Air Conditioners
Technical Data

TABLE OF CONTENTS
CONTROL SYSTEMS

		Split indoor units								
		FTXR-E	FTXG-J	FDXS-F	FVXS-F	FLXS-B	FTX-JV	FTX-GV	CTXS-K/FTXS-K	FTXS-K
Individual control	Infrared remote control			BRC4C62						
	Wireless remote control + decoration panel									
	Wired remote control									
	User friendly remote control with contemporary design BRC1E52A/B			v						
	Standard wired remote control with weekly timer BRC1D52			v						
	VAM wired remote control BRC301B61									
	Standard wired remote control with weekly timer BRC944		v				v	v	v	v
	Simplified remote control for hotel applications BRC3A61			v						
	Simplified remote control BRC2C51			v						
	Online controller KKRP01A	v	v		v	v		v		v
Centralised control	Centralised remote control DCS301B51	v1	v1	v	v1	v1	v1	v1	v1	v1
	Unified ON/OFF DCS301B51	v1	v1	v	v1	v1	v1	v1	v1	v1
	Schedule timer DST301B51	v1	v1	v	v1	v1	v1	v1	v1	v1
	DTA113B51									
	Intelligent Touch Controller DCS601C51	v1	v1	v	v1	v1	v1	v1	v1	v1
Management control	Intelligent Touch Manager DCM601A51	v1	v1	v	v1	v1	v1	v1	v1	v1
Standard protocol interface	KNX Interface KLIC-DD	v	v		v	v	v8	v	v8	v3
	KNX Interface KLIC-DI									
	Modbus Interface RTD-RA	v	v		v	v	v8	v	v8	v3
	Modbus Interface RTD-net									
	Modbus Interface- including duty and standby for server rooms RTD-10									
	Modbus Interface - Retail controller RTD-20									
	Modbus Interface - Intelligent hotel room control RTD-HO									
	Modbus Interface RTD-W									
	LonWorks Interface DMS504B51	v1	v1	v	v1	v1	v1	v1	v1	v1
	BACnet Interface DMS502A51	v1	v1	v	v1	v1	v1	v1	v1	v1
	http Interface DCS007A51	v1	v1	v	v1	v1	v1	v1	v1	v1

		VRV indoor units								
		FXFQ-A	FXZQ-A	FXCQ-A	FXKQ-MA	FXDQ-M9	FXDQ-A	FXSQ-P	FXMQ-P7	FXMQ-MA
Individual control	Infrared remote control	BRC7FA532F	BRC7F530W BRC7F530S BRC7E530W	BRC7C52	BRC4C61		BRC4C62	BRC4C65	BRC4C65	BRC4C65
	Wireless remote control + decoration panel									
	Wired remote control									
	User friendly remote control with contemporary design BRC1E52A/B	v	v	v	v	v	v	v	v	v
	Standard wired remote control with weekly timer BRC1D52	v	v	v	v	v	v	v	v	v
	VAM wired remote control BRC301B61									
	Standard wired remote control with weekly timer BRC944									
	Simplified remote control for hotel applications BRC3A61					BRC3A61	BRC3A61	BRC3A61	BRC3A61	BRC3A61
	Simplified remote control BRC2C51					BRC2C51	BRC2C51	BRC2C51	BRC2C51	BRC2C51
	Online controller KKRP01A									
Centralised control	Centralised remote control DCS301B51	v	v	v	v	v	v	v	v	v
	Unified ON/OFF DCS301B51	v	v	v	v	v	v	v	v	v
	Schedule timer DST301B51	v	v	v	v	v	v	v	v	v
	DTA113B51	v	v	v	v	v	v	v	v	v
	Intelligent Touch Controller DCS601C51	v	v	v	v	v	v	v	v	v
Management control	Intelligent Touch Manager DCM601A51	v	v	v	v	v	v	v	v	v
Standard protocol interface	KNX Interface KLIC-DD									
	KNX Interface KLIC-DI	v	v	v	v	v	v	v	v	v
	Modbus Interface RTD-RA									
	Modbus Interface RTD-net	v	v	v	v	v	v	v	v	v
	Modbus Interface- including duty and standby for server rooms RTD-10	v	v	v	v	v	v	v	v	v
	Modbus Interface - Retail controller RTD-20	v	v	v	v	v	v	v	v	v
	Modbus Interface - Intelligent hotel room control RTD-HO	v	v	v	v	v	v	v	v	v
	Modbus Interface RTD-W									
	LonWorks Interface DMS504B51	v	v	v	v	v	v	v	v	v
	BACnet Interface DMS502A51	v	v	v	v	v	v	v	v	v
	http Interface DCS007A51	v	v	v	v	v	v	v	v	v
Service	Air Conditioning Network Service System (6)	v	v	v	v	v	v	v	v	v

1 via KRP928
2 via DTA112
3 only classes 35/42/50
4 cool/heat selector required for operation
5 required accessory
6 for correct list of functionalities contact your local Daikin responsible
7 PPD is only available on VRV indoor units
8 via KRP980

FTXS-G	FVXG-K	FCQHG-F	FCQ-F	FFQ-C	FDBQ-B	FBQ-C8	FDQ-C	FDQ-B	FAQ-C	FHQ-C	FUQ-C	FVQ-C	ABQ-A/B	AHQ-C	ACQ-B
								Sky Air indoor units						Siesta Sky Air indoor units	
		BRC7FA532F	BRC7FA532F	BRC7F530W BRC7F530S BRC7E530W		BRC4C65	BRC4C65		BRC7EB518	BRC7G53	BRC7C58				
													ADP125A		
														ARCWB	ARCWB
		v	v	v	v	v	v	v	v	v	v	v			
		v	v	v	v	v	v	v	v	v	v	v			
v	v														
v	v														
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			
		v	v	v	v	v	v	v	v	v	v	v			
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			
v	v														
		v	v	v	v	v	v	v	v	v	v	v			
v	v														
		v	v	v	v	v	v	v	v	v	v	v			
		v	v	v	v	v	v	v	v	v	v	v			
		v	v	v	v	v	v	v	v	v	v	v			
		v	v	v	v	v	v	v	v	v	v	v			
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			
v1	v1	v	v	v	v2	v	v	v	v	v	v	v			

FXHQ-A	FXUQ-A	FXAQ-P	FXNQ-P	FXLQ-P	HXY-A	HXHD-A	VAM-FA/FB	VKM-GB(M)	FXMQ-MF	AHU (via EKEQ)	CYQS/M/L-DK-F/C/R	CYVS/M/L-DK-F/C/R
							Connectable Ventilation units & Biddle air curtains					
BRC7G53	BRC7C58	BRC7E618	BRC4C65	BRC4C65								
v	v	v	v	v			v	v	v	v	v5	v5
v	v	v	v	v			v	v	v	v4	v5	v5
							v	v				
			BRC3A61	BRC3A61								
			BRC2C51	BRC2C51								
v	v	v	v	v			v	v	v			
v	v	v	v	v			v	v	v			
v	v	v	v	v			v	v	v			
v	v	v	v	v								
v	v	v	v	v			v	v	v			
v	v	v	v	v			v	v	v			
v	v	v	v	v								
v	v	v	v	v			v	v	v			
v	v	v	v	v			v	v	v			
v	v	v	v	v			v	v	v	v	v	v
v	v	v	v	v			v	v	v			
						v						
v	v	v	v	v			v	v	v			
v	v	v	v	v			v	v	v			
v	v	v	v	v							v	v
v	v	v	v	v	v	v					v	v

Save energy

A series of energy saving functions that can be individually selected

› Temperature range limit
› Setback function
› Presence & floor sensor connection
  (available on new round flow cassette)
› kWh indication
› Set temperature auto reset
› Off timer

Temperature range limit avoids excessive heating or cooling

Save energy by constraining the lower temperature limit in cooling and upper temperature limit in heating mode.

note : Also available in auto cooling/heating change over mode.

kWh indication keeps track of your consumption

The kWh indication shows an indicative electricity consumption of the last day/month/year.

Other functions

› Up to 3 independent schedules can be set, so the user can easily change the schedule himself throughout the year (e.g. Summer, winter, mid-season)
› Possibility to individually restrict menu functions

› Easy to use: all main functions directly accessible
› Easy setup: clear graphical user interface for advanced menu settings
› Real time clock with auto update to daylight saving time
› Built-in backup power: when a power failure occurs all settings remain stored up to 48 hours
› Supports multiple languages
  - English, German, Dutch, Spanish, Italian, Portuguese, French, Greek, Russian, Turkish, Polish (BRC1E52A)
  - English, German, Czech, Croatian, Hungarian, Romanian, Slovenian, Bulgarian, Slovak, Serbian, Albanian (BRC1E52B)

Graphical display of indicative electricity consumption

| BRC1D52 | BRC944B2 | ARC466A1 | BRC4*/BRC7* | BRC2C51 | BRC3A61 |

BRC944B2*/BRC1D52
Wired remote control

› Schedule timer:
  • Five day actions can be set as follows:
    - set point: unit is switched ON and normal operation is maintained
    - OFF: unit is switched OFF[1]
    - limits: unit is switched ON and min./max. control
      (cf. limit operation for more details)
› Home leave (frost protection): during absence, the indoor temperature can be maintained at a certain level. This function can also switch the unit ON/OFF
› User friendly HRV function, thanks to the introduction of a button for ventilation mode and fan speed
› Constantly monitoring of the system for malfunctions in a total of 80 components
› Immediate display of fault location and condition
› Reduction of maintenance time and costs

Display

› Operating mode[1]
› Heat Recovery Ventilation (HRV) in operation
› Cool / heat changeover control
› Centralised control indication
› Group control indication
› Set temperature[1]
› Air flow direction[1]
› Programmed time
› Inspection test / operation
› Fan speed[1]
› Clean air filter
› Defrost / hot start
› Malfunction

[1] Only functions marked with '1' are available on BRC944B2

ARC4*/BRC4*/BRC7*
Infrared remote control

Operation buttons: ON/OFF, timer mode start/stop, timer mode on/off, programme time, temperature setting, air flow direction (1), operating mode, fan speed control, filter sign reset (2), inspection (2)/test indication (2)

Display: Operating mode, battery change, set temperature, air flow direction (1), programmed time, fan speed, inspection/test operation (2)

1. Not applicable for FXDQ, FXSQ, FXNQ, FBDQ, FDXS, FBQ

2. For FX** units only

3. For all features of the remote control, refer to the operation manual

BRC3A61
Simplified built-in remote control for hotel applications

Compact, user friendly unit, ideal for use in hotel bedrooms

Operation buttons: ON/OFF, fan speed control, temperature setting

Display: Heat Recovery Ventilation (HRV) in operation, set temperature, operating mode, centralised control indication, fan speed, defrost/hot start, malfunction

BRC2C51
Simplified remote control

Simple, compact and easy to operate unit, suitable for use in hotel bedrooms

Operation buttons: ON/OFF, operating mode selection, fan speed control, temperature setting

Display: Cool/heat changeover control, Heat Recovery Ventilation (HRV) in operation, set temperature, operating mode, centralised control indication, fan speed, defrost/hot start, malfunction adjustment, operating mode selection, fan speed control, filter sign reset, inspection test/operation

Specifications

Technical Specifications

				BRC1E52A* / BRC1E52B*
Casing	Colour			Fresh White
	Button cover			No
	Operation LED	Colour		Green
Dimensions	Unit	HeightxWidthxDepth	mm	120x120x19
	Packed unit	HeightxWidthxDepth	mm	150x160x55
Weight	Unit		kg	0.200
	Packed unit		kg	0.415
Packing	Material			Carton
	Weight		kg	0.050
LCD	Type			Full dot (160 x 255)
	Dimensions	Height	mm	43.2
		Width	mm	68.85
	Back light	Colour		White
Temperature setting	Resolution		ºC	1
	Setpoint range	Cooling	ºC	Depends on the indoor unit
		Heating	ºC	Depends on the indoor unit
Ambient temperature	Operation	Min.	ºC	-10
		Max.	ºC	50
	Storage	Min.	ºC	-20
		Max.	ºC	70
	Relative humidity \<		%	95

Electrical Specifications

				BRC1E52A* / BRC1E52B*
Wiring connections	Type of wires			Sheathed vinyl cord or cable
	Size		mm²	0.75 / 1.25
	For connection	Quantity		2
	with indoor	Remark		P1-P2 wired connection from indoor unit
	Wiring length	Max.	m	500
Back-up for power failure				Yes (The clock will keep functioning for a period not exceeding 48 hours)

Notes

* BRC1E52A contains languages English, German, French, Dutch, Spanish, Italian, Greek, Portuguese, Russian, Turkish and Polish
* BRC1E52B contains languages English, German, Albanian, Bulgarian, Croatian, Czech, Hungarian, Romanian, Serbian, Slovak and Slovenian

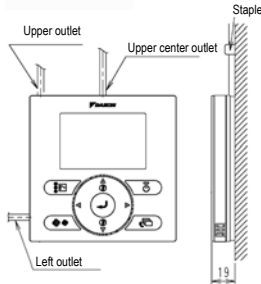# BRC1E52A/B - Wired remote control
Dimensional drawing

BRC1E52A7
BRC1E52B7

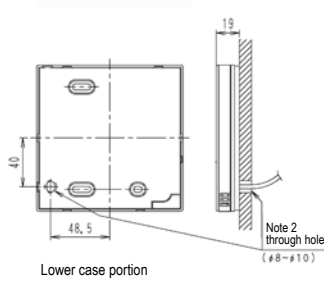- Remote control dimensions
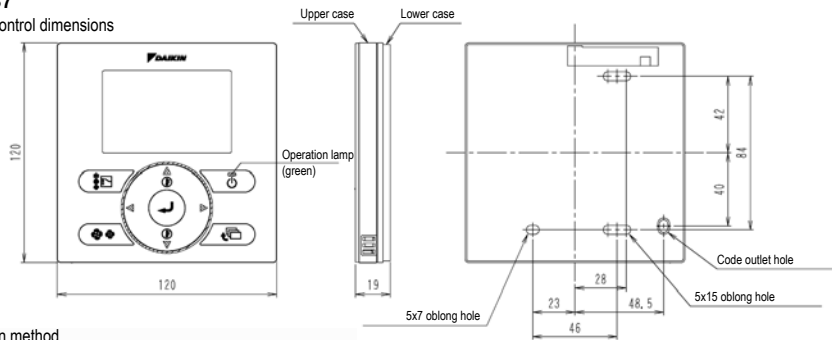
- Installation method
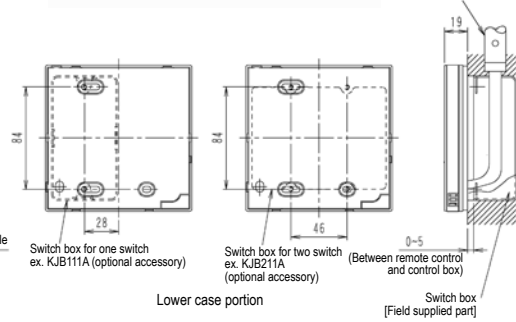
A) Exposed Cord   B) Embedded Cord   C) Embedded Cord (Use Switch Box)
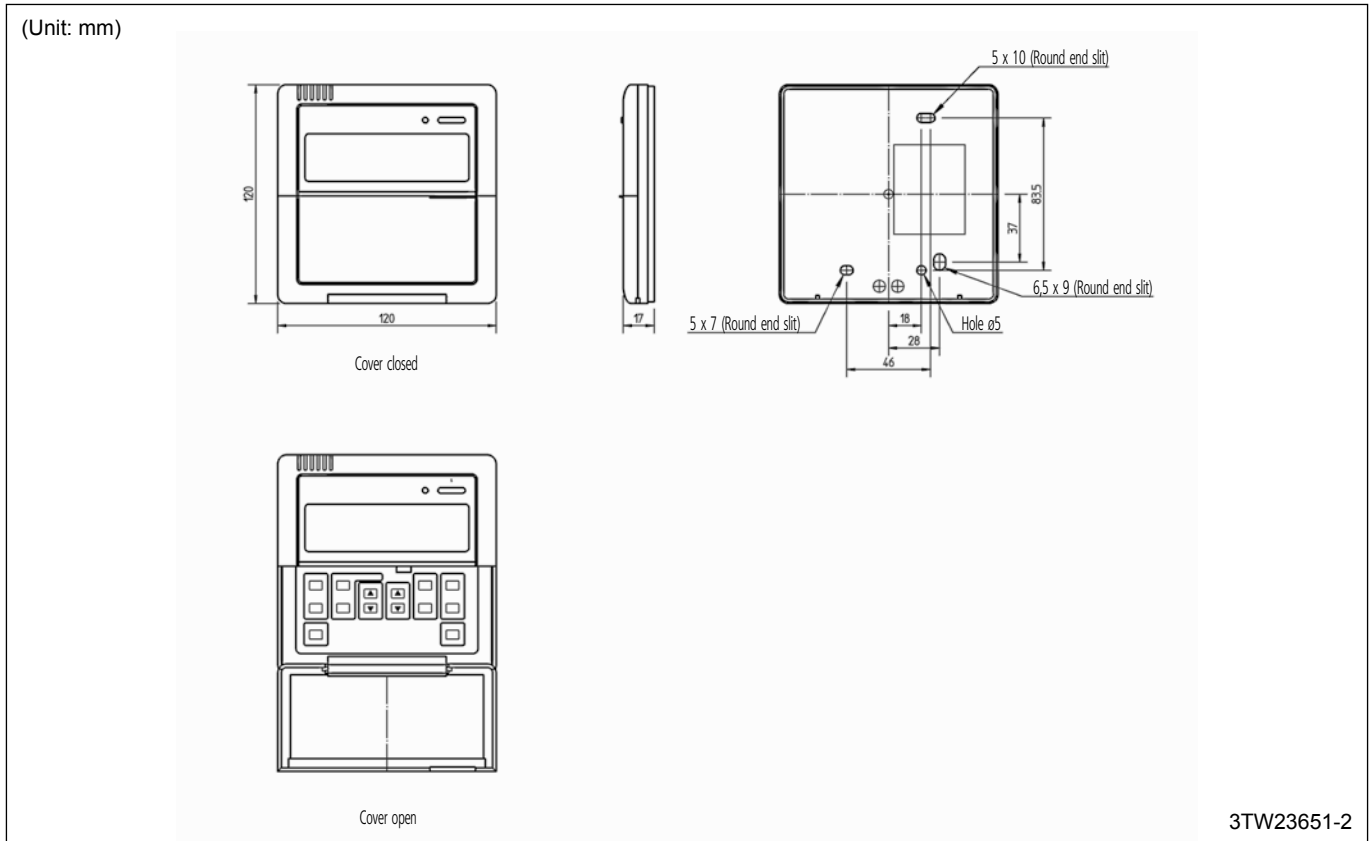

3D064037

NOTES

1. Remote control cord and staple are not attached, they are field supplied parts.
   Specifications of cord

Type	Vinyl cord with sheath or cable (insulated thickness: 1mm or more)
Size	0.75~1.25mm²
Total length	500m

2. If the hole size is too large or the location is not proper, the hole may come out from the remote control.

BRC1D52 - Wired remote control
Dimensional drawing

(Unit: mm)

5 x 10 (Round end slit)

120

120

17

83,5

37

Cover closed

5 x 7 (Round end slit)

6,5 x 9 (Round end slit)

18

28

46

Hole ø5

Cover open

3TW23651-2

BRC4C61,62,65 - Infrared remote control
Dimensional drawing

(Unit: mm) • REMOTE CONTROL DIMENSIONS

• RECEIVER DETAIL

Transmitting part

157

62

17,5

120

70

18

0,5

35

Switch box
(Field supplied parts)

• REMOTE CONTROL HOLDER
  INSTALLATION PROCEDURE
  (INSTALLATION TO WALL SURFACE)

• Service space for ceiling installation

more than 90

Service space

2 - 5x9 Slot

Liquid crystal remote
control (wireless)

Remote control holder

106 (Ceiling opening)

83,5

72

49
(Ceiling opening)

NOTE

1   Do not install more than 3 receivers in the vicinity of one another.
2   With 4 or more units, there is always the possibility of malfunction.

