If the unit is used in conjunction with other optional centralised control systems, the operation lamp of the unit that is not under operation control may light up and go out a few minutes behind schedule. This shows that the signal is being exchanged, and does not indicate any failure.

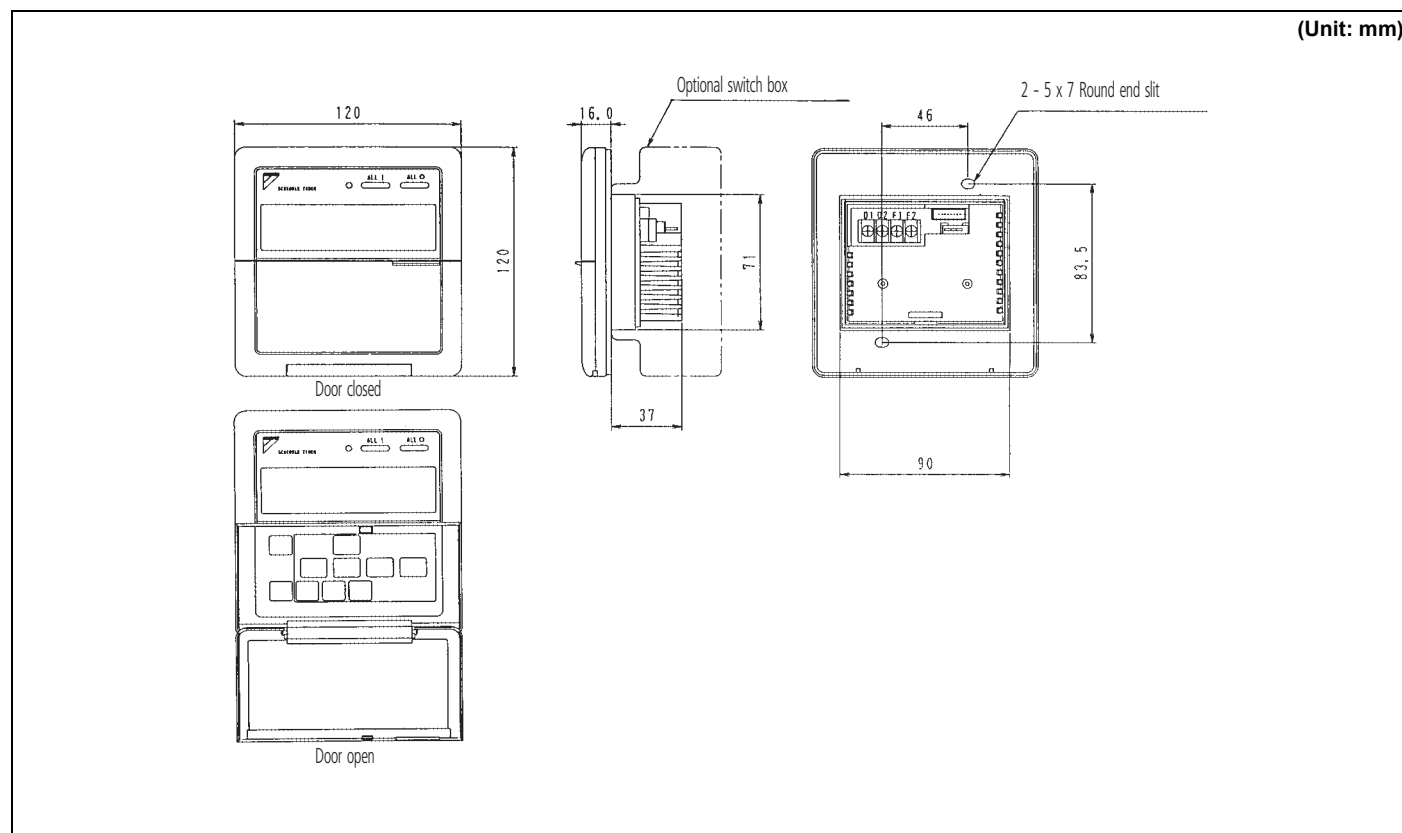
3 DCS301B51: Unified on/off control

3 - 1 Dimensional drawing



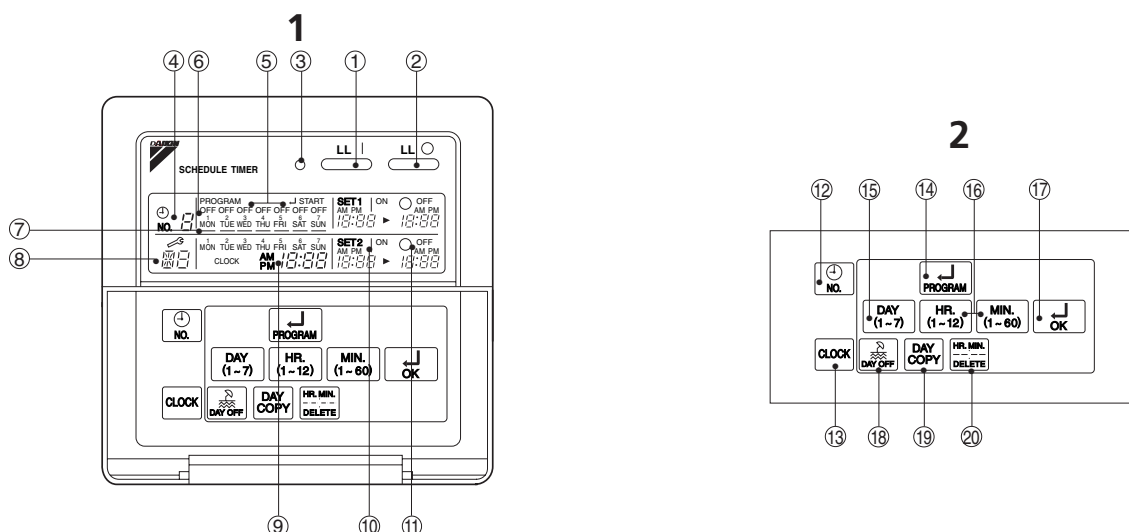
4 DST301B51: Schedule timer

4 - 1 Dimensional drawing



4 DST301B51: Schedule timer

4 - 2 Explanation of buttons and functions



1	UNIFIED OPERATION BUTTON	11	DISPLAY "OFF" (PROGRAMMED TIME OF SYSTEM OFF)
	Press this button to perform the unified operation regardless of the No. of programmed time.	12	Displays the time programmed to stop.
2	UNIFIED STOP BUTTON	13	CLOCK ADJUSTING BUTTON
	Press this button to perform the unified stop regardless of the No. of programmed time.	14	Press this button to set the present time.
3	OPERATION LAMP (RED)	15	PROGRAMMING START BUTTON
	The light turns on during the operation of the indoor unit.	16	Press this button to set or check the No. of programmed time. Press it again after you are through with the program.
4	"NO. 1" DISPLAY (TIME NO.)	17	BUTTON FOR SELECTING DAYS OF A WEEK
	Displays the time No. only when used in conjunction with the centralised remote control.	18	Setting is not possible while this display is being displayed.
5	DISPLAY "PROGRAM" (PROGRAMMING START)	19	HOUR/MINUTE BUTTON
	The light turns on when the timer is programmed.	20	Press this button to adjust the present time and the programmed time.
6	DISPLAY "OFF" (HOLIDAY SETTING)		TIMER ON BUTTON
	Lights above the day of the week set as holiday. The operation controlled by timer is not available on that day.		Press this button to set the present time and the programmed time.
7	DISPLAY "—" (SETTING OF DAYS OF A WEEK)		HOLIDAY SETTING BUTTON
	Flashes below the day of the week programmed.		Press this button to set holidays.
8	DISPLAY "E" (MALFUNCTION CODE)		BUTTON FOR COPYING PROGRAM OF PREVIOUS DAY
	Displays the contents of malfunction during the stop due to malfunction.		Use this button to set the No. of programmed time same as that of the previous day.
9	DISPLAY "MON TUE WED THU FRI SAT SUN" (PRESENT TIME)		PROGRAM CANCELING BUTTON
	Displays the present day of the week and time.		Use this button to set the programmed time to cancel. The display shows "— ; —".
10	DISPLAY "MON TUE WED THU FRI SAT SUN" (PROGRAMMED TIME OF SYSTEM START)		
	Displays the time programmed to start.		

NOTES

- Please note that the display shows all indications for the purpose of explanation only. This is contrary to actual running situations.

5 Survey of various control systems

For more effective localized environmental control Daikin offers various control systems such as single or double remote control or centralized control. This enables the construction of a variety of operational control systems which can be adapted for various uses from remote control to building automation (BA).