BRC4C62	Heat pump	FXDQ-M9, FXDQ-PB/NB, FXLQ, FXNQ
BRC4C64	Cooling only	
BRC4C61	Heat pump	FXKQ
BRC4C63	Cooling only	
BRC4C65	Heat pump	FXSQ, FXMQ-P, FXMQ-MA
BRC4C66	Cooling only	

3D007898B

BRC7E530W - Infrared remote control
Dimensional drawing

(Unit: mm)

Receiver installation procedure

Remote control dimensions
Transmitting part
157
62
17.5

Remote control holder
installation procedure
(Installation to wall survace)

Liquid crystal
remote control
(wireless)

Remote control
holder

Drain piping side
Refrigerant piping side
Receiver

Decoration panel
(BYFQ60BW1)

Receiver detail

3D038937
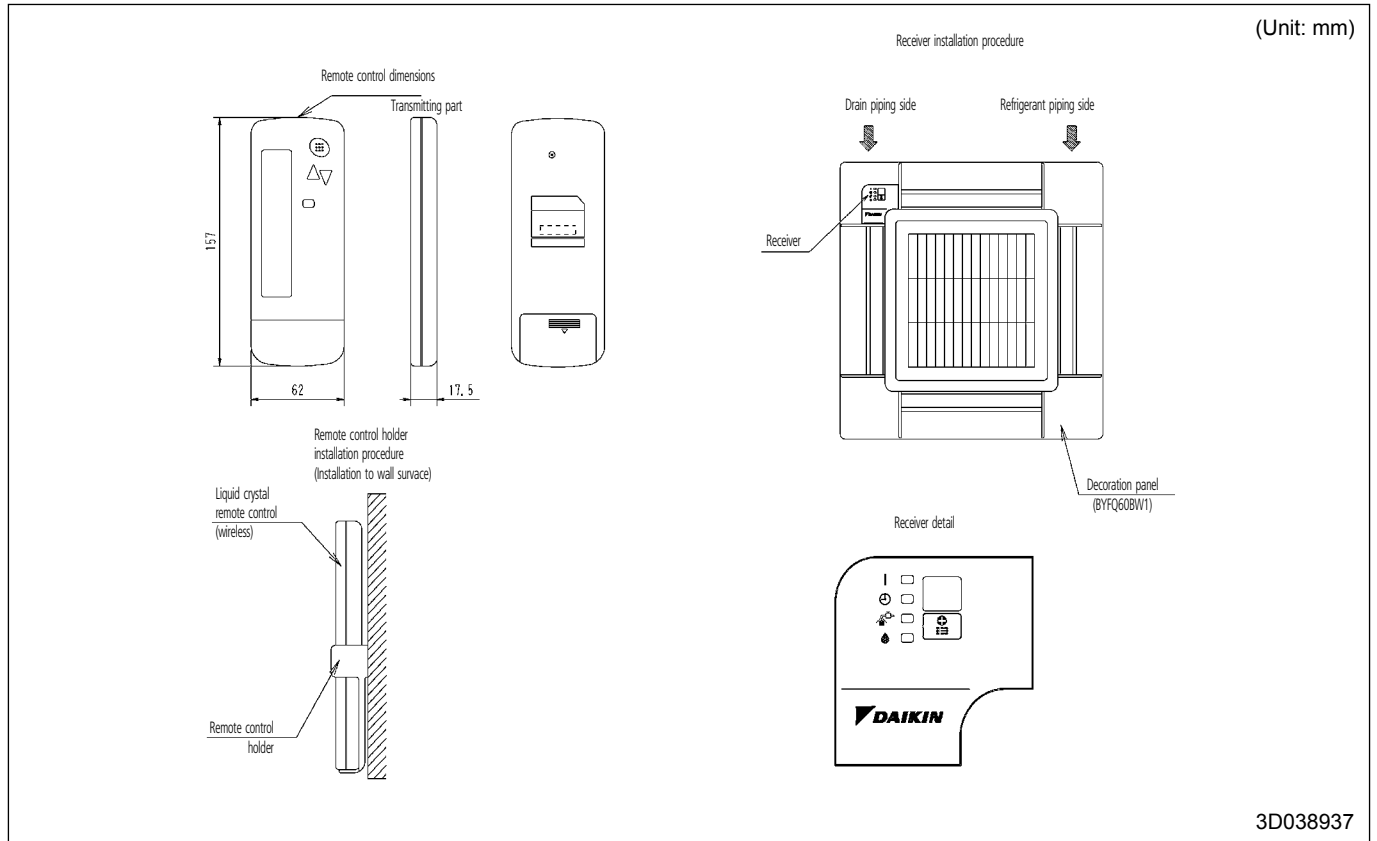
BRC7E63W - Infrared remote control
Dimensional drawing

(Unit: mm)

Remote control dimensions

Transmitting part
157
62
17.5

Remote control holder
installation procedure
(installation to wall surface)

Liquid crystal
infrared remote control

Remote control holder

Receiver installation procedure
Receiver

Receiver detail

3D028963
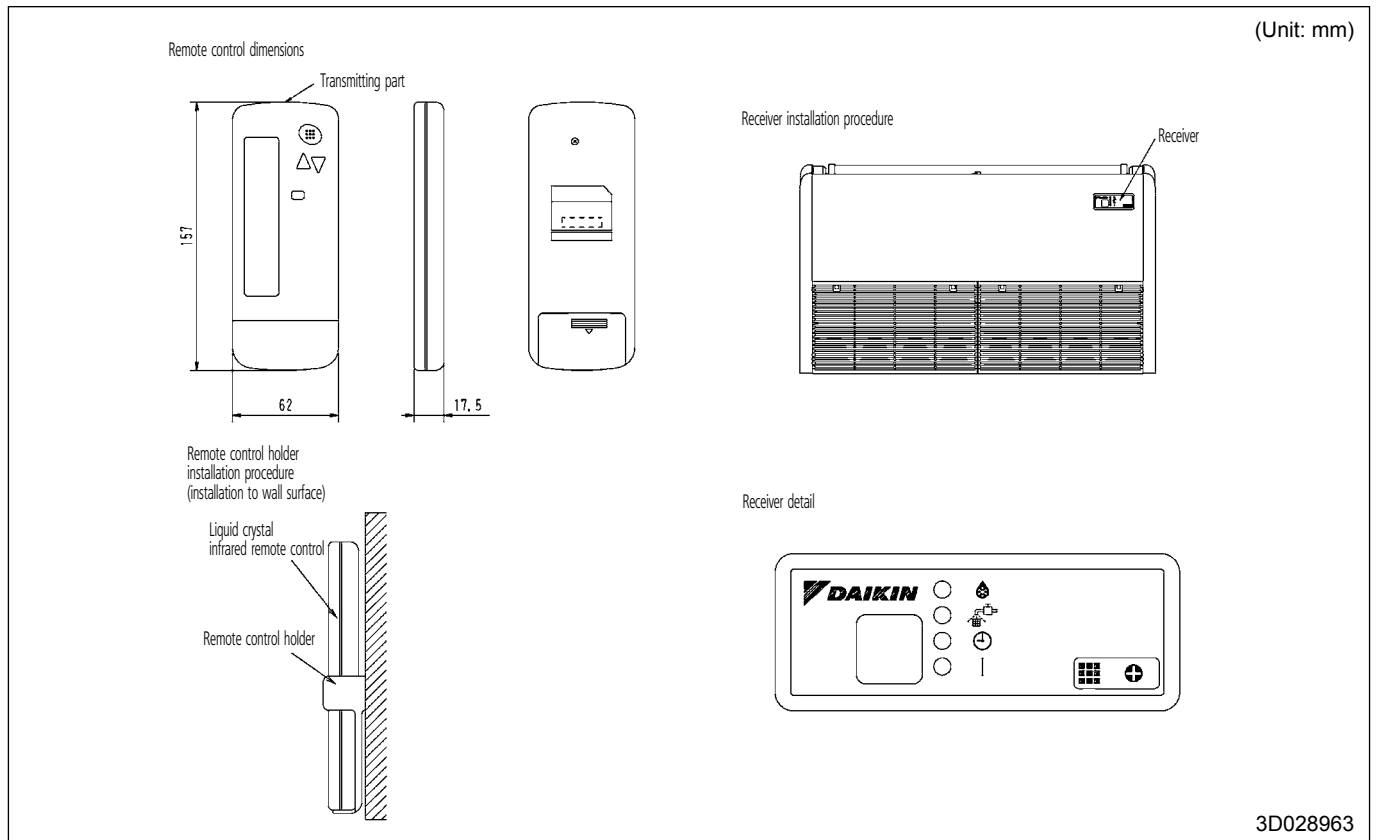
BRC7E618 - Infrared remote control
Dimensional drawing

(Unit: mm)

Remote control dimensions
Transmitting part

157
62
17.5

Remote controller holder installation procedure
(Installation to wall surface)

Liquid crystal remote control
(Wireless)

Remote controller holder

Receiver installation procedure

Receiver

Receiver detail

3D034905
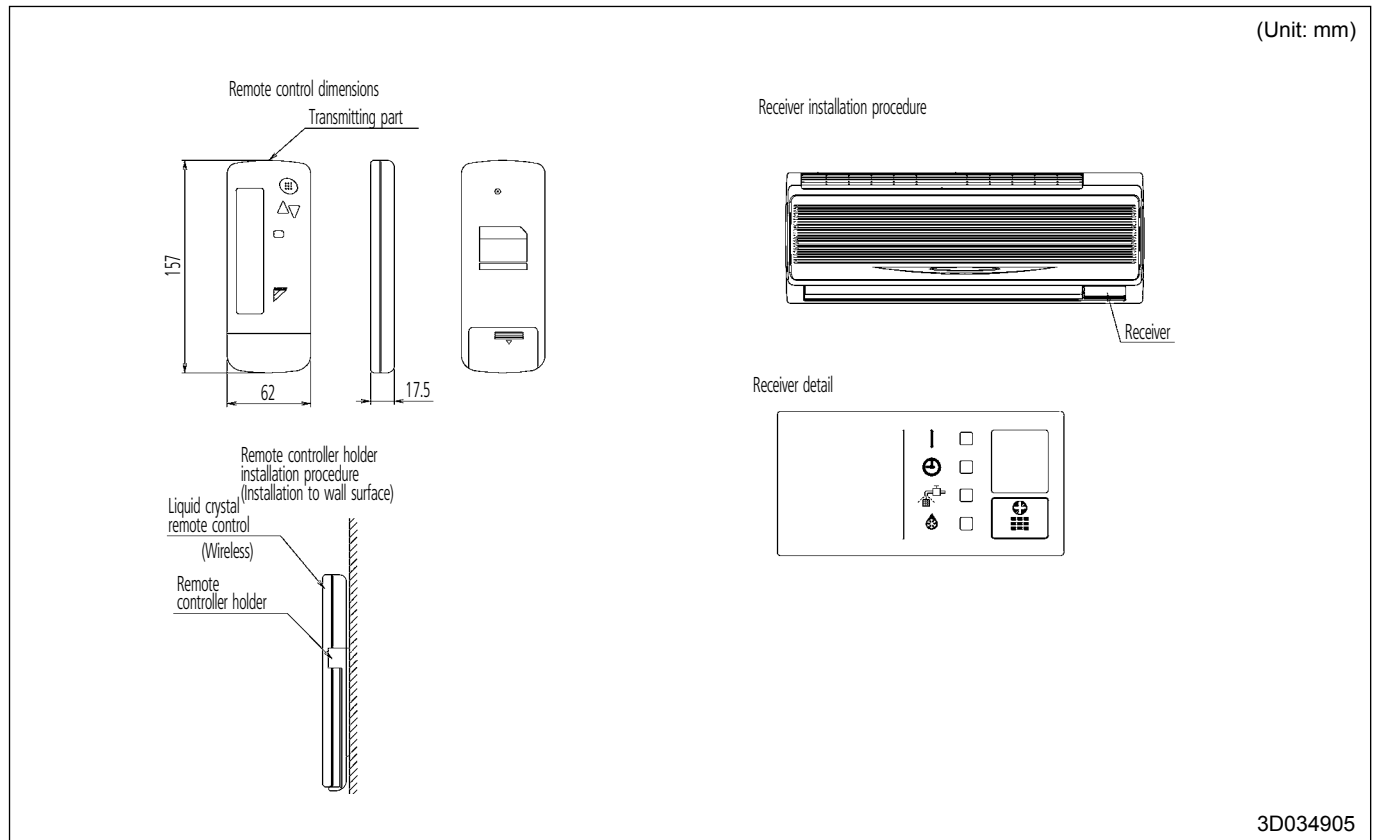
BRC7C(A)528W - Infrared remote control
Dimensional drawing

BRC7C528W,529W

• Remote control dimensions
Transmitting part

157
62
17.5

• Remote control holder installation procedure
(Installation to wall surface)

Liquid crystal remote control
(wireless)

Remote control holder

• Receiver installation procedure

Receiver   Air intake grille

Refrigerant pipe

Drain socket

• Receiver detail

DAIKIN

3D014035A

BRC3A61 - Simplified remote control for hotel applications
Dimensional drawing

(Unit: mm)

3D013859A

BRC2C51 - Simplified remote control
Dimensional drawing

3D050645

Always in control, no matter where you are

Daikin provides a new control solution to monitor and control the main functions of the residential indoor units. The system is working in an end-user friendly way and can be used from any location via your smartphone, laptop, PC, tablet or touch screen.

1 Wired controller

2 PC

3 Smartphone
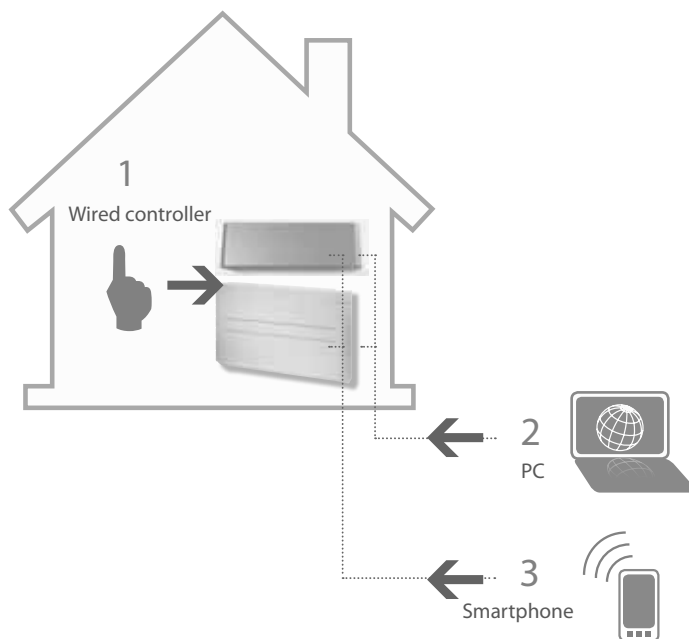
Residential use:

Optimal home comfort / holiday home surveillance
› Create a comfortable home climate at any time and at any place
› Remote detection of failures

Light commercial use:

Flexible office solution
› Dynamic group control in open space
› Fault manager / event logger
› Easily create a yearly schedule (iPlanner)
› Back-up configuration of air conditioning

Available software features

	Residential*	Light commercial **	Extended light commercial **
Possibility to control indoor unit via internet	✓	✓	✓
Possibility to control multiple indoor units via internet (up to 9 KKRP01s)	✓	✓	✓
Possibility to control multiple indoor units via internet (over 9 KKRP01s)		✓	✓
Filtering data OK / ERR		✓	✓
Advanced filtering (OK / ANY ERR / COMM ERR / AC / ERR)			✓
Sorting by all columns from data-grid		✓	✓
History of alerts			✓
History of temperatures			✓
History of commands			✓
Graphic single controller with weather forecast	✓	✓	✓
Text group controller	✓	✓	✓
Weekly planner	✓		
I-planner (yearly schedule)		✓	✓
Receive via e-mail an alert report	✓	✓	✓
Autonomous periodical connectivity check			✓
Exceeded room temperature limits e-mail report			✓

*   standard programmed on KKRP01A
** additional software to be purchased online

Possible indoor units:

› FTXR28-50E
› FTXG25-50JA/W
› FTXS35-50K
› FTXS60-71G
› FTX50-71GV
› FVXS25-50F
› FVXG25-50K
› FLXS25-60B

App

Daikin gives you a whole new way to control & monitor your residential indoor units. Ask your Daikin installer to equip your unit with an Online Controller (KKRP01A) and now you have the option to manage your unit on your iPhone/iPad, no matter where you are! Personalize your device by name and a unique icon. Create groups to set individual parameters for multiple devices in one tap. Or check weather conditions and forecasts at unit location.