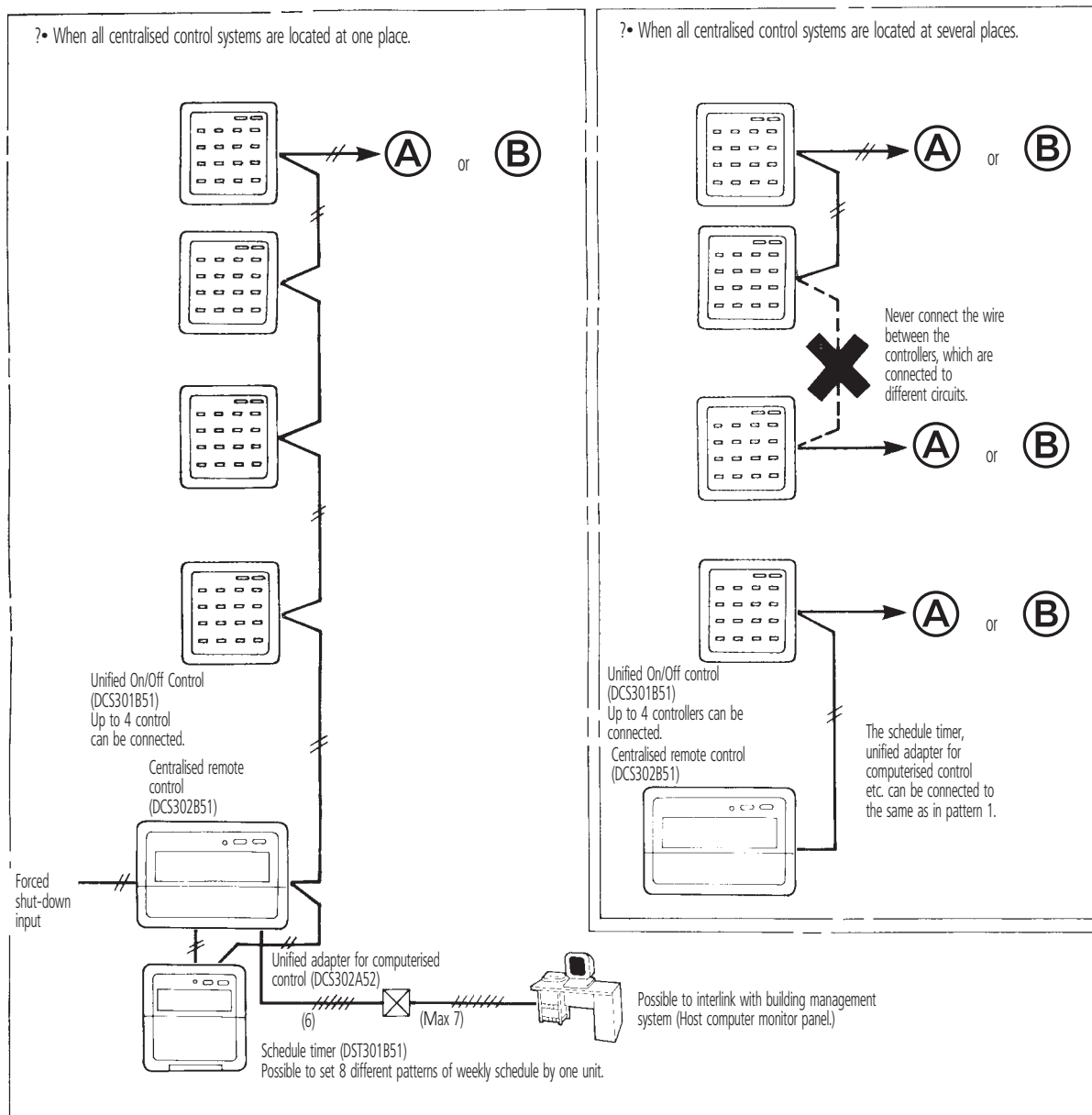
Control Method	Objective / use	System outline	Function	Standard number of units
DST301B51 Schedule timer	To carry out weekly schedule operation by 1-minute units	<p>Max. length of transmission wiring for centralized control: 1 km</p> <p>Up to 128 indoor units can be controlled</p> <p>(Power supply for schedule timer)</p>	<ul style="list-style-type: none"> ON/OFF time can be set by units of day, hour and minute; ON/OFF pattern can be set by time zone of twice per day in accordance with application. 	Simultaneously controls 64 groups with one schedule timer. Max. 128 units
Centralised remote control DCS302B51	To control all indoor units from one place	<p>Max. length of transmission wiring for centralized control: 1 km</p> <p>Up to 64 groups (128 units) can be controlled by group control</p> <p>Up to 16 units by individual control</p> <p>Remote control</p> <p>Single phase, 220~240V power supply</p> <p>Centralised remote control</p>	<ul style="list-style-type: none"> Double central control function Function of liquid crystal remote control can be controlled individually for each zone of the indoor unit. Individual/ unified operation Up to 8 patterns can be set for operation controlled by programmed time when used in combination with schedule timer. Temperature setting for each zone Control operation for each room during centralized control Remote control operation rejected command Sequential start function 	Controls up to 64 groups with one centralised remote control. Max. 128 units
Unified ON/OFF control DCS301B51		<p>Max. length of transmission wiring for centralized control: 1 km</p> <p>Up to 16 groups (128 units) can be controlled by group control</p> <p>Up to 16 units by individual control</p> <p>Remote control</p> <p>Single phase, 220~240V power supply</p> <p>Unified ON/OFF control</p>	<ul style="list-style-type: none"> Double central control function Indoor unit ON/OFF control Individual/unified operation Remote control operation rejected command. (Centralised remote control given priority when used in combination with centralised remote control.) Sequential start function 	Controls up to 16 groups of indoor units with one unified ON/OFF control. Max. 128 units
<ul style="list-style-type: none"> Schedule timer Centralised remote control Unified ON/OFF control 		<p>Combination of up to 8 unified ON/OFF controls possible</p> <p>Up to 64 groups (128 units) can be controlled by group control</p> <p>Up to 128 units by individual control</p> <p>Remote control</p> <p>Single phase, 220~240V power supply</p>	<ul style="list-style-type: none"> Respective functions of schedule timer, centralised remote control and unified ON/OFF control are possible. (Control mode of centralised remote control is given priority for operation of remote control for indoor unit.) Sequential start function. 	Controls up to 64 groups of indoor units with 1 schedule, timer, 2 centralised remote controls and 8 unified ON/OFF controls.