Install the app with below QR code

Specifications

Online controller KKRP01A

COMMUNICATION INTERFACES	
Ethernet LAN 10/100 Mbit/s	for connection intro LAN network
MODBUS	for connection of accessories
serial S21 cable 1,3m	for connection with A/C indoor unit
Power supply	directly from IU - 5 V DC for Online Controller, 12 V DC for accessories
Power consumption	120 mA, 0,6 W
IP code	IP10 / IP44 - inside A/C unit
OTHERS	
Mounting	inside of A/C IU or intro External Mounteing Kit
Weight	50g
Dimensions (W X h X d)	64 X67 X 17 mm (without cable)

Options

MATERIAL NAME	DESCRIPTION	EXPLANATION
KKRPM01A	External mounting kit	To install online controller outside the indoor unit or to extend the length of the cable between indoor unit and KKRP01A. It can easily be mounted on the wall of hidden in false ceilings.
KKRPW01A	Wifi Cable Pack	To enable wireless internet connection. Wife module to be purchased locally.
KBRCS01	Easy wall controller	Wired controller to be installed on the wall. Designed to easily control one indoor unit or a group of indoor units.
KBRC01A	Touch LCD wall controller	

Overview of available controllers for Siesta Sky Air

Siesta Sky Air indoor units	Controllers
ACQ*A cassette ACQ-B	- Standard wireless remote controller in box of decoration panel ADP125A - Optional wired remote controller ARCWB
AHQ*A ceiling suspended	- Standard wireless remote controller in box of indoor unit - Optional wired remote controller ARCWB
ABQ*A concealed ceiling ABQ*B	Standard wired remote controller (ARCWA) in box of indoor unit

ARCWB: overview of features & differences with ARCWA

	Feature	ARCWA	ARCWB NEW
		Standard with ABQ* A/B	Option for AHQ*A and ACQ-A/B
1	Outlook		
2	ON/OFF switch	Standard	Standard
3	Temperature setting		
	- default range 16-30°C	Standard	Standard
	- optional range 20-30°C	By dipswitch selection	By dipswitch selection
	- switch between °C and °F	Standard	Standard
4	Room temperature display	Standard	**Not available**
5	Room temperature sensor on remote controller	Standard	Standard
6	Cool / Fan dry / Heat / Auto	Standard	Standard
7	Sleep mode	Standard	Standard
8	Fan Speed selection	Standard	Standard
9	Delay timer	1, 2 & 4 hours delay	1 & 2 hours delay
10	7-days programmable timer	Standard	Standard
11	Real time clock display	Standard	Standard
12	Air swing selection		
	- ON/OFF swing mode	Standard	Standard
	- Change swing option (draft/soil prevention or standard)	Not available	Standard
13	LCD display without backlight	Standard	Standard
14	Key lock	Standard	Standard
15	Error code indication	Standard	Standard
16	IR receiver to enable compatibility with wireless remote controller (disabled when lock function is activated)	Standard	Standard
17	Last state memory from indoor PCB	Standard	Standard
18	Silent mode	Not available	By dipswitch selection
19	Turbo mode	Not available	By dipswitch selection
20	Compressor test model (compressor force ON)	Standard	Standard
21	Daikin inverter error code	Not available	Standard
22	UART communication port (for Daikin protocol)	Not available	Standard
23	Backup battery	Standard	Standard

Specifications

Dimensions (length x width x height) ARCWB: 0.15 m x 0.21 m x 0.04 m.

ARCWB comes standard with a 10 meter **wire**, which can be extended to maximum wire length of 15 meter. For reference: ARCWA comes standard with a 10 meter wire, which cannot be extended.

ARCWB & ARCWA can only control **one indoor unit** at a time; group control not possible.

DCS302C51

DCS301B51

DST301B51

Centralised control of the VRV 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.

DCS302C51
Centralised remote control

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 centralised remote controls in separate locations
- zone control
- group control
- malfunction code display
- maximum wiring length of 1,000m (total: 2,000m)
- air flow direction and air flow rate of HRV can be controlled
- expanded timer function

DCS301B51
Unified ON/OFF control

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)

DST301B51
Schedule timer

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
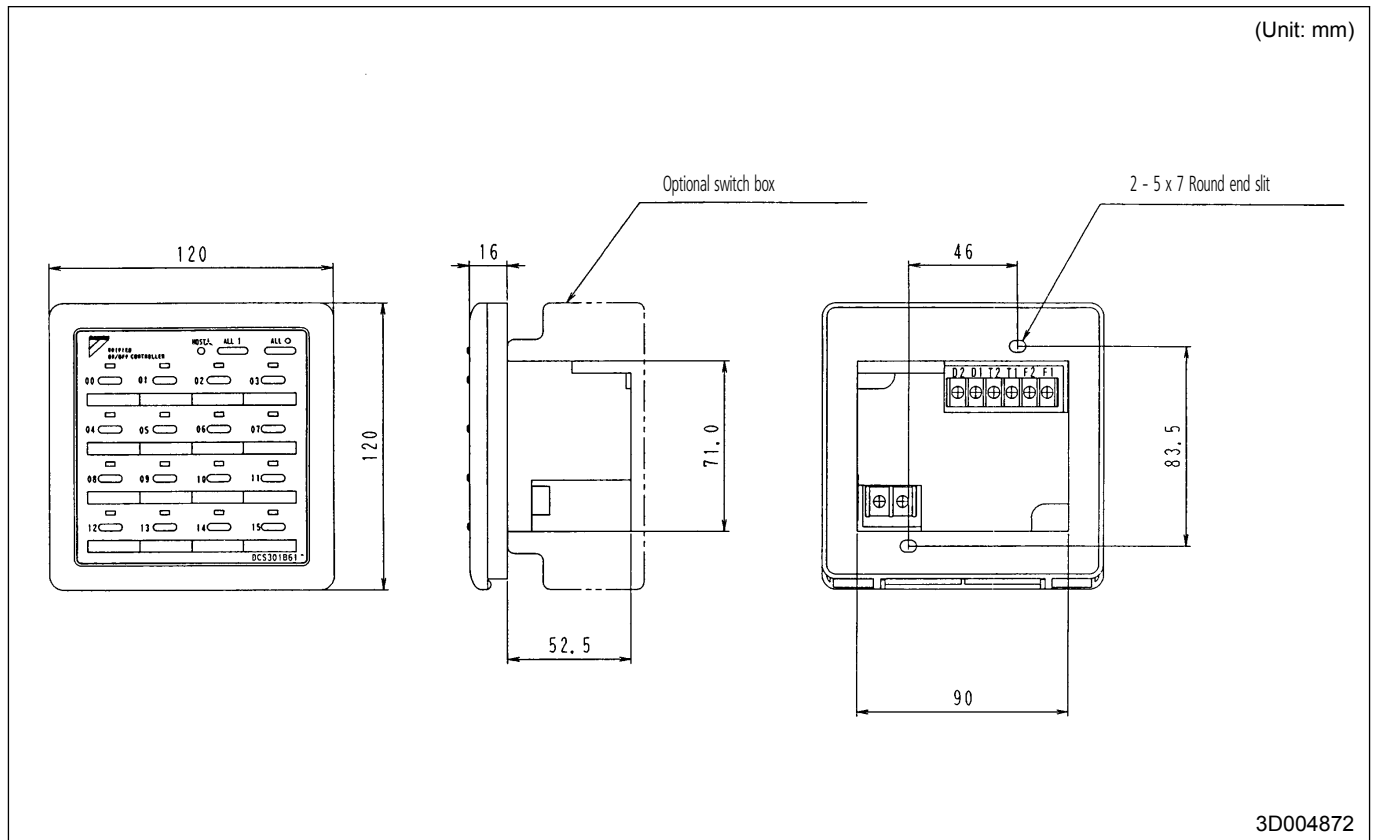- a maximum wiring length of 1,000m (total: 2,000m)

DCS302C51 - Centralised remote control
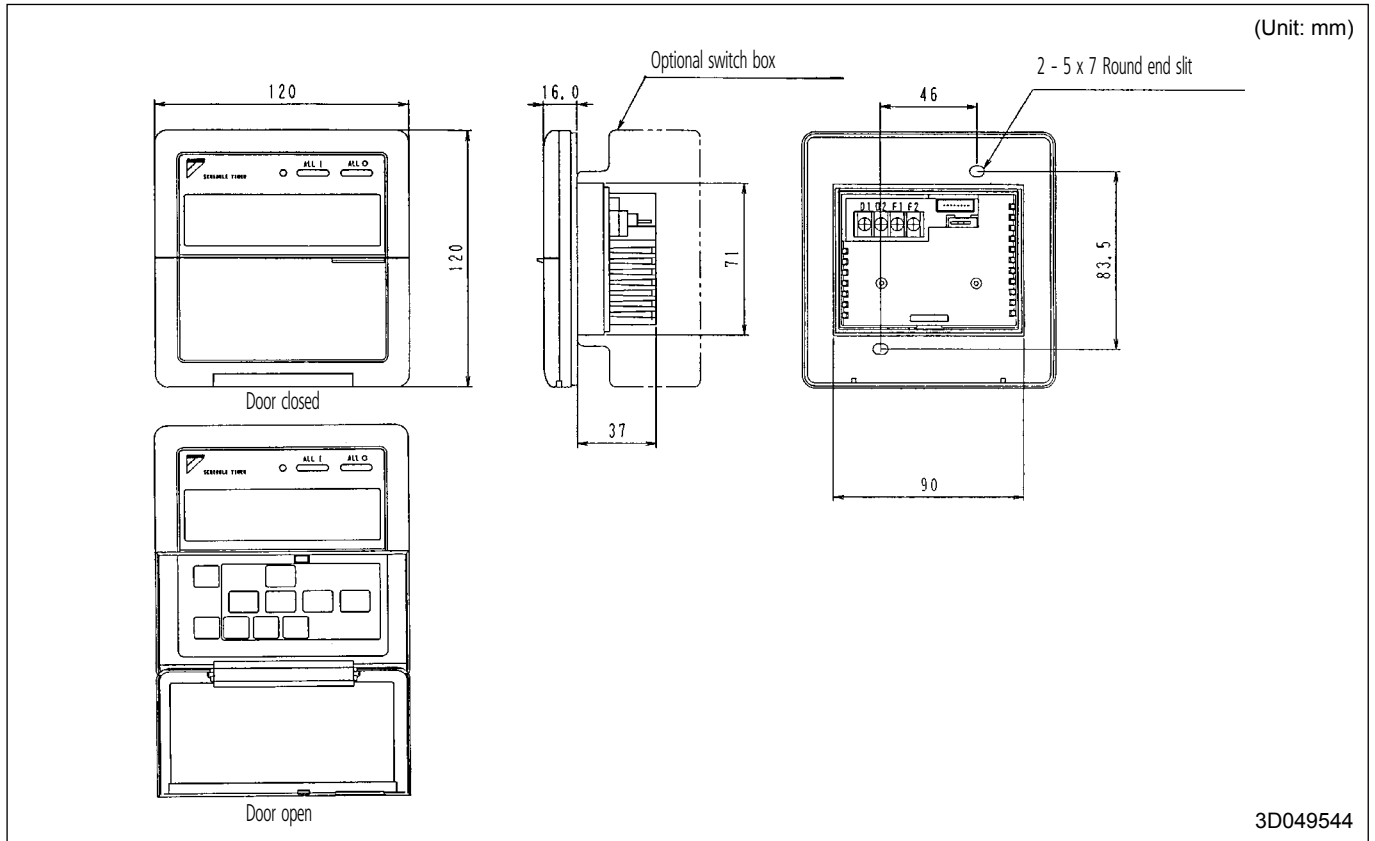## Dimensional drawing

(Unit: mm)

Switch box

180

16

92   ø 5 hole

120

71

83.5

F1 F2 T1 T2 D1 D2

48.5   136

Door closed

ALL 1   ALL 0

CENTRAL REMOTE CONTROLLER

DCS302C51-61

Door open

3D004872
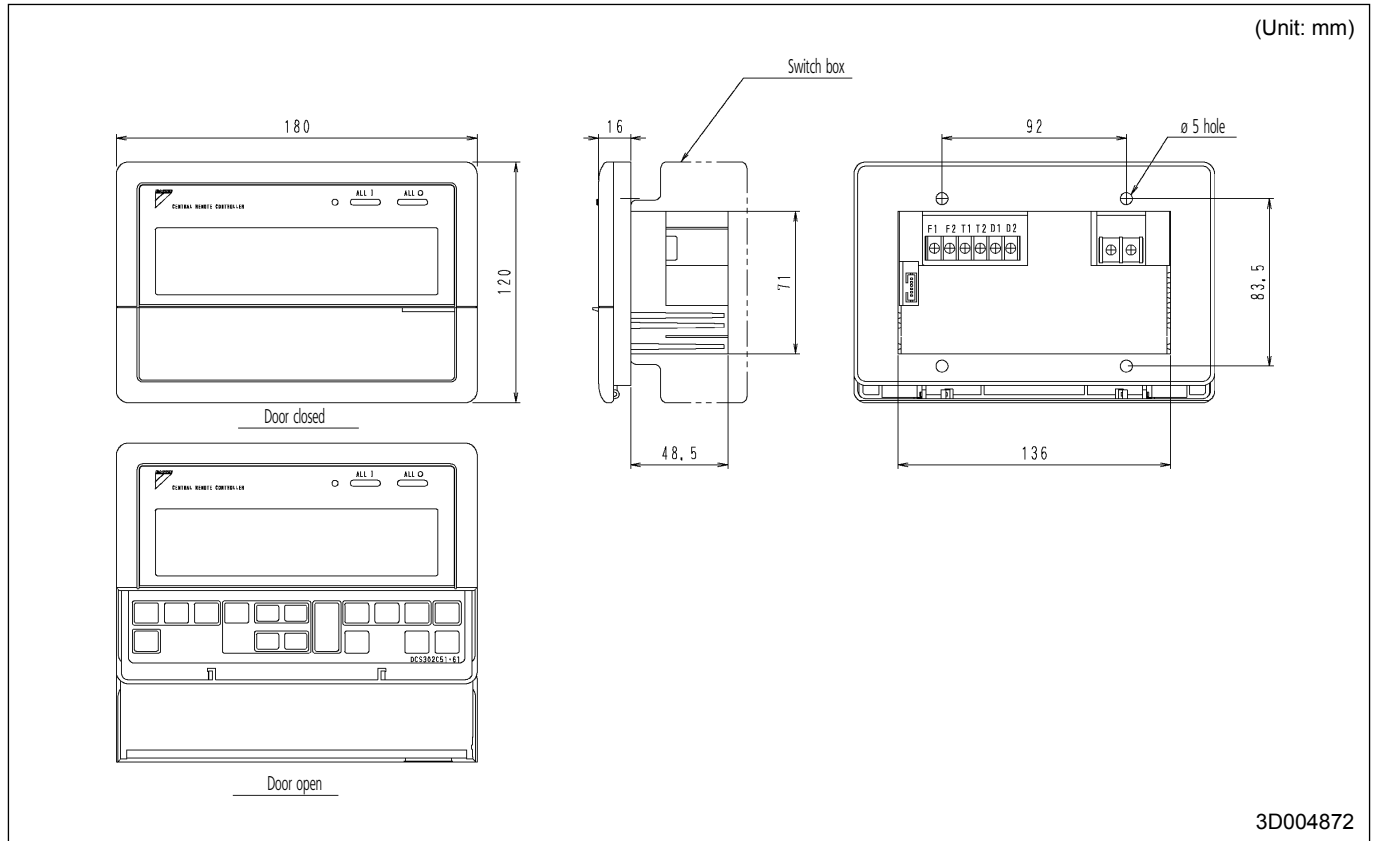
DCS301B51 - Unified on/off control
Dimensional drawing

(Unit: mm)

Optional switch box   2 - 5 x 7 Round end slit

120   16   46

120   71.0   83.5

D2 D1 T2 T1 F2 F1

UNIFIED
ON/OFF CONTROLLER   MODE   ALL 1   ALL 0

00   01   02   03

04   05   06   07

08   09   10   11

12   13   14   15

DCS301B61

52.5   90

3D004872

DST301B51 - Schedule timer
Dimensional drawing

(Unit: mm)

Optional switch box

2 - 5 x 7 Round end slit

120

120

Door closed

16.0

71

37

46

83.5

90

Door open

3D049544

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
DST301 B51 Schedule timer	To carry out weekly schedule operation by 1-minute units		• 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		• 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			• 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
Schedule timer Centralised remote control Unified ON/ OFF control			• 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.

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.
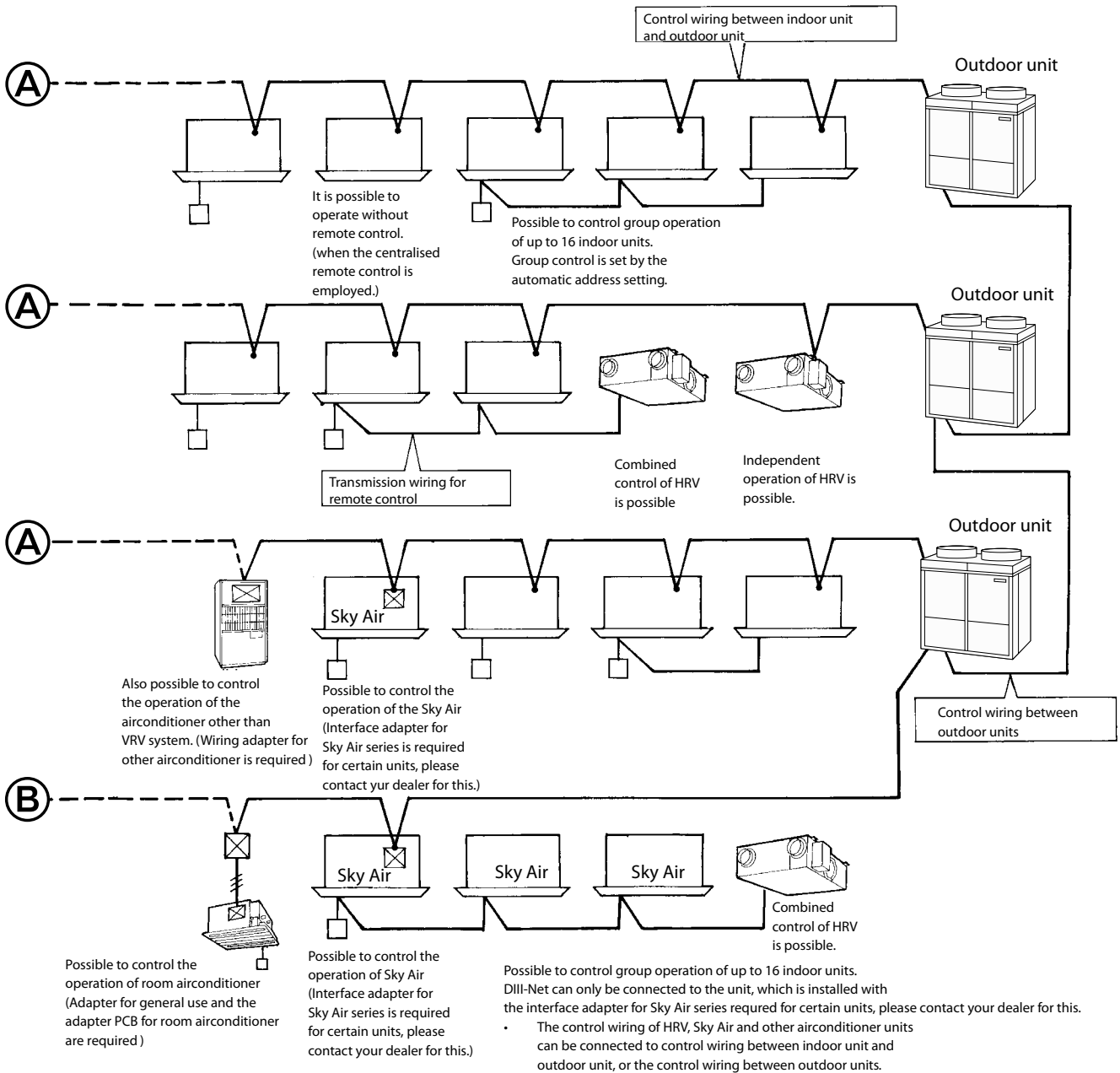- In order to prevent the connection of 3 wires on the same terminal, connect to the terminal unit of (A) or (B), or use the relay terminal (local supply).

Pattern 1

4• When all centralised control systems are located at one place.

Ⓐ or Ⓑ

Unified On/Off Control
(DCS301B51)
Up to 4 control
can be connected.

Centralised remote
control
(DCS302B51)

Forced
shut-down
input

Unified adapter for computerised
control (DCS302A52)

(6)   (Max 7)

Possible to interlink with building management
system (Host computer monitor panel.)

Schedule timer (DST301B51)
Possible to set 8 different patterns of weekly schedule by one unit.

Pattern 2

3• When all centralised control systems are
located at several places.

Ⓐ or Ⓑ

Never connect the wire
between the
controllers, which are
connected to
different circuits.

Ⓐ or Ⓑ

Ⓐ or Ⓑ

Unified On/Off control
(DCS301B51)
Up to 4 controllers can be
connected.

Centralised remote control
(DCS302B51)

The schedule timer,
unified adapter for
computerised control
etc. can be connected to
the same as in pattern 1.

Wiring example of centralised control systems

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

Control wiring between indoor unit and outdoor unit

Outdoor unit

It is possible to operate without remote control. (when the centralised remote control is employed.)

Possible to control group operation of up to 16 indoor units. Group control is set by the automatic address setting.

Outdoor unit

Transmission wiring for remote control

Combined control of HRV is possible

Independent operation of HRV is possible.

Outdoor unit

Sky Air

Also possible to control the operation of the airconditioner other than VRV system. (Wiring adapter for other airconditioner is required)

Possible to control the operation of the Sky Air (Interface adapter for Sky Air series is required for certain units, please contact yur dealer for this.)

Control wiring between outdoor units

Sky Air   Sky Air   Sky Air

Combined control of HRV is possible.

Possible to control the operation of room airconditioner (Adapter for general use and the adapter PCB for room airconditioner are required)

Possible to control the operation of Sky Air (Interface adapter for Sky Air series is required for certain units, please contact your dealer for this.)

Possible to control group operation of up to 16 indoor units. DIII-Net can only be connected to the unit, which is installed with the interface adapter for Sky Air series requred for certain units, please contact your dealer for this.

- The control wiring of HRV, Sky Air and other airconditioner units can be connected to control wiring between indoor unit and outdoor unit, or the control wiring between outdoor units.

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
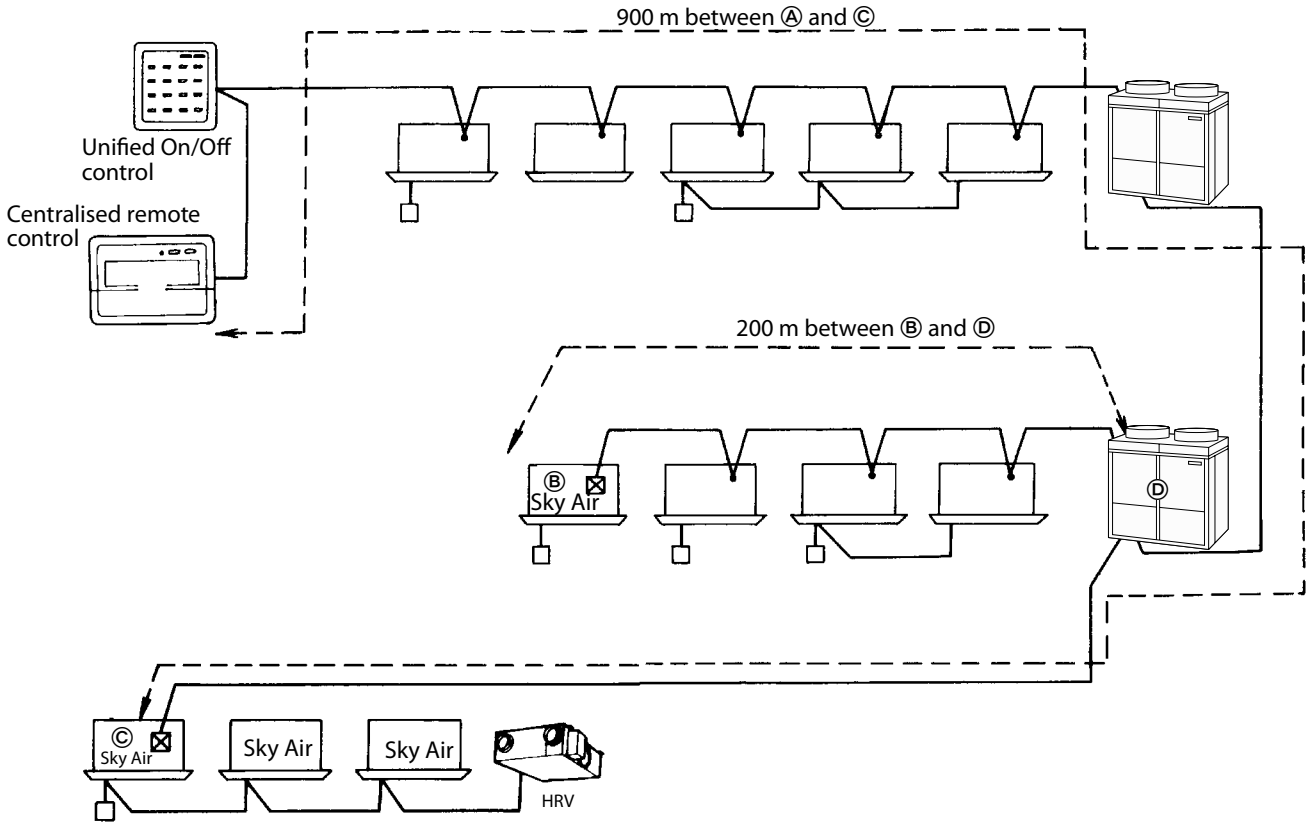
In the above system, the longest wiring extension is 900 m between A and C, which satisfies the limit of 1,000 m. The total length is 1,100 m, that is the total of 900 m between A and C and 200 m between B and C, which also satisfies the limit of 2,000 m.

The central controller functions properly, only when both the longest extension and the total length of wiring satisfies the limitation, as shown above.

Notes

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 syste

Length of transmission wiring

System example (1)

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

• : When the centralised remote control is connected to the control wiring between the outdoor units.

▬▬ Line: Main line
── Line: Branch line
---- Line: Sub-branch line
①~⑫ : Branch no.

How to count the branch wiring?
The control wiring between outdoor units and the control wiring between indoor unit and outdoor unit should be considered as main line. (We count this as no. 1 branch), and we count the branch line to no.②-⑫ which is diverged from the main line.

The terminal for Out/Out and the terminal In/Out are considered as the same line.

No sub-branch line
You cannot diverge the wiring from the branch line. Be sure to connect the unit by series wiring. (Never diverge the wiring from the branch line, which may cause malfunction of the transmission.)
The terminal for Out/Out and the terminal In/Out are considered as the same line.

④-⑦ excluded from this diagram

Unified On/Off control   Centralised remote control

Notes

As shown above, the centralised remote controls schould 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.)

Length of transmission wiring

System example (2)

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

● : When the centralised remote controls are connected to the control wiring between the outdoor unit and indoor unit.
▬▬ Line: Main line
── Line: Branch line
┈┈ Line: Sub-branch line
①～⑫ : Branch no.

How to count the branch wiring?
The control wiring between outdoor units and the control wiring between indoor unit and outdoor unit shall be considered as main line. (We count this as no. 1 branch), and we count the branch line to no.②-⑫ which is diverged from the main line.

No sub-branch line
You cannot diverge the wiring from the branch line. Be sure to connect the unit by series wiring. (Never diverge the wiring from the branch line, which may cause malfunction of the transmission.)

The terminal for Out/Out and the terminal In/Out are considered as the same line.

④-⑦ excluded from this diagram

Sky Air®

Centralised remote control   Unified On/Off control

Notes

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.

Length of transmission wiring

Number of connectable Units

	Central control equipment	Indoor unit	Outdoor unit	Other adapters
Target controller (max. number)	• Centralised remote control (2 units) • Unified ON/OFF control (8 units) • Schedule timer (1 unit) • Parallel interface (4 units)	• VRV system • Sky Air series (Interface adapter for Sky Air is required for certain units, please contact your dealer for this.) • 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 (2) • Wiring adapter	• Outdoor unit for VRV system	• External control adapter for outdoor unit • Wiring adapter for electrical appendices
Number of units	(note 1)	Up to 128 units (note 4)	Up to 10 units (note 3)	Up to 10 units

Notes

1 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 ≤ 160 units
> • Central Conversion number of central control equipment * + Indoor units + outdoor units + other adapters ≤ 200 units
> NOTE: * is converted one central control equipment except unified ON/OFF control as 10 units.)

2 When BS unit is installed, BS unit is not counted in the number. However, the indoor units after BS unit should be counted.
3 The outdoor unit is limited up to maximum of 10 units 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.
4 When the parallel interface is connected, the number of indoor units is 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.

Length of transmission wiring

Flow chart to determine the number of units to be connected

Check sheet for number of units in one system

Centralised controller	Qty	Y/N	
No. of IPU of intelligent Manager			≤ 1
Intelligent Touch Controller (Note 2)			≤ 2
Central remote control (Note 2)			≤ 2
Unified ON/OFF control			≤ 8
Schedule timer			≤ 1
Interface for use in BACnet® (Note 3)			≤ 1
Interface for use of LONWORKS®			≤ 1
Parallel interface			≤ 4
Total			≤ 7
			≥ 8

x 10 =
x 10 =
x 1 (A) =
x 10 =
x 10 =
x 10 =

□ + □ + □ + □ = □ ≤ 200

Unit	Qty	Y/N
VRV		
SkyAir with adapter for certain units, please contact your dealer for this.		
HRV (VAM)		
Wiring adapter for other air conditioner		
BS unit (Note 4)		
Optional DIII Ai unit		
Total			≤ 128

Outdoor unit	Qty	Y/N
Single units and Multi systems		
Total			≤ 10 (B)

Other adapters	Qty	Y/N
External control adapter for outdoor unit		
Wiring adapter for electrical appendices (1)		
Di unit	8 x	
Dio unit	4 x	
Ai unit		
Total			≤ 10

Notes

1 Condition
   (A) means:
   • Central control equipment + Indoor units + Outdoor units + other adapters £ 160 units
   • Conversion number of central control equipment + Indoor units + Outdoor units + other adaptors £ 200 units
   (B) means:
   In case of connecting to DIII-NET
   • Outdoor units must be counted to one system even in case of including 3 units. (Master + Master + Master = One system)
   • The outdoor units connected by terminal Ex. Q1, Q2 (excepting terminal F1, F2) are regarded as one system.
2 When one system is to be controlled from two locations, up to two intelligent Touch Controller (In case of combining the intelligent Touch Controller and Central Remote Controller, it is restricted to combine two Controllers in total), four Central Remote Controller and 16 unified ON/OFF Controller can be connected. However, the maximum number of units that can be controlled is 128.
3 When a BS unit is used, the indoor units used in its downstream are not counted.
4 One port of one Interface for use in BACnet 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 main and sub units.

Basic solution for control of Sky Air and VRV

DS-NET adapter
DTA113B51

BRC1D52

Up to 4 units / 1 adapter
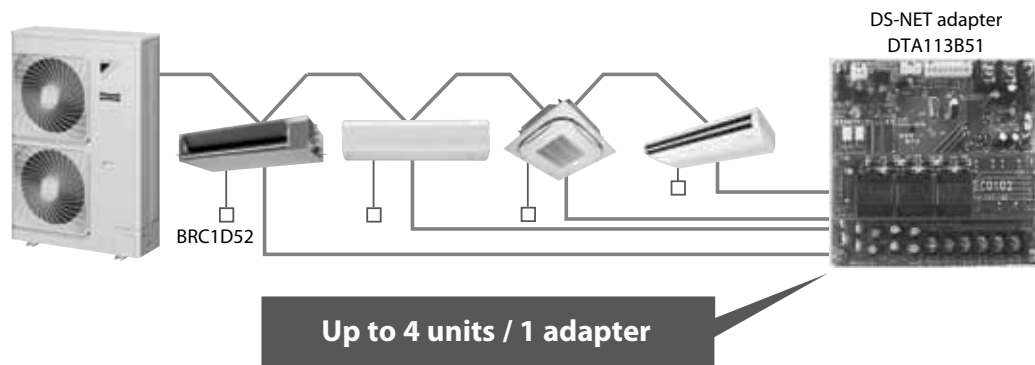
Features & Outline

Basic solution for control and management of Sky Air and VRV systems

Application area
- Critical applications for centralized monitoring.

System functions
- Automates alarm (report messages) for any malfunctions/ errors. Immediate report of any indoor unit breakdown to the servicing company.
- Minimizes the inconvenience of not having air conditioning via rapid messages.

Functions via mobile phone
- Status monitoring and control (Start/Stop, Set temperature, Operation mode, Room temperature, Operation time, Error code)
- Error notification

Functions when standing alone
- Rotation function
- Back-up operation

Main Functions

A single DS-NET Adapter unit can monitor and control the air conditioners of up to 4 remote control groups.

The following functions of air conditioners can be monitored and controlled by mobile phone:

Item	Monitoring	Operation
Start/Stop	o	o
Operating mode (Fan/Cool/Heat)	o	o
Temperature setting (Cool/Heat)	o	o
Error code	o	x

O: Possible

X: Impossible

Specifications

		DTA113B51
Supply - Voltage		DC 16V supplied from R/C line
Maximum number of connectable indoor units		4 units per adapter PCB (via GSM)
Forced ON/OFF input		Non-voltage (normal) 'a' contact x each point
Dimensions (mm)		100x100x35
Installation method		Built into the indoor unit or placed inside a box especially built for it
Communication functions	via GSM	RS232C, GSM modem
Ambient temperature/humidity conditions for operation		-10 ~ 50°C, max. of 95% RH
Control functions	via GSM	Start/stop, operation mode (fan/cool/heat), temperature setting
Monitoring functions	via GSM	Start/stop, operation mode (fan/cool/heat), temperature setting, error code
Malfunction monitoring functions		Malfunction reporting function
Automatic alternating operation functions	via GSM	Yes
Back-up operation functions	via GSM	Yes

Daikin recommends the use of a Wavecom Fastrack modem

Electric wiring

The contact is constant contact. The output conditions are level reading.
- When the forced operation contact is closed, all stopped units are continuously instructed to operate.
- When the forced stop contact is closed, all operating units are continuously instructed to stop.
- Once the forced operation contact is closed, all indoor units which are stopped at that time are instructed to operate, even if the forced stop contact is closed immediately after, the indoor units will operate for a moment and then stop. (This is the same as with the remote control operation.)