6 Wiring example of centralised control systems

- Be sure to connect the wiring of the central controller to (A) or (B).
(Connect to (B), if it is possible.)
- Be sure to limit the number of indoor units within the limitation for each system.
- Never connect the wire between the controllers, that are connected to different circuits.
- In order to prevent the connection of 3 wires on the same terminal, connect to the terminal unit of (A) or (B), or use the relay terminal (local supply).

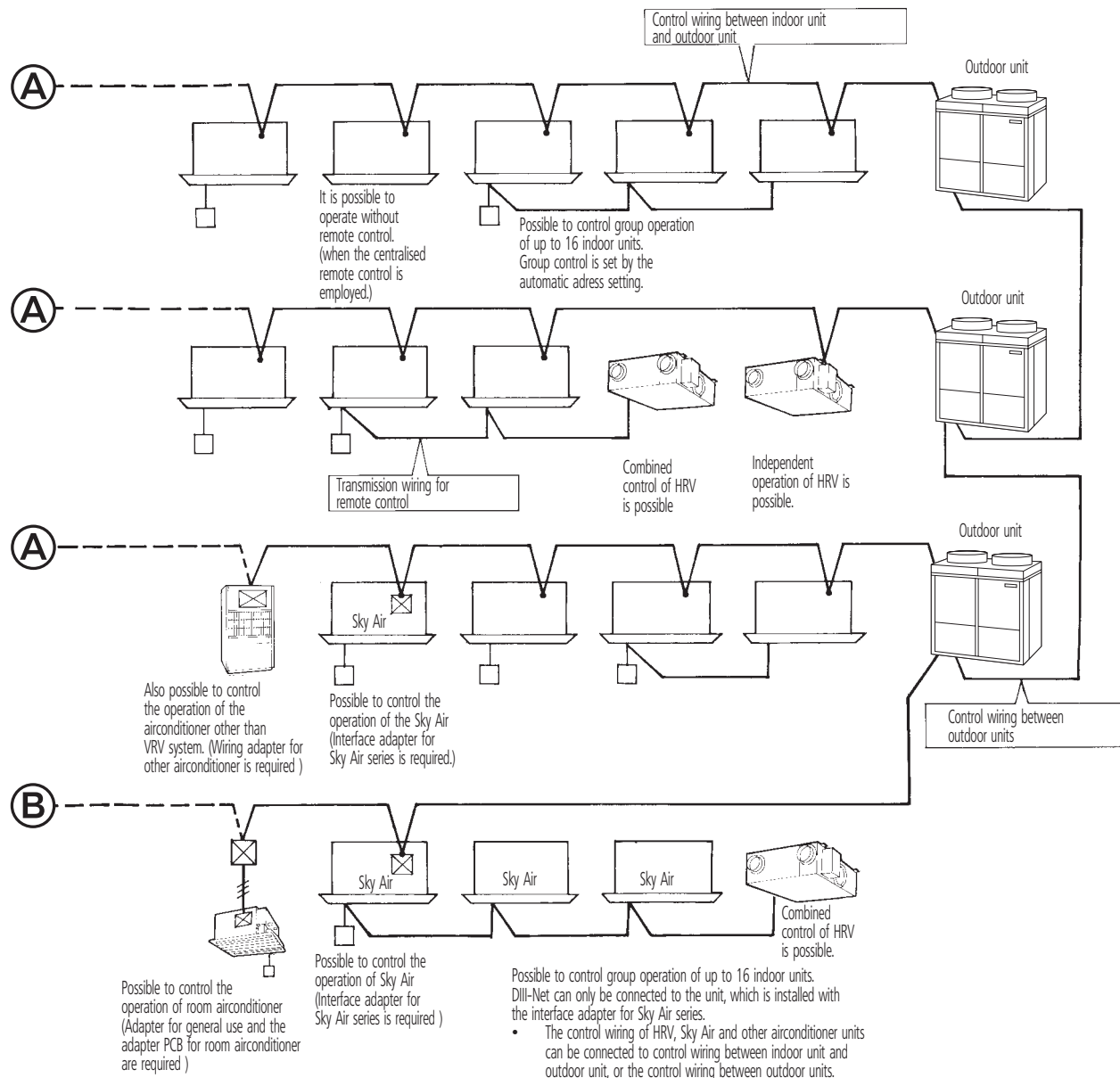
Pattern 1

Pattern 2



6 Wiring example of centralised control systems

- The longest wiring extension should not exceed 1,000 m.
(Total wiring length should not exceed 2,000 m, excluding the wiring to the remote control).
- Up to 128 indoor units can be controlled.



Advantages when central controllers are connected to (B).

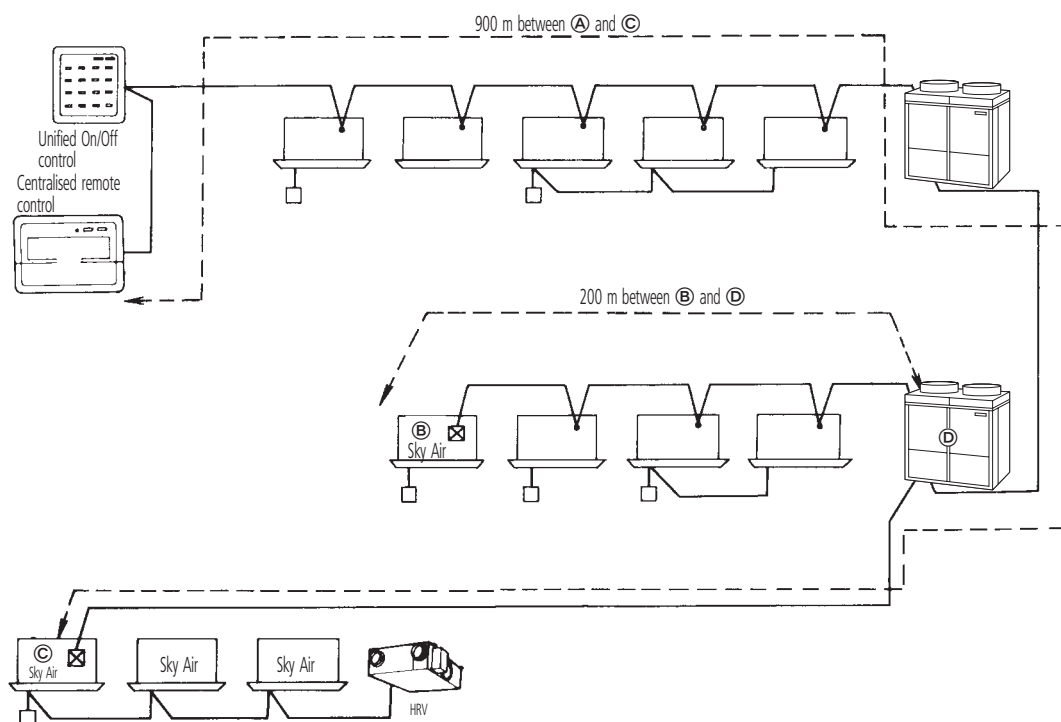
- If the central controllers are connected to (B), it is still possible to have centralised control, even if the power supply of other circuit connected to the central controller is shut-off. (Even if the power is shut off due to long vacation etc.)

7 Length of transmission wiring

The super wiring system, that integrates the control wiring between indoor unit and outdoor unit and the transmission wiring to the central controllers into one common wiring, should satisfy the following limitation.

- The longest wiring extension: Not exceeding 1,000 m
- Total wiring length: Not exceeding 2,000 m

7 - 1 Wiring example



In the above system, the longest wiring extension is 900 m between A and C, which satisfies the limit of 1,000 m. The total length is 1,100 m, that is the total of 900 m between (A) and (C) and 200 m between (B) and (C), which also satisfies the limit of 2,000 m. The central controller functions properly, only when both the longest extension and the total length of wiring satisfies the limitation, as shown above.