The contact is to be purchased locally. The current applied when the contact is ON is approx. DC16V, 10mA. Input is via momentary A-contact. Minimum 1 second is required for turning ON. Please don't clamp with high voltage cable.
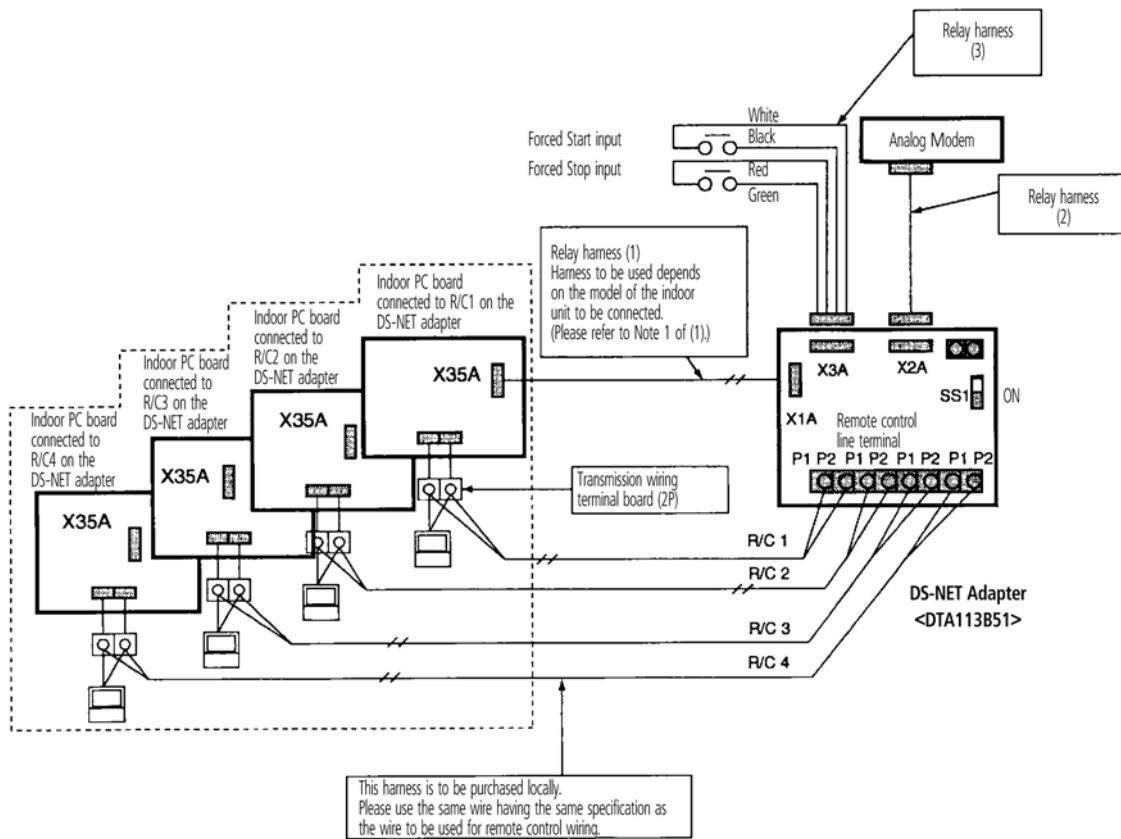
Electrical wiring
Procured on-site sheathed vinyl cord
(VCTF 0.2 mm2 or 0.3 mm2)

Important
- The A (+) and B (-) terminals have polarity which must not be mixed up.
- Turn on SS1 (terminating resistance) for the DS-NET adapter.
- Leave the adapter address of the circuit board to 0.

Detailed & easy monitoring and operation of VRV systems (max. 64 indoor units groups).
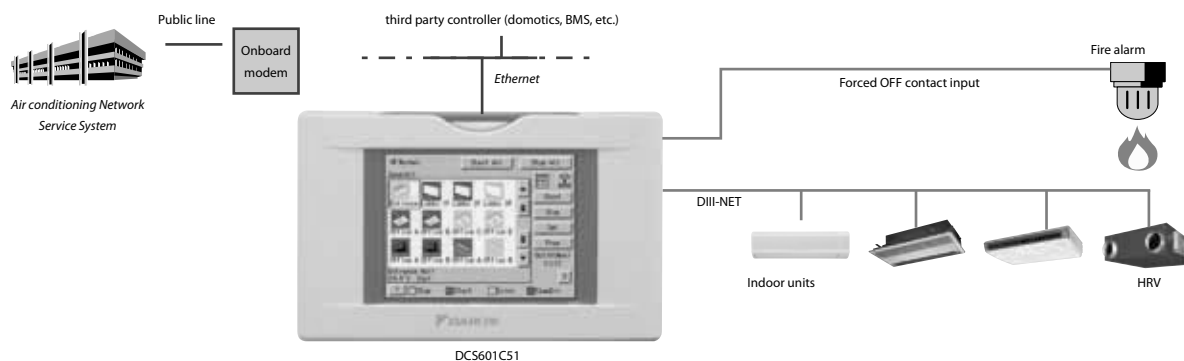
Features

Languages
› English
› French
› German
› Italian
› Spanish
› Dutch
› Portuguese

System layout
› Up to 64 indoor units can be controlled
› Touch panel (full colour LCD via icon display)

Management
› Easy management of electricity consumption
› Enhanced history function

Control
› Individual control (set point, start/stop, fan speed) (max. 64 groups/indoor units)
› Set back shedule
› Enhanced scheduling function (8 schedules, 17 patterns)
› Flexible grouping in zones
› Yearly schedule
› Fire emergency stop control
› Interlocking control
› Increased HRV monitoring and control function
› Automatic cooling / heating change-over
› Heating optimization
› Temperature limit
› Password security: 3 levels (general, administration & service)
› Quick selection and full control
› Simple navigation

Monitoring
› Visualisation via Graphical User Interface (GUI)
› Icon colour display change function
› Indoor units operation mode
› Indication filter replacement
› Multi PC

Cost performance
› Free cooling function
› Labour saving
› Easy installation
› Compact design: limited installation space
› Overall energy saving

Open interface
› Communication to any third party controller (domotics, BMS, etc.) is possible via open interface (http option)

Connectable to
› VRV
› HRV
› Sky Air (via interface adapter)
› Split (via interface adapter)

Features

Web Application & Internet

Type of connection	When using a LAN (Intranet) within the company	When using dialup	When using an constant Internet connection
Use scenarios	• A/C operation via the office PC • A/C operation via PCs on each floor • Monitoring of each office and sales branch from HQ • Error messages via e-mail	• A/C operation and status monitoring from remote locations • Group monitoring by connecting whenever necessary • Error messages via e-mail	• A/C operation and status monitoring from remote locations • Group monitoring via a constant connection (monitoring of the buildings and offices) • PPD data can be accessed remotely via the internet • Error messages via e-mail
System examples The network environment and devices configured by excising environment of the target building and commercially available products.	Bldg. B, Bldg. C, Bldg. A — 4F/3F/2F/1F — Intranet b/w buildings and offices — In-company mail server — e-mail transmission — Displays all A/Cs (Bldg.A) — Screen for 4th floor user — (Bldg.B) Monitoring of offices from HQ	4F/3F/2F/1F — e-mail transmission — In-company mail server — Public line — Dialup router — Group monitoring — A/C operation/monitoring via on-line from outside the company. 1 on 1 connection: Allows operation only of the location to which the call was placed. Use of a firewall is necessary when connecting to the Intranet	4F/3F/2F/1F — Constant connection network using ADSL and the like — e-mail transmission — e-mail transmission using an ISP/mail server — The Internet — Group monitoring — A/C operation/monitoring via on-line from outside the company. *1 on many (PSs) connection: Allows monitoring/operation of multiple locations
Security levels for the system example	• Allows for security within the Intranet • Username/password control via iTC web functions * If information/data such as passwords are leaked, it is possible that individuals (users of the Intranet) could maliciously operate the system from within the company	• Dialup router security function (phone number, username and password in general) as well as username/password control via the iTC web function * If information/data such as phone numbers and passwords are leaked, it is possible that the A/C system could be operated by an intruder. * When connecting to the Intranet, it is possible that someone could enter the Intranet unauthorized via a dialup environment	• Username/password control via the iTC web function • If there is no security within the constant connection environment to the web, available security is only the username/password control via the iTC web function. * If information/data such as the password is leaked, it is possible that an intruder could operation the A/C.
Proposals for better security	• Users can be limited by allowing only limited PCs to be able to access the web via the use of firewalls and the like	• Introduction of security for constant connection environment via network devices allows for a higher level of security (Example) Introduction of network devices, such as dialup routers, that feature strict authentication of accesses from outside the company Unauthorized access from outside the company prevented with a virtual private network (VPN).	• Introduction of security for constant connection environment via network devices allows for a higher level of security (Example) Unauthorized access from outside the company prevented with a virtual private network (VPN).

System overview

This intelligent Touch Controller is capable of controlling/monitoring up to 64 groups of indoor units (hereafter "groups").

The main functions of the intelligent Touch Controller include:
1 Set back function, enabling a building's temperature to be monitored and managed during both heating and cooling seasons through a single setting.
2 Free cooling function, reducing the air conditioning energy consumption by actively introducing fresh air into rooms.
3 Collective starting/stopping of operation of the indoor units connected to the intelligent Touch Controller.
4 Starting/stopping of operation, temperature setting, switching between temperature control modes and enabling/disabling of operation with the hand-held remote control by zone or group .
5 Scheduling by zone or group .
6 Monitoring of the operation status by zone or group .
7 Display of the air conditioner operation history.
8 Compulsory contact stop input from the central monitoring panel (non-voltage, normally-open contact).
9 Power proportional distribution of the air conditioners. (With the optional software DCS002C51)
10 Control and Monitoring of air conditioner with personal computer by the Controller (with the optional software DCS004A51).

A **group of indoor units** include:
1 One indoor unit without a remote control.
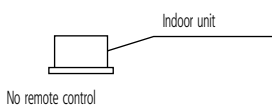
No remote control

2 One indoor unit controlled with one or two remote controls.
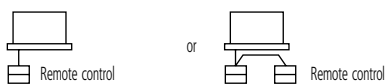
3 Up to 16 indoor units controlled with one or two remote controls.

- **Zone** control with the intelligent Touch Controller
- **Zone** control, which allows collective settings for more than one group, is available with the intelligent Touch Controller, which facilitates the setting operations.
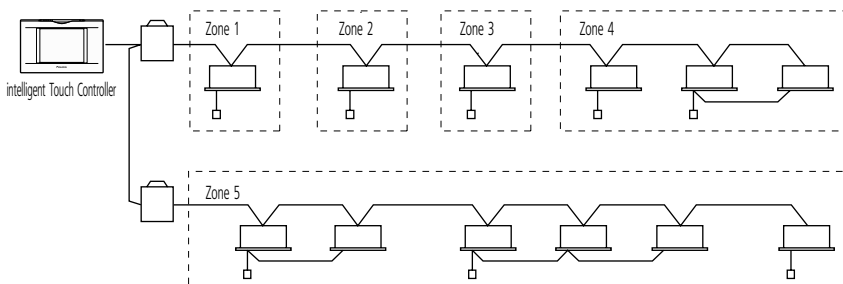
- One setting makes the same setting for all of the units in one zone.
- Up to 128 zones can be set with one intelligent Touch Controller. (The maximum number of groups in one zone is 64.)
- Groups can be zoned at will with the intelligent Touch Controller.
- Units in one group can be divided into more than one zone.

Part Names - Connection

Back

Modem connector for Air Conditioning Network Service system

When using Air Conditioning Network Service System service, connect it to the telephone line.

RS232-C connector for DIII-NET Plus adapter

Using DIII-NET Plus adapter being sold as an accessory, you can increase the number of indoor units to be controlled.

Terminal block for power supply

Connect to AC100-240V power supply. Terminal size is M4.

Earth terminal block

Securely connect the earth wire. Terminal size is M4.

LINE
PHONE
RS-232C
LAN

COM Dil Pi3 COM Pi2 Pi1 F2 F1 L0   N ~ L
100 - 240V

Ethernet connector for web

When monitoring and operating the indoor units using the optional Web and E-mail function software sold separately, connect to LAN via Ethernet cable.

Terminal block for DIII-NET communication

The terminal size of the terminal block for communication with indoor units is M3.5.

Terminal block for watt hour meter and force stop input of indoor units

This is used when distributing the power supply to indoor units using optional Power Proportional Distribution software sold separately and when stopping the indoor units compulsorily by contact input.
The size of terminal block is M3.5.

Specifications

			Intelligent Touch Controller	DIII-NET Plus adapter
Reference			DCS601C51	DCS601A52
Power supply			externally supplied AC100V-240V, 50/60Hz	externally supplied AC100V-240V, 50/60Hz
Condition of installation method for use			JIS4 switchbox embedded in indoor wall	-
Operating condition	Surrounding temperature		0°C to 40°C	-10°C to 40°C
	Humidity		less than 85 % RH (if no condensation)	less than 90 % RH
Dimensions	HxWxD	mm	147x230x107	190x157x42
LCD panel	Size / n° of dots / n° of colours		5.7 inches / QVGA 320x240 / 4,096 colours	-
Maximum number of indoor GROUPS			1 x 64 (2 x 64: combined with DCS601A52)	1 x 64
Maximum number of outdoor SYSTEMS			1 x 10 (2 x 10: combined with DCS601A52)	10
PC & display			built-in	-
Input	Touch panel		10 bit encoded analog input	-
Communication functions	DIII-NET x 1		air conditioning equipment communication line	air conditioning equipment communication line
	Ethernet		port for web access and e-mail function	-
	RS-232C		DIII-NET Plus adapter	-
	10BASE-T		web option	-
	Modem	999121A	onboard modem capability	-
	PCMCIA slot		flash memory card	-
Input terminals	Digital input Di x 1		forced shutdown	-
	Pulse input Pi x 3		power measuring pulse	power measuring pulse
Overseas certification	Safety of information - Technology Equipment		IEC60730 (including IEC60335)	IEC60730 (including IEC60335)
	Interference (EMC)		EN55022 Class A, EN55024	EN55022 Class A, EN55024
Project data & Engineering			Configuration and engineering for each project are necessary. For further details, please consult with Daikin distributors and dealers	

Accessories

Description	Reference	Comments
Software	DCS002C51	Power Proportional Distribution (PPD) Software
	DCS004A51	E-mail / Web software
	DCS007A51	Http interface option
Hardware	DCS601A52	DIII NET-Plus adapter
Touch-Pen	1264009	Spare part n° of Touch-Pen for Intelligent Touch Controller
Interface adapters	KRP928A2S	For connection to Split units
	DTA102A52	For connection to R-22 / R-407C Sky Air units
	DTA112B51	For connection to R-410A Sky Air units
DIII-Ai	DAM101A51	Outdoor temperature sensor, required for free cooling changeover
Digital input	DEC101A51	Input contacts: 8 inputs wth additional error feedback
Digital input/output	DEC102A51	Output contacts: 4 points with additional error and on/off feedback

Accessories

DEC101A51 - Digital input
Dimensional drawing

Power supply specifications	1~200-240V 50/60Hz
Rated power consumption	15W
Mass (Weight)	2.5kg
Case material	Plated steel sheet
Case color	Matting chrome

UP
(198)
70 70
70
Mounting hole (*1)
Spare hole (*1)
DEC101A51
(309) 325 335
Front panel screw
Spare hole (*1)
Mounting hole (*1)
4.5 6
※1
70
Service entrance - wire lead-in port
(Approx. 10mm dia. x 6)

40
40 40 40
325
140
Fix the DEC101A51 firmly with the installation screws (M4)

Notes
1 Installation place
   • Install the unit indoors where it is not exposed to water and dust or dirt.
   • Install the unit where both temperature and humidity do not become high.
     (Operating (available) temperature: -10~+40℃
     Operating (available) humidity: 10~85%)
   • Connect the wiring to be connected in the field from the lower surface side. It is, therefore, necessary to make arrangements so as not to attach other equipment within 80mm from the lower surface of this equipment.
   • Install this equipment in a place in which only authorized personnel can touch it.
2 Installation Direction
   Install this equipment vertically to the floor surface. It should be noted that if it is installed in horizontal direction, a malfunction or failure may result.
3 Installation Method
   Ensure that this equipment is installed with 4 screws (screw size M4 min.).
4 Restrictions in continuous installation
   In case several devices are set up and installation inside the power board is carried out, each equipment installation space and space between the wall surface and this equipment should be left at least as shown to the left.

3D047630

External connection diagram

DEC101A51

No. ※	Wiring procedure
1	<F1/F2> wiring between this equipment and centralized control equipment is required.
2	The connection to the facility equipment and setting of various switches are required. See the "Wiring with Facility equipment" paragraph.
3	Connect the power supply and earth. See the "Power Supply & Earth wiring" paragraph.
3	For the wiring connection and clamping method, refer to the "Wiring lead-in" paragraph.

L switch Fuse (10A) F1, F2
Power Supply
(1~200-240V) N DEC101A51
centralized control equipment
facility equipment
(8 numbers max.)

Wiring with Facility Equipment
<Caution> The length of wiring between this equipment and facility equipment is 100m max.

Abormal input
When the contact is "Open" or "Closed", "Error" is produced.
Input specifications: No-voltage "a" contact
(The welding current is approx. 10mA when the applied voltage is 20 to 30 V DC and the contact is "Closed".)
For input, use the contact to micro current. (12VDC, 1mA max.)

| Power Supply & Earth Wiring |
|---|
| For power supply, 1~200-240V is used. The wiring to the power terminal block (L/N) is required. The electric wire used should be 1.25 to 2.0mm2. After checking the power supply specifications, make correct connections. |
| Connect the earth wiring to the "⏚" terminal. Use a 2.0 mm2 wire. |

Facility equipment operating status input wiring
DEC101A51
CM
M1~8 K1R
Facility equipment operating status

Facility equipment error status input wiring
DEC101A51
CA
A1~8 K2R
Facility equipment error status

3D047631

Accessories

DEC102A51 - Digital input / output
Dimensional drawing

Power supply specifications	1~200-240V 50/60Hz
Rated power consumption	15W
Mass (Weight)	2.5kg
Case material	Plated steel sheet
Case color	Matting chrome

Notes
1 Installation place
 • Install the unit indoors where it is not exposed to water and dust or dirt.
 • Install the unit where both temperature and humidity do not become high.
 (Operating (available) temperature: -10~+40℃
 Operating (available) humidity: 10~85%)
 • Connect the wiring to be connected in the field from the lower surface side. It is, therefore, necessary to make arrangements so as not to attach other equipment within 80mm from the lower surface of this equipment.
 • Install this equipment in a place in which only authorized personnel can touch it.
2 Installation Direction
 Install this equipment vertically to the floor surface. It should be noted that if it is installed in horizontal direction, a malfunction or failure may result.
3 Installation Method
 Ensure that this equipment is installed with 4 screws (screw size M4 min.).
4 Restrictions in continuous installation
 In case several devices are set up and installation inside the power board is carried out, each equipment installation space and space between the wall surface and this equipment should be left at least as shown to the left.

3D047623

Fix the DEC102A51 firmly with the installation screws (M4)

Accessories

DEC102A51 - Digital input / output
External connection diagram

DEC102A51

No. ※	Wiring procedure
1	<F1/F2> wiring between this equipment and centralized control equipment is required.
2	The connection to the facility equipment and setting of various switches are required. See the "Wiring with Facility equipment" paragraph.
3	Connect the power supply and earth. See the "Power Supply & Earth wiring" paragraph.
3	For the wiring connection and clamping method, refer to the "Wiring lead-in" paragraph.

Wiring with Facility Equipment

<Caution> The length of wiring between this equipment and facility equipment is 100m max.

Operation output

It is possible to select continuous 1 output (4 points) or instantaneous 2 output (ON/OFF pair - 2 points).

Wiring at Continuous Output (Up to 4 facility equipments can be connected.)

Wiring at instantaneous Output (Up to 2 facility equipments can be connected.)
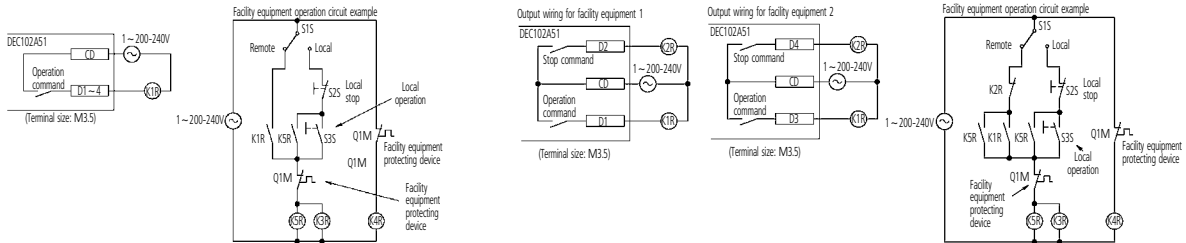
Operation input
When the contact is "Closed", "Run" is to be input. Input SPEC: No-voltage "a" contact (When the applied voltage is 20 to 30V DC and the contact is "Closed", the welding current is approx. 10mA.) For input, use a contact for micro current. (12V DC, 1mA max.)

Abnormal input
When the contact is "Open" or "Closed", "Error" is produced. Input specifications: No-voltage "a" contact (The welding current is approx. 10mA when the applied voltage is 20 to 30V DC and the contact is "Closed".) For input, use the contact for micro current. (12V DC, 1mA max.)

Facility equipment operating status input wiring

Facility equipment error status input wiring

When the switch was set to "Ins." (Instantaneous Output), the operation input terminals M3, M4 and abnormal input terminals A3, A4 ar not used.

Terminal used in case where the switch was set to "Continuous Output" (Con.) or "Instantaneous Output" (Ins.)

Facility equipment (Up to 4 units can be connected to single DEC102A51.)	Terminal used in the case of setting to "Continuous Output"					
	Run/Stop output terminal		Operation input terminal		Abnormal input terminal	
1st equipment	CD	D1	CM	M1	CA	A1
2nd equipment	CD	D2	CM	M2	CA	A2
3rd equipment	CD	D3	CM	M3	CA	A3
4th equipment	CD	D4	CM	M4	CA	A4

Facility equipment (Up to 2 units can be connected to single DEC102A51.)	Terminal used in the case or setting to "Instantaneous Output"							
	Operation output terminal		Stop output terminal		Operation input terminal		Stop input terminal	
1st equipment	CD	D1	CD	C2	CM	M1	CA	A1
2nd equipment	CD	D2	CD	C4	CM	M2	CA	A2

When the switch was set to "Ins." (Instantaneous Output), the operation input terminals M3, M4 and abnormal input terminals A3, A4 are not used.

Power Supply & Earth Wiring

For power supply, 1~200-240V is used. The wiring to the power terminal block (L/N) is required. The electric wire used should be 1.25 to 2.0mm2. After checking tht power supply specifications, make correct connections.

Connect the earth wiring to the "" terminal. Use a 2.0 mm2 wire.

3D047624

Dimensions
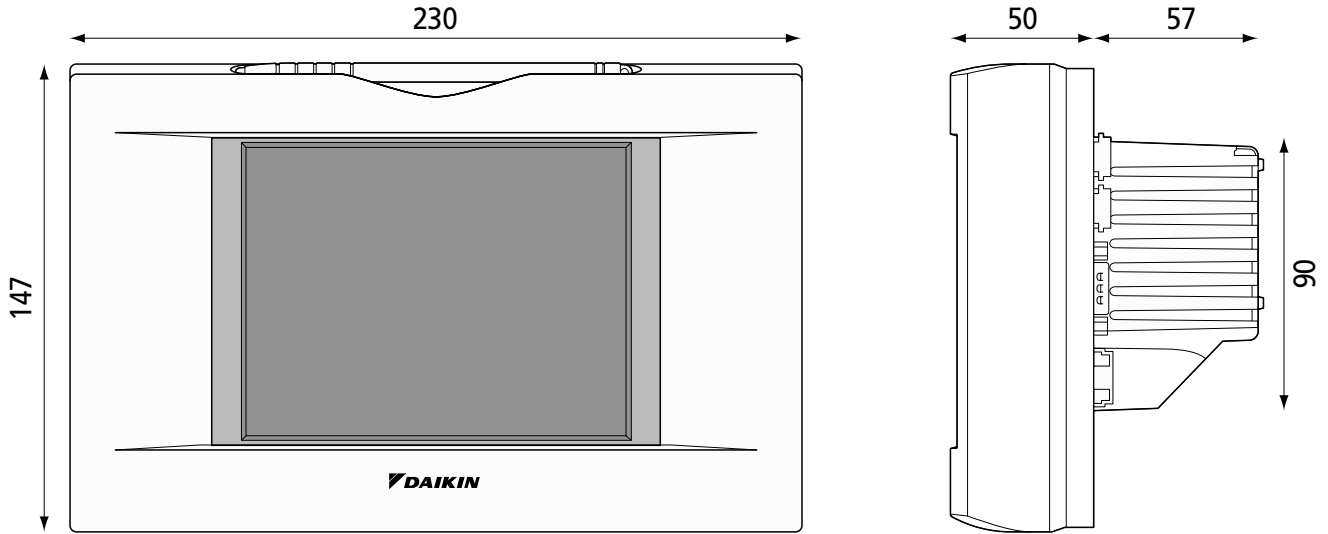
System wiring

Connecting Unification adaptor allows using the contact for normal and abnormal operation signal and collective start/stop with a contact. For details, contact the vendor you purchased the product from.

Also, by connecting DIII-NET-plus adapter, it is possible to operate and monitor the indoor units of 64 groups (intelligent Touch Controller plus DIII-NET – plus adapter–128 groups in total) additionally.
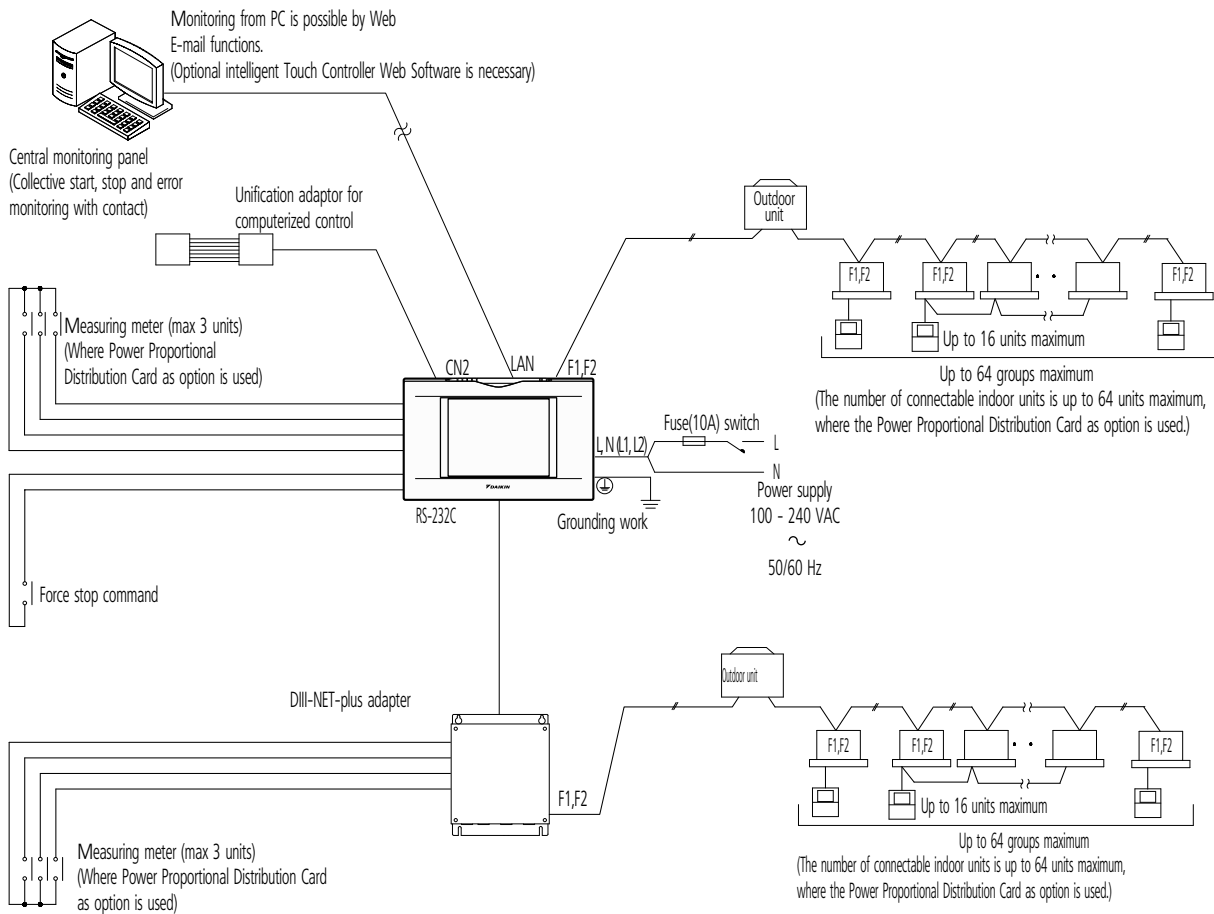
Power Proportional Distribution Card

Function and Outline

Power Proportional Distribution Card, in combination with an existing intelligent Touch Controller, enables to proportionally calculate and display electricity amount used by air conditioner per indoor unit.

Main Functions
- 13 months data storage possible
- Data available per hour per indoor unit
- Power proportional distribution may be calculated for 2 x 64 indoor units at maximum.
- Power proportion distribution results data may be saved into a PCMCIA card.
  Data is saved CSV format generally applied to personal computers, so bills may be issued by use of a general purpose table calculation software package in easy manners.
  (A personal computer and a general purpose table calculation software package may be available separately.)

Precautions
This system calculates electricity consumptions by size of indoor units, run time, expansion vales open gap, suction rate and the number of pulses from the power meters installed at the Outdoor Units.
This method is not calculated by direct measurement alone.
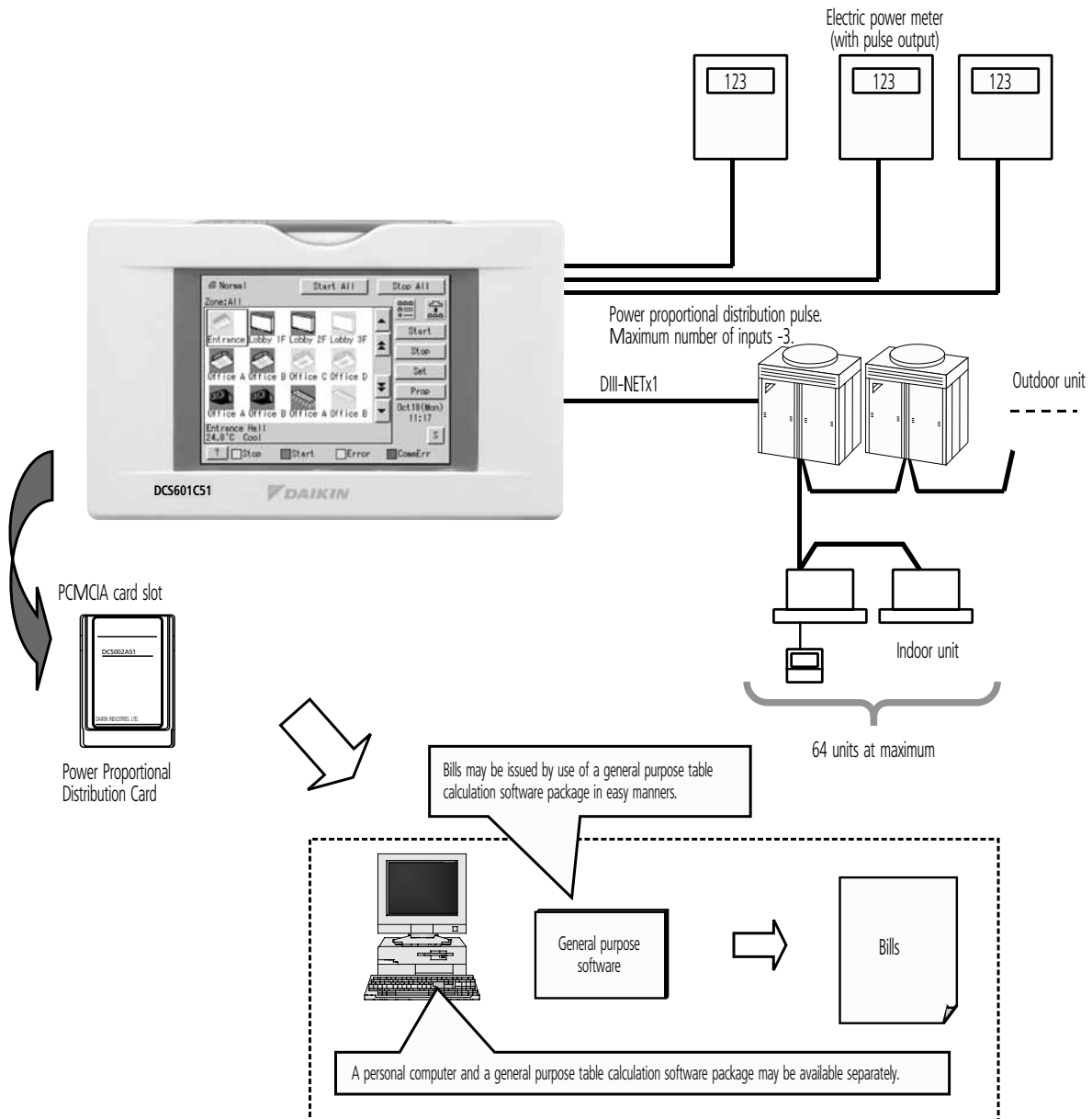
Power Proportional Distribution Card

File Format

When Power Proportional Distribution Report is saved, a zone information file, an electric power information file and detailed information file are created.

Zone information file
This contains zone name and information of air conditioners in the zone.

(1) File name : ZONE.CSV

(2) File format:

(Example)

zone ID, Name	◄———————————— Index
0, " 'all"	◄———————————— Zone ID, zone name
1, " 'Z-000"	
2, " 'Z-001"	
3, " 'Z-002"	
	◄———————————— One line space
zone ID, AC No.	◄———————————— Zone ID, air conditioner number
0, 0	
0, 1	
1, 2	
1, 3	

Electric power information file
This file contains Power Proportional Distribution Report and information of air conditioners.
(1) File name :   <u>YYYYMMDD</u> - <u>YYYYMMDD</u>

Month and date of calculation completion
Year, month and date of calculation start
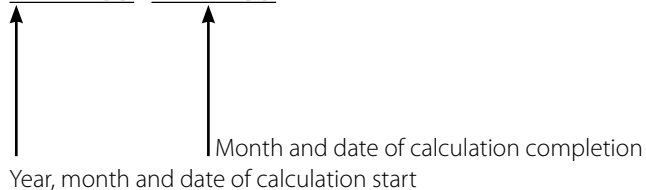
(2) File format :

(Example)   Index

Start day, number of days, air conditioner type (0 : normal type), Undistributed Power Amount, period designation type
(0 : period designation, 1 : month designation)
20050101, 31, 0, 0, 200501

◄———————————— One line space

Air conditioner number, indoor unit number, horse power code, Daytime used Pwr, Nighttime used Pwr, Daytime Idle Pwr, Nighttime Idle Pwr, GasAmount.
0, "1:1-00", 38, 2459, 0, 0, 0, 0
1, "1:1-01", 38, 2718, 0, 0, 0, 0
60, "1:4-12", 70, 489, 0, 0, 0, 0

TABLE OF CONTENTS
iTM

1. System overview and main features

intelligent touch Manager

Integration with intelligent control solutions

System overview

iTM Integrator
(DCM601A53)

Up to 2,560 groups

HUB

A maximum of 5 intelligent Touch Managers can be connected to a single iTM Integrator.

Air Conditioning
Network Service System

Internal modem
(option)

Phone line

intelligent touch Manager
DCM601A51

DIII-NET line

VRV IV

Max. 64 groups

indoor units

HRV

LAN

LAN

iTM plus adaptor line

Max. 7 adapters

DCM601A52

Internet
Intranet

Di/Pi port

Malfunction report
by E-Mail

USB memory

Di/Pi line
Max. 200m

WAGO
interface

Web Access

I/O module

I/O module

I/O module

Web Access

Fire alarm

kWh meter

Lighting

Pump

Fan

Sensor

User friendliness

› Intuitive user interface
› Visual lay out view and direct access to indoor unit main funtions
› All functions direct accessible via touch screen or via web interface
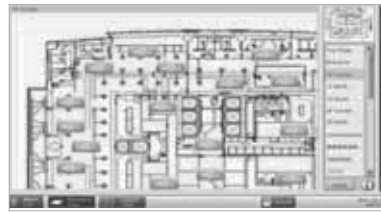
Smart energy management

Smart energy management tools enable monitoring if energy use is according to plan and help detect origins of energy waste, thus maximizing efficiency

Flexibility

› In size: modular design for use in small to large applications
› In integration: from simple A/C control to small BMS control of lighting, pumps, ... via WAGO I/O

Flexibility in size
64 up to 2,560 groups
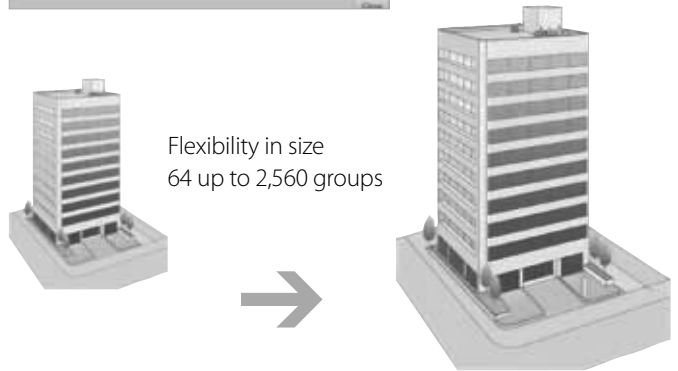
Easy servicing and commissioning

Perform the refrigerant containment check remotely and when it is most convenient for you and so prevent an on site visit. At the same time, increase your customer satisfaction because there is no disruption to the air conditioning during business hours.