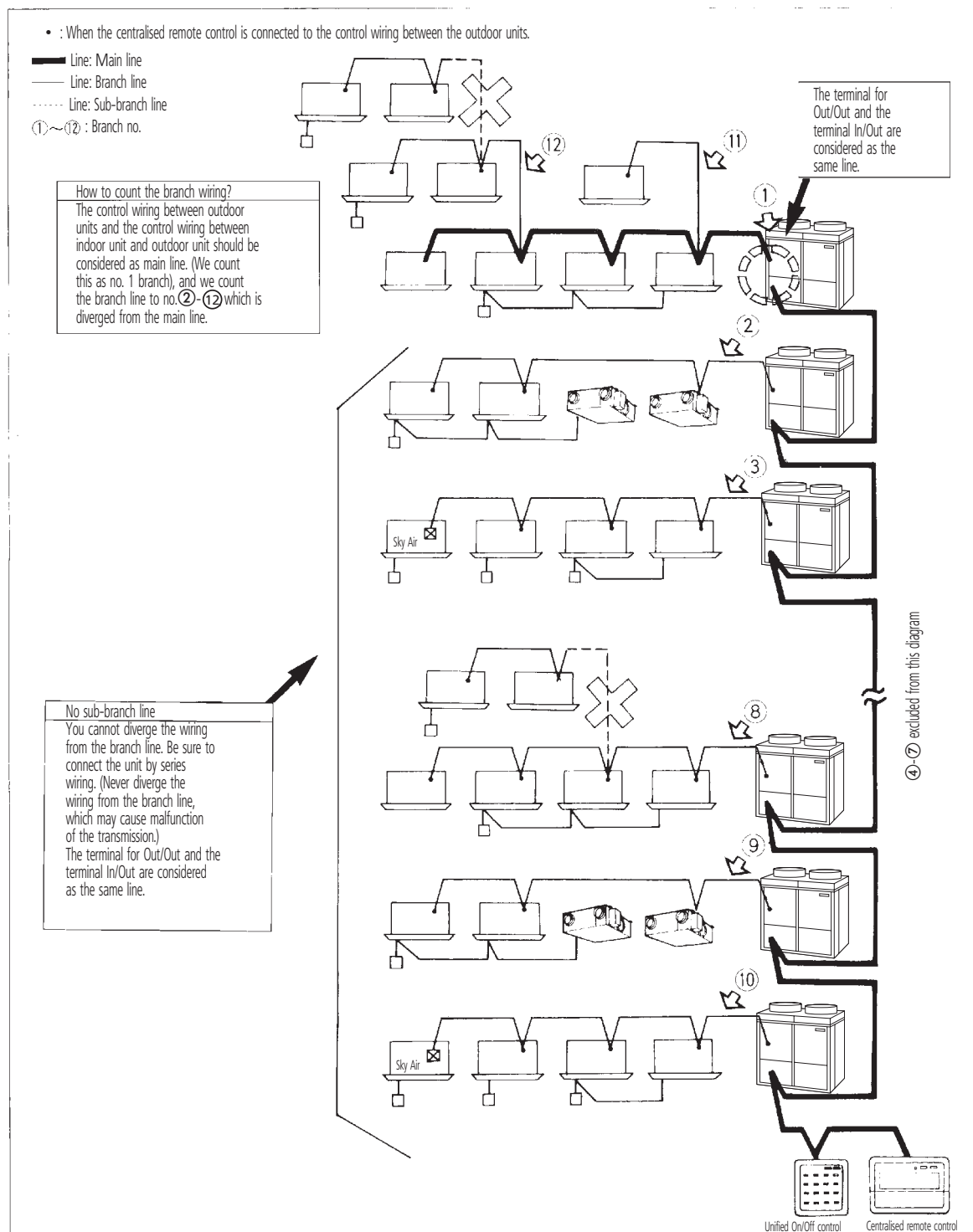
NOTE

- 1 When designing the system, be sure to check both the longest extension and the total wiring length. If it exceeds the limitation, there is no other way but to split into several systems.

7 Length of transmission wiring

7 - 2 System example (1)

- Branch line; line that is diverged from the main line.
- Sub-branch line: line that is diverged from the branch line.



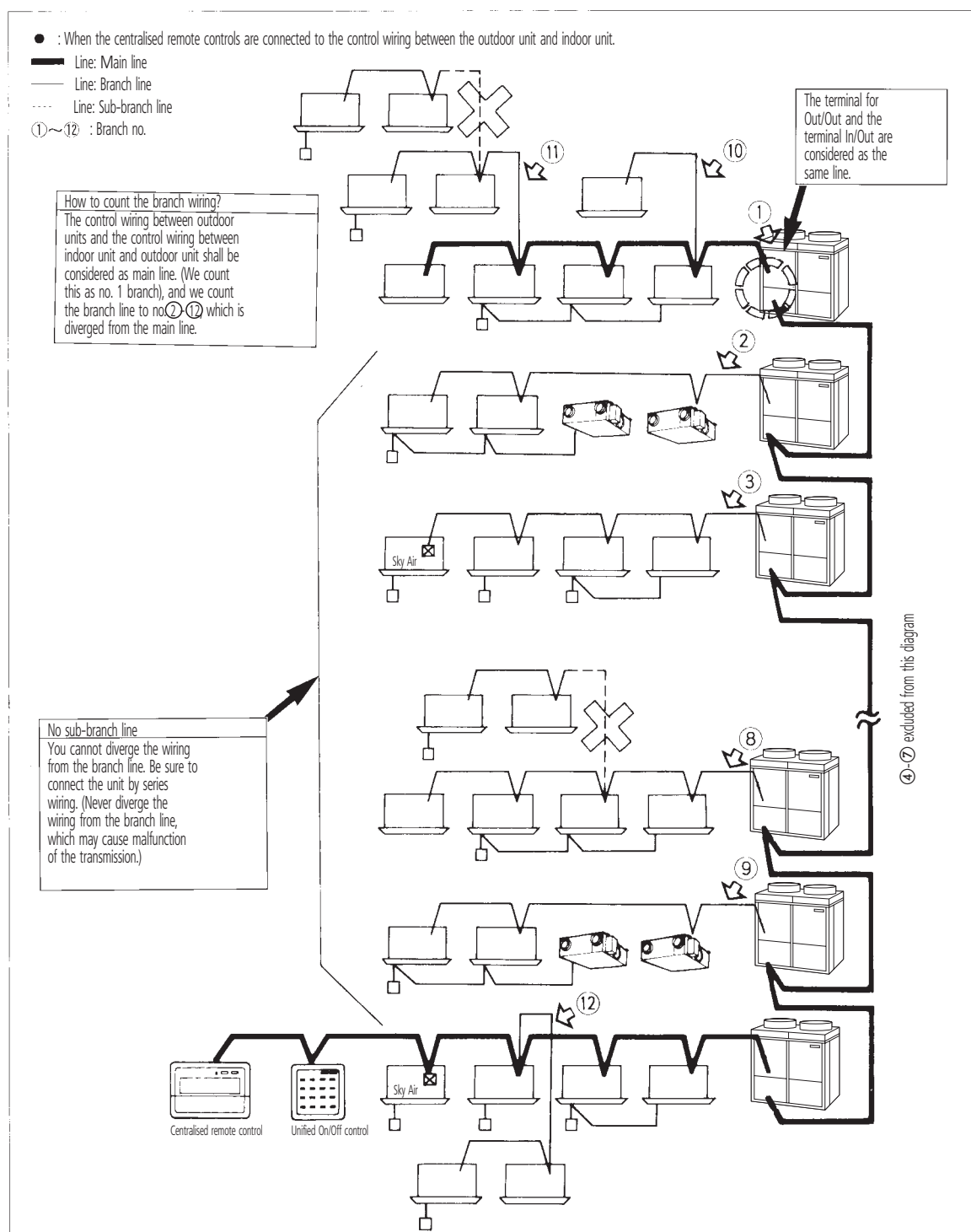
NOTE

- 1 As shown above, the centralised remote controls should be connected to the wiring between the outdoor units, wherever possible. (If connected to the control wiring between indoor unit and the outdoor unit, it may not be able to control the units even on the normal circuit if the circuit connected to the central control is out of order.)

7 Length of transmission wiring

7 - 3 System example (2)

- Branch line; line that is diverged from the main line.
- Sub-branch line: line that is diverged from the branch line.



NOTE

- 1 As shown above, if the centralised remote controls are connected to the control wiring between indoor unit and outdoor unit, it may not be able to control the units even on the normal circuit, if the circuit connected to the central controller is out of order. Be sure to connect the central controllers to the control wiring between the outdoor units.

7 Length of transmission wiring

7 - 4 Number of connectable Units

	Central control equipment	Indoor unit	Outdoor unit	Other adapters
Target controller (max. number)	<ul style="list-style-type: none"> Centralised remote control (2 units) (1) Unified ON/OFF control (8 units) (1) Schedule timer (1unit) Data station (1 unit) Parallel interface (4 units) 	<ul style="list-style-type: none"> VRV system Sky Air series (Interface adapter for Sky Air is required.) HRV unit Facility air-conditioner (Wiring adapter for other air-conditioner is required.) Room air conditioner (Wiring adapter for other air conditioner is required) BS unit (3) Wiring adapter 	<ul style="list-style-type: none"> Outdoor unit for VRV system Heat recovery series 	<ul style="list-style-type: none"> External control adapter for outdoor unit Wiring adapter for electrical appendices (1)
Number of units	(2)	Up to 128 units (6)	Up to 10 units (5)	Up to 10 units

NOTES

- When you have 2 central control systems (to control one system from 2 central locations): 4 centralised remote controls and 16 unified ON/OFF controls can be connected. However, a maximum of 128 units can only be controlled.
- When you connect 8 or more central control equipment, it is required to satisfy the following conditions. The following conditions are not required to be considered when the number of controller is 7 or less.

- Central control equipment + Indoor units + Outdoor units + other adapters \leq 160 units
- Central Conversion number of central control equipment * + Indoor units + outdoor units + other adapters \leq 200 units

NOTE: * is converted one central control equipment except unified ON/OFF control as 10 units.)