Functions overview

DCM601A51

System layout

› Up to 2,560 unit groups can be controlled
  (ITM plus Integrator + 7 iPU (incl. iTM adaptor)
› Ethernet TCPIP

Management

› Web access
› Power Proportional Distribution (option)
› Operational history (malfunctions, operation hours, …)
› Smart energy management
  - monitor if energy use is according to plan
  - detect origins of energy waste
› Setback function
› Sliding temperature

Languages

› English
› French
› German
› Italian
› Spanish
› Dutch
› Portuguese

WAGO Interface

› Modular integration of 3rd party equipment
  - WAGO coupler (interface between WAGO and Modbus)
  - Di module
  - Do module
  - Ai module
  - Thermistor module

Control

› Individual control (2,560 groups)
› Schedule setting (Weekly schedule, yearly calender, seasonal schedule)
› Interlock control
› Setpoint limitation
› Temperature limit

2. Functions & Options
2.1. Functions

Category	Function		Remarks
Basic functions	*iTM plus adaptor* (DCM601A52)		Maximum number of adaptors: 7
	Management points		Maximum number of management points: 650 (Number of DⅢ connection management points: 512)
	Areas		Maximum number of areas: 650 Maximum area hierarchies: 10
	Supported languages		English, French, German, Italian, Spanish, Portuguese, Dutch, Chinese, and Japanese
	Monitoring screens	Icon view	Icons show the operation status of equipment.
		List view	Detailed information of each management point is displayed.
		Layout view	Up to 60 screens can be created.
	History		Up to 100,000 events are recorded in history including malfunctions, operations, automatic control, and system information. Operation origin is also recorded.
Automatic control	Schedule		Number of programmes:100 Up to 20 actions/day can be set.
		Weekly schedule	7 days of the week + 5 special days can be set.
		Yearly calendar	Special days can be specified by date or month/week/day of the week. Special day settings can be reused every year.
		Seasonal schedule	Programmes for respective seasons can be switched by date.
	Interlock		Number of programmes:500 Interlock is possible for on/off, malfunction, analogue value, and operation mode switching.
	Emergency stop		Number of programmes:31
	Automatic changeover		Number of changeover groups:512
	Temperature limit		Number of temperature limit groups: 8 Upper limit range: 32-50°C Lower limit range: 2-16°C
	Sliding temperature		Number of sliding temperature groups: 8 Outdoor temperature range: 18-34°C Setpoint range: 16-32°C
	Heating Mode Optimisation (HMO)		Unneeded heating is prevented.
	Timer extension		Operation stop is selectable from 30, 60, 90, 120, and 180 minutes.
	Setback		Setback setpoint can be set for 2 patterns. Temperature range: 1-7°C , −1--7°C (setpoint shift amount)
Data control	Power Proportional Distribution		Hourly Power Proportional Distribution results up to 13 months are recorded. The system supports data output in CSV format.
	Energy Navigator		Actual results of daily/monthly energy consumption are shown in graphs. Comparisons can be made with predetermined values/actual results of the previous year. Inefficient operation of VRV indoor units is automatically identified, and energy waste is calculated.
Remote access	Web access		Web browsers can display the same type of screen as the *intelligent Touch Manager*. Up to 4 administrators and 60 general users can be registered. Screens and operation accessible to general users can be restricted.
	E-mail alerts		Up to 10 e-mail addresses can be set. Addresses for sending malfunction alerts can be set by range of management points. The SMTP server authentication method is selectable from no authentication, POP before SMTP, and SMTP-AUTH.
System	Automatic registration		Indoor units connected to DⅢ-NET are automatically detected, and icons for respective models are automatically registered.
	Security		Screen lock functions are available. Access restrictions can be set for each general user.
	Screen savers		Screen savers are selectable from 3 patterns.
	Setting of contact information		Contact information for servicing can be registered.
Air Conditioning Network Service	Air Conditioning Network Service System		A service agreement needs to be concluded.
	Energy Saving Air Conditioning Network Service System		A service agreement needs to be concluded.

Category	Function	Remarks
Basic functions	intelligent Touch Manager (DCM601A51)	Maximum number of units: 5
	Management points	Maximum number of management points: 3,250 (number of DⅢ connection management points: 2,560)
	Areas	Maximum number of areas: 3,250 Maximum area hierarchies: 10
	Supported languages	English, French, German, Italian, Spanish, Portuguese, Dutch, Chinese, and Japanese

2.2. Options

■ Types of management points and target equipment/interface

Management point	Supported equipment	Number of management points
Indoor	DⅢ-compatible indoor units	Maximum: 512 *1
	Interface adaptor for SkyAir (DTA102A52)	
	Interface adaptor for residential indoor unit (KRP928BB2S)	
	Central control adaptor kit (DTA107A55)	
Outdoor	VRV outdoor units	Maximum: 80
Ventilator	Heat Reclaim Ventilator	Maximum: 512 *1
D3 Chiller	DⅢ-compatible air-cooled chillers (UWA/Y)/water-cooled chillers (ZUW)	Maximum: 320 *2
Di	Di port of intelligent Touch Manager	Maximum: 32 *3
	Di port of iTM plus adaptor	
D3 Di	DⅢDi Unit (DEC101A51)	Maximum: 512 *1
External Di	Wago Di	Maximum: 512 *4
D3 Dio	DⅢDio Unit (DEC102A51)	Maximum: 512 *1
	General-purpose adaptor (DTA103A51)	Maximum: 512 *4
External Dio	Wago Di, Do	
Pi	Pi port of intelligent Touch Manager	Maximum: 32 *3
	Pi port of iTM plus adaptor	Maximum: 80
Internal Pi	Energy consumption of VRV outdoor units	
External Ai	Wago Ai	Maximum: 512 *4
Internal Ai	Room temperature, setpoint D3 Chiller outlet/inlet water temperatures	Maximum: 512 *4

*1: Total of DⅢ connection equipment (Indoor, Ventilator, D3 Chiller, D3 Di, D3 Dio)
*2: Maximum number of management points for D3 Chiller only
*3: Total of Di/Pi management points
*4: Total of External Di, External Do, External Ai, and Internal Ai

■ DAIKIN supplied equipment

Model	Item
DCM601A51	intelligent Touch Manager
DCM601A52	iTM plus adaptor (Option)
DCM601A53	iTM integrator (Option)
DCM002A51	iTM power proportional distribution software (Option)
DCM008A51	iTM energy navigator software (Option)

■ Locally supplied equipment

Item	Specification
USB memory	USB 2.0 Up to 32GB memory can use
PC for Web access	Windows XP Professional SP3 (32bit) Windows VISTA Business SP2 (32bit) Windows 7 Professional SP1 (32bit,64bit) Monitor: 1024x768 or more Web browser: Internet Explorer 8, 9 Firefox 10.0 Flash Player Ver11.1
WAGO I/O system	Modbus communication unit: 750-315/000-002 /K190-6442 DC24V power supply unit: 787-712 DC24V power supply module: 750-613 Connector: 750-960 Terminator module: 750-600 Di module: 750-400, 750-432 Do module: 750-513/000-001 Ai module: 750-454, 750-479 Thermistor module: 750-461/020-000

3. Specifications

3.1. Intelligent Touch Manager

3.1.1. Main specifications

Port	Number	Use
DⅢ	1ch	DⅢ-NET (Up to 64 groups)
LAN	1ch	Web Access (100BASE-TX)
RS485	1ch	External I/O module (Di,Dio,Ai)
Di(Pi)	4ch	Emergency stop input (Di1) Pulse input,contact signal input
plus ADP IF	1ch	*iTM plus adaptor* (Up to 7 adaptors)
internal modem (option)	1ch	Air Conditioning Network Service System

POWER SUPPLY : DCM601A51 AC100-240V(±10%)(50/60Hz)
INPUT : 23W
MASS : 2.4kg
FUSE AMP : 3.15A
Operating temperature limit : -0℃ - +40℃
Operating humidity limit : MAX.15 - 85%
Storage temperature range : -15℃ - +60℃
Installation direction : Vertical direction only
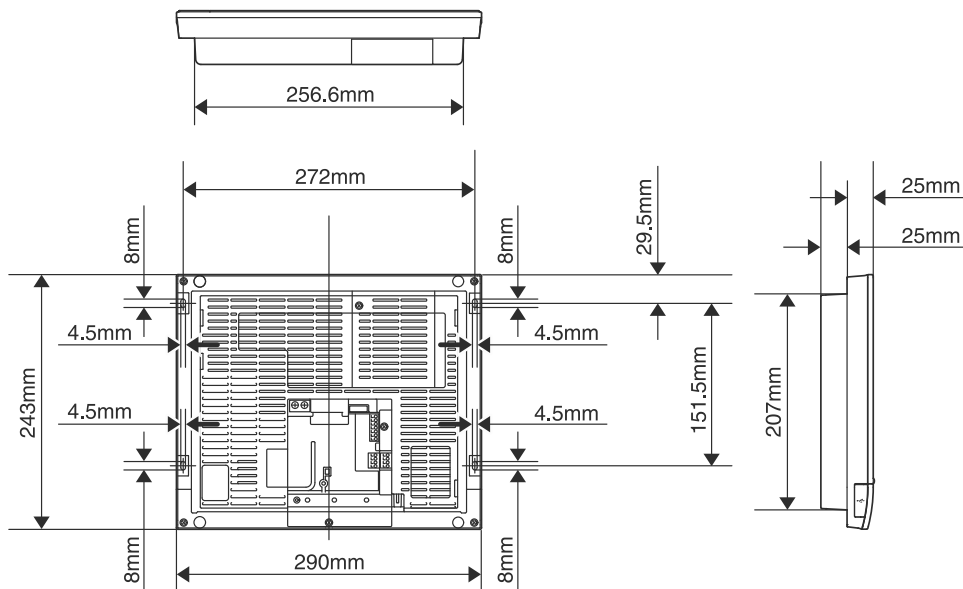
3.1.2 Location of terminals and switches

Understanding where terminals and switches are located

Understand the arrangement of terminals and the location of openings on the unit and plan how to route the cable and in which order to connect its wires to facilitate the installation procedure. For connection details including the cable type and terminal size, refer to "2. Connection".

Rear face

Most terminals are located on the rear face of the intelligent Touch Manager. However, they are covered with a terminal cover for safety reasons. Removing 2 screws to detach this cover reveals various types of terminals as shown below.

<Rear face of intelligent Touch Manager>
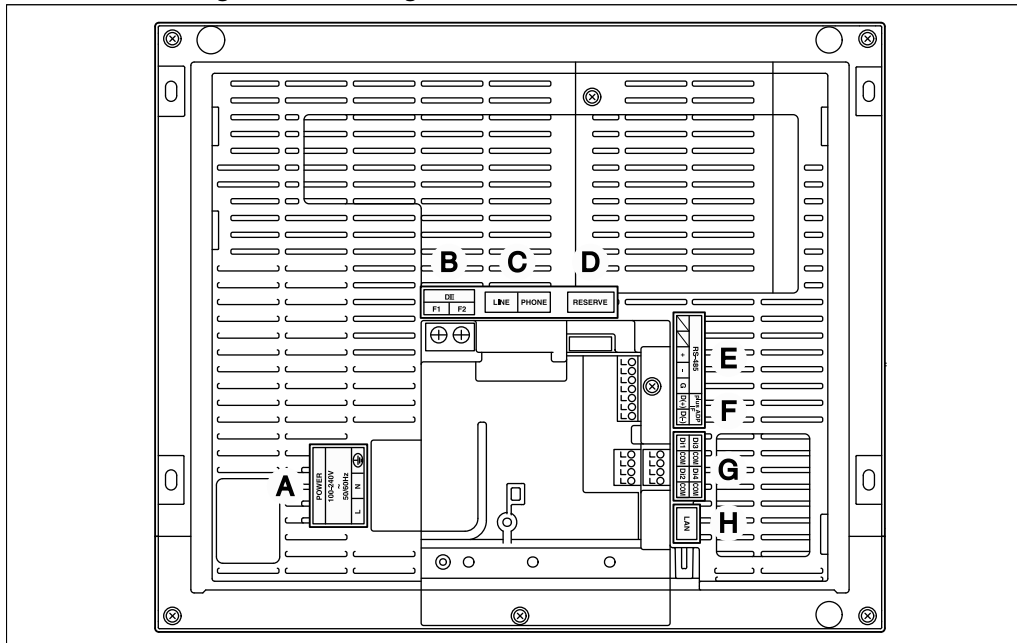
A   **[POWER]** The power line connection terminals. A power supply voltage of 100 to 240 VAC (at 50/60 Hz) is required. Near this terminal block, there is a blue resin cable mount used for securing the power supply cables with cable ties.

B   **[DIII]** The communication line connection terminals for "DIII-NET", which enables communications with DAIKIN's air conditioning equipment.

C   **[LINE, PHONE]** The sockets used when subscribing to the DAIKIN "Air Conditioning Network Service System" online monitoring service for air-conditioning systems. To use the "Air Conditioning Network Service System" service, you need to sign a separate maintenance contact.

D   **[RESERVE]** No Use.

E   **[RS-485]** The terminals for connecting serial equipment.

F   **[plus ADP IF]** The terminals for connecting one or more iTM plus adaptors when the intelligent Touch Manager is used to control more air conditioning devices.

G   **[Di (1-4), COM]** The terminals for connecting an external signal input device for stopping air conditioners in an emergency, or for connecting electric energy meters for calculating the electricity usage of individual air conditioners.

H   **[LAN]** The socket for connecting the intelligent Touch Manager to an Ethernet network.

Front panel

Located below the monitor display on the front panel are four LEDs that indicate the operating status of the intelligent Touch Manager. Sliding the front slide cover down and then removing a screwed cover reveals terminals used during the setup after installation or during maintenance work.

<Front face of intelligent Touch Manager>
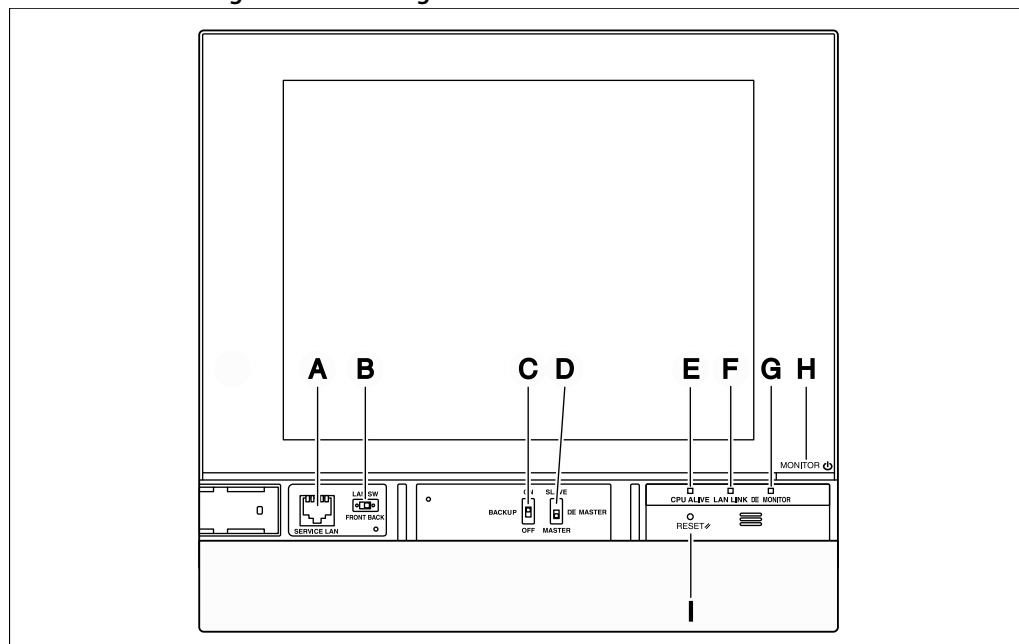
A **[SERVICE LAN]** The socket for temporarily connecting the intelligent Touch Manager to a LAN from its front face, instead of its rear face, during installation or maintenance.

B **[LAN SW]** The switch for selecting which Service LAN socket, one on the front face or one on the rear face, is to be activated.
You cannot close the cover when the switch set to "FRONT". To close the cover, select "BACK".

C **[BACKUP]** The switch for turning on/off the backup power supply for retaining the current settings.

D **[DIII MASTER]** The switch used when there are two or more DIII-NET centralized controllers to select the "MASTER" or "SLAVE" controllers.

E **[CPU ALIVE]** LED (Green) The LED that indicates that the CPU is operating normally. The CPU is operating normally when this LED is blinking and malfunctioning when it is on or off.
(It takes about 10 seconds for detection of the abnormality.)
On: Installation failure
Off: A hardware failure occurred.

F **[LAN LINK]** LED (Green) The LED that indicates whether or not the hardware connection is established normally between the intelligent Touch Manager and the equipment connected to the LAN port. It lights green when the LAN port is linked normally.

G **[DIII MONITOR]** LED (Yellow) This LED blinks when data is being sent or received on DIII-NET.

H **[MONITOR]** key and LED (Orange/Green) Each time you press this key, the monitor display turns on/off. The color of the LED also changes accordingly to the condition of the monitor display.
Off: The monitor is powered off.
On (Orange): The monitor display is off.
On (Green): The monitor display is on.

I **[RESET//]** The switch for restarting the intelligent Touch Manager.