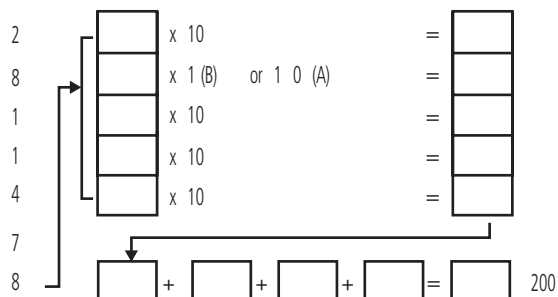
- When BS unit is installed, BS unit is not counted in the number. However, the indoor units after BS unit should be counted.
- In case of VRV Plus series, only the number of outdoor units is counted and the function unit is not counted. However, when you have a plan to expand the system in future, be sure to consider to count the number of units to be added.
- The outdoor unit is limited up to maximum of 10 units and the total rated capacity should be 280kW (100 HP) or less, and also the number of function units is also limited up to 5. However, if the sequential start setting is possible, up to 10 function units can be connected.
- When the data station or the parallel interface is connected, the number of indoor units are limited up to 64 groups (128 units). When you judge whether the number of the connectable units is possible, refer to the flow chart on the next page.

7 Length of transmission wiring

7 - 5 Flow chart to determine the number of units to be connected

Check sheet for number of units in one system

Centralised control	Qty	Y/N
Centralised remote control (Note 1)		
Unified ON/OFF control		
Schedule timer		
Data station (Note 4)		
Parallel interface		
Total		



Indoor unit	Qty	Y/N
VRV		
Sky Air with adapter		
VAM		
Wiring adapter for other air conditioner		
BS unit (Note 2)		
Total		

128

Outdoor unit	Qty	Y/N
RXQ-P(A)		
RXYQ-P(A)		
REYQ-P		
Total		

10

RX(Y)Q5P / REYQ5P		x 5 HP =	
RX(Y)Q8P / REYQ8P		x 8 HP =	
RX(Y)Q10P / REYQ10P		x 10 HP =	
RX(Y)Q12P / REYQ12P		x 12 HP =	
RX(Y)Q14PA / REYQ14P		x 14 HP =	
RX(Y)Q16PA / REYQ16P		x 16 HP =	
Total			100HP

Other adapters	Qty	Y/N
External control adapter for outdoor unit		
Wiring adapter for electrical appendices		
Total		

10

NOTES

Conditions A means:

Central control equipment + Indoor units + outdoor units + other adapters ≤ 160 units

Conversion number of central control equipment + Indoor units + Outdoor units + other adapters ≤ 200 units

7 Length of transmission wiring

7 - 5 Flow chart to determine the number of units to be connected

Control wiring		Y/N	
Maximum extension	M		< 1000
Total wiring length	M		≤ 2000
Wiring Branch			≤ 16

NOTES

- 1 When one system is to be controlled from 2 locations, up to 4 centralised remote controls and 16 unified ON/OFF controls can be connected. However, the maximum number of units that can be controlled is 128.
- 2 When a BS unit is used, the indoor units used in its downstream are not counted.
- 3 The data station can have up to 64 groups (64 master indoor units with address). In case of adopting group controlling, the circuit covered by the data station can have up to 128 indoor units including master and slave units.

2

VRV III-S
VRV III
VRV-WII



Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.



Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

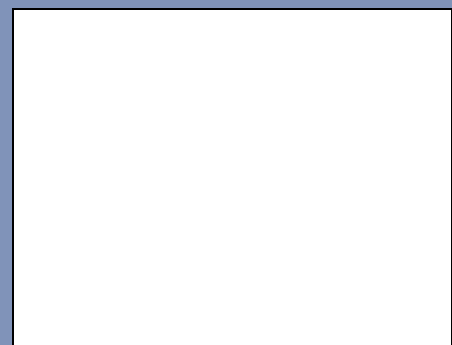


ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.



Daikin units comply with the European regulations that guarantee the safety of the product.

The present publication is drawn up by way of information only and does not constitute an offer binding upon Daikin Europe N.V.. Daikin Europe N.V. has compiled the content of this publication to the best of its knowledge. No express or implied warranty is given for the completeness, accuracy, reliability or fitness for particular purpose of its content and the products and services presented therein. Specifications are subject to change without prior notice. Daikin Europe N.V. explicitly rejects any liability for any direct or indirect damage, in the broadest sense, arising from or related to the use and/or interpretation of this publication. All content is copyrighted by Daikin Europe N.V..



DAIKIN EUROPE N.V.

Naamloze Vennootschap
Zandvoordestraat 300
B-8400 Oostende, Belgium
www.daikin.eu
BTW: BE 0412 120 336
RPR Oostende

VRV products are not within the scope of the Eurovent certification programme.



EEDEN07-200 • 07/2007 • Copyright • Daikin
The present publication supersedes EED06-2.
Prepared in Belgium by Lannoo (www.lannooprint.be), a company whose concern for the environment is set in the ENAS and ISO 14001 systems.
Responsible Editor: Daikin Europe N.V., Zandvoordestraat 300, B-8400 Oostende