Side face

On the left side face of the intelligent Touch Manager, a USB port cover is provided. You use this cover during setup after installation or during maintenance. You also see an attached label, bearing the model, weight, power ratings and the serial number of the intelligent Touch Manager.
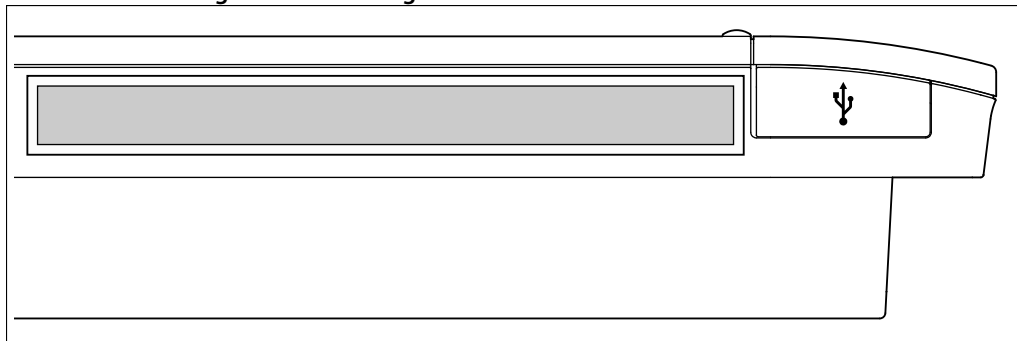
<Side face of intelligent Touch Manager>

[⚡] Pulling up the rubber cover reveals a USB socket. This socket can be raised 90 degrees, so you can plug in a USB device to it from the front direction when there is no clearance from the side edge of the unit.

3.1.3. Required space

To install the intelligent Touch Manager, the following space is required. Make sure that there is a minimum clearance of 30 mm from the top edge, 100 mm from the left side edge, 30 mm from the right side edge, and 60 mm from the bottom edge of the unit.

<Installation space required for intelligent Touch Manager>

Required installation space
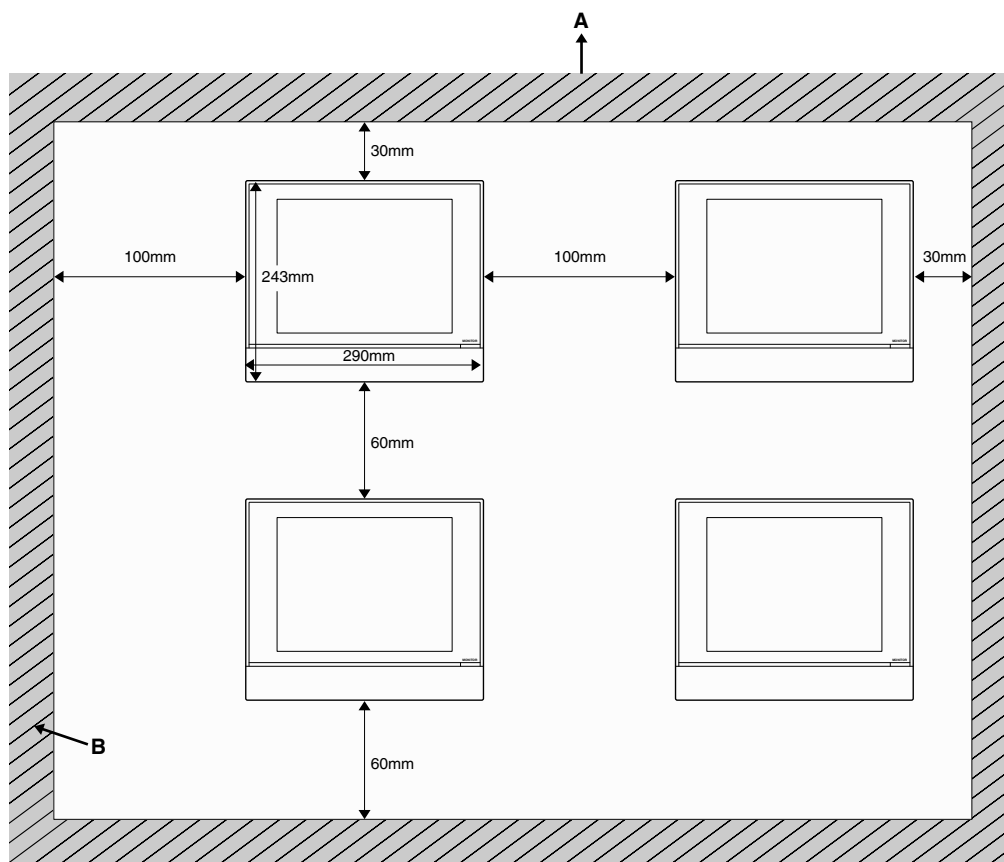
A Top
B Wall

3.1.4. Connections

To connect the DIII-NET communication line, use the 2 terminals F1 and F2 under the label "DIII" on the rear face. These 2 terminals have no polarity. An example of connecting more than two air conditioning devices is shown in the following conceptual connection diagram.

> ⚠ **CAUTION**
>
> **Make sure that the wires you are connecting to the F1 and F2 terminals are not power wires. Inadvertently connecting power wires to these terminals results in a failure of the air conditioner or intelligent Touch Manager.**

<Conceptual connection diagram with air conditioning equipment>

A Outdoor unit
B OUT - OUT
C IN - OUT
D Indoor unit
E A maximum of 16 indoor units can be connected per remote controller group.
F A maximum of 64 remote controller groups (128 indoor units) can be connected.
A maximum of 64 indoor units can be connected when power distribution is enabled.

NOTE

- What's a remote controller group?
  A single remote controller can simultaneously control a maximum of 16 indoor units. This capability is referred to as group control. A remote controller group is a group of indoor units controlled under the same remote controller.
  [Conceptual drawing of a remote controller group]

A Max. 16 units

Requirements that must be met

Cable specifications
- Cable type: 2-core vinyl-insulated vinyl-sheathed cable/vinyl cabtyre cable or 2-core shielded cable
- Core thickness: 0.75mm^2 - 1.25mm^2
- Terminal treatment: Use a round crimp-type terminal (M3.5) with insulating sleeve

Precautions
- Do not use multicore cables with three or more cores.
- When using a shielded cable, connect only one end of each shield wire to the ground.
- The maximum wire distance must be kept to 1000 meters or less. The total wire length must be limited to 2000 meters, except when using a shielded cable whose total wire length must be kept to 1500 meters or less.

Precautions for using multiple centralized controllers

Equipment that controls multiple air conditioners is referred to as "centralized controller". DAIKIN's product portfolio includes a wide range of centralized controllers suited to different applications or target sizes, which can be used in combination to construct an optimal air conditioning control system.

If two or more centralized controllers are used in combination in DIII-NET, you must establish a MASTER to SLAVE relationship among those controllers to prevent confusion. The MASTER authority may be assigned to one controller only. The remaining controllers must be set to SLAVE.

The intelligent Touch Manager is set to MASTER by default. Change the setting to SLAVE in any of the following cases:
- Where Interface for use in BACnet is installed in parallel.
- Where Interface for use in LONWORKS is installed in parallel.
- Where there is another MASTER intelligent Touch Manager or MASTER iTM plus adaptor, and it is connected in relations of main/sub.

<DIII MASTER>

To set the intelligent Touch Manager to SLAVE, use the DIII MASTER switch located under the front slide cover. Placing the DIII MASTER switch in the upper position (labeled as "SLAVE") changes it to a SLAVE.
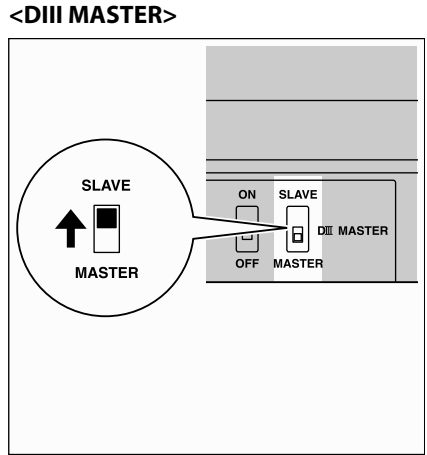
To install multiple centralized controllers, set only the highest priority controller to MASTER and all other controllers to SLAVE according to the following order of priority:

High	(1) Interface for use in BACnet
	(2) nterface for use in LONWORKS
	(3) intelligent Touch Manager (Main), iTM plus adaptor (Main)
	(4) Central Remote Controller (Main)
Priority	**(5) intelligent Touch Manager (Sub),** iTM plus adaptor (Sub)
	(6) Central Remote Controller (Sub)
Low	(7) ON/OFF Controller (Main)
	(8) ON/OFF Controller (Sub)

Centralized controllers that cannot be installed in parallel with intelligent Touch Manager	• CALCULATE UNIT
	• intelligent Processing Unit
	• Parallel Interface
	• Intelligent Touch Controller
	• DIII-NET Plus Adapter
	• Residential Central Remote Controller
	• Schedule Timer
	• Wiring Adaptor for Electrical Appendices (1) (KRP2)

Connecting a LAN cable

Connecting your intelligent Touch Manager with a PC network enables you to set up the operation of air conditioning system or perform maintenance work on it from a remote location.

⚠ **WARNING**

Do not clamp the cables with high-current lines such as a power cable.

NOTE

For how to connect the intelligent Touch Manager to a PC network, contact your network administrator.

Terminals location and conceptual connection diagram
Using a LAN cable, connect the LAN socket to the network hub.

<Conceptual drawing of LAN connection>
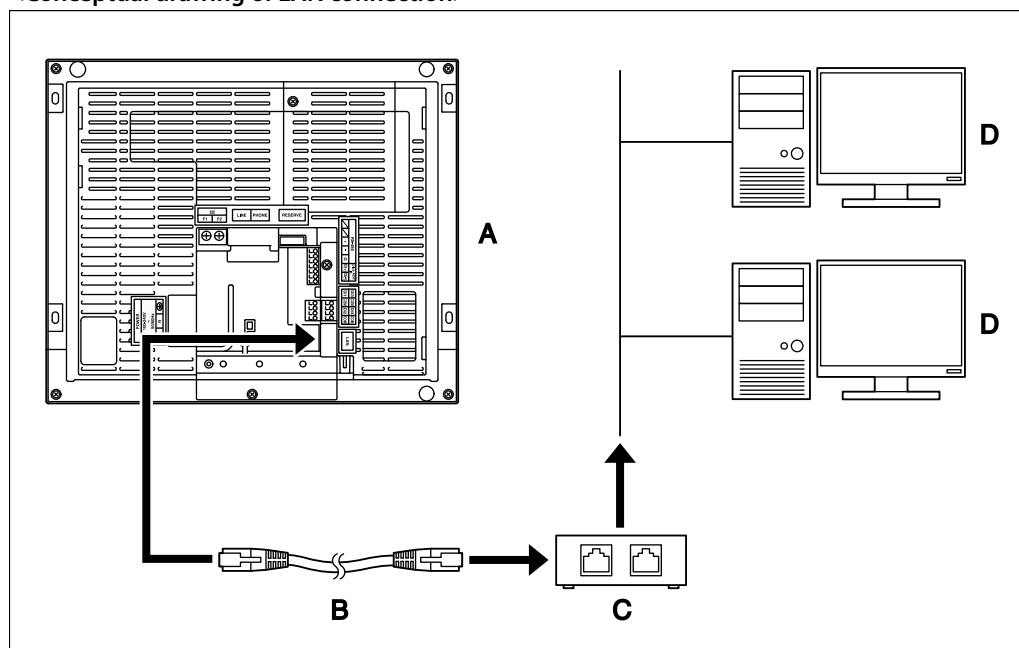
A Rear face of intelligent Touch Manager
B LAN cable
C Hub
D PC

Requirements that must be met
• Applicable cable standard: 100Base-TX or 10Base-T
• Connector standard: RJ-45

<SERVICE LAN socket and LAN SW switch>

NOTE

• If you are connecting to a LAN temporarily during installation or maintenance, use the SERVICE LAN terminal located on the front face.
Changing the position of the LAN SW switch to "FRONT" causes the SERVICE LAN socket to activate (enabled for use).
• You cannot close the cover when the switch set to "FRONT". To close the cover, select "BACK".
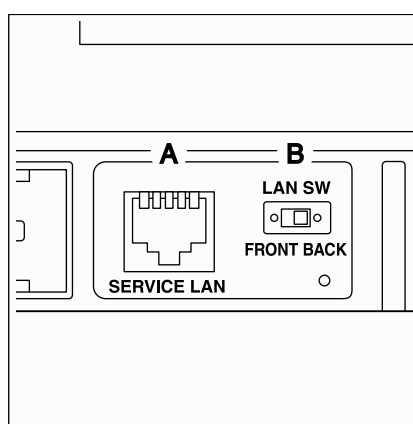
A SERVICE LAN
B LAN SW

Connecting I/O module

The intelligent Touch Manager can be used in conjunction with the I/O module. The I/O module provides a maximum of 960 I/O points for controlling non-DAIKIN peripheral equipment such as lighting equipment and security lock systems.

> ⚠ **WARNING**
>
> • Be sure to perform this procedure with the power supply turned off. Not doing so may cause an electric shock.
> • Do not clamp the cables with high-current lines such as a power cable.

Terminals location and conceptual connection diagram

<Conceptual drawing of I/O module connection>
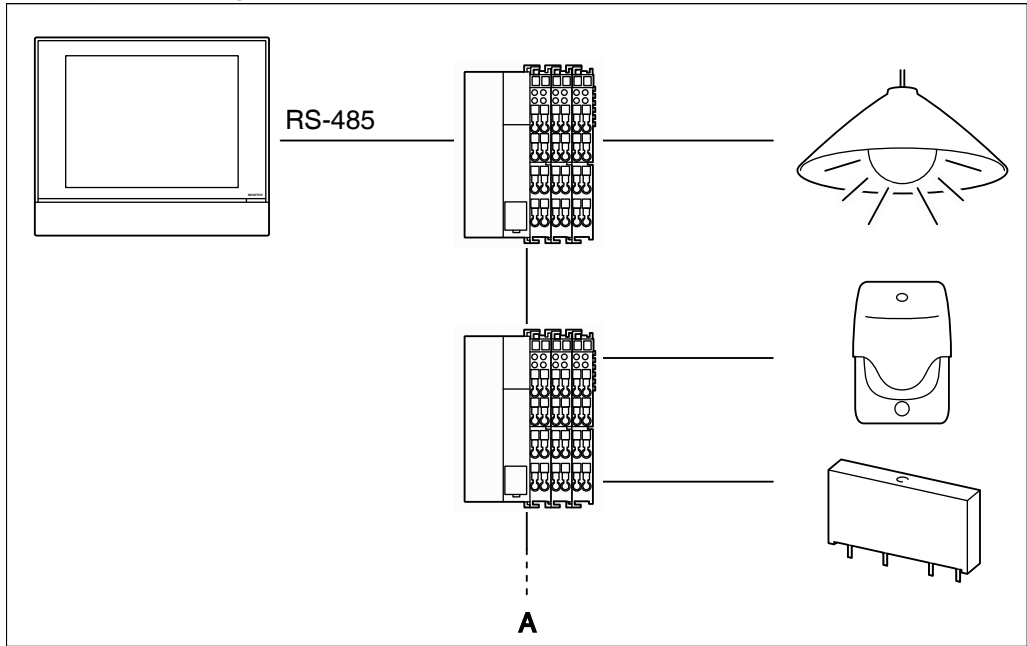
A Max. 30 nodes

Connect the I/O module to the RS-485 terminals located on the rear face. Be sure to connect the positive (+) core to the + (positive) terminal and the negative (–) core to the – (negative) terminal, respectively. If you are using shielded stranded wire cables, twist and connect the strands of wire to the G (Ground) terminal.

Requirements that must be met
• Cable type: CPEV or FCPEV cable (shielded type also acceptable)
• Cable length: 500 meters or less
• Core thickness: φ0.65 - 0.9mm
• Limitation in contacts per node is 120 or less. Maximum number of nodes is 30.
• The intelligent Touch Manager must be connected as a terminal to the RS-485 wiring.

Connecting an emergency stop input device or electric energy meters

The intelligent Touch Manager can be connected with an external signal input device for stopping air conditioners in an emergency, or with electric energy meters for calculating the electricity usage of individual air conditioners (when power distribution is enabled).

⚠ **WARNING**

- **Be sure to perform this procedure with the power supply turned off. Not doing so may cause an electric shock.**
- **Do not clamp the cables with high-current lines such as a power cable.**

NOTE

- Power distribution is available for a maximum of 64 air conditioners (indoor units) per DIII-NET port.
- With 7 iTM plus adaptors, however, you can connect up to 512 indoor units.

Terminals location and conceptual connection diagram

Connect the contact input lines or pulse signal lines to the Di1, Di2, Di3, Di4, and COM terminals of the orange connector located on the rear face. Each terminal has a different function.

[Di1] Emergency stop input
[Di2] [Di3] [Di4] Pulse input, contact signal input
[COM] Common

This function assignment, however, may be changed at a later time. For how to change the function assignment, refer to the commissioning manual.

<Conceptual drawing of Di connection>

> **NOTE**
>
> The COM terminals are all connected internally. So, you can use either of them.
> However, you can connect up to two wires simultaneously to each COM terminal.

Requirements that must be met

- Cable type: CPEV cable
- Core thickness: φ0.65 - 0.9 mm
- Cable length: 200 meters or less

- Pulse width: 20 to 400 ms
  Pulse interval: 100 ms or more

<Pulse width>
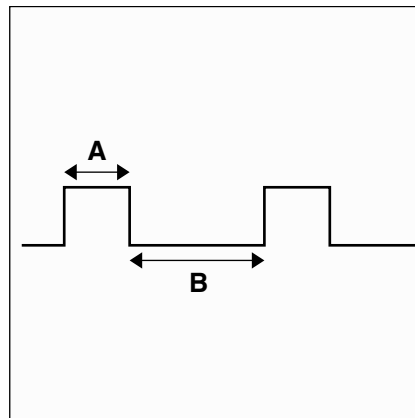
A Pulse width: 20 to 400 ms
B Pulse interval: 100 ms or more

> ⚠ **CAUTION**
>
> - **The contact connected to the contact input terminal must be capable of handling 10 mA at 16 VDC.**
> - **If an instantaneous contact is used for triggering an emergency stop, use one that has an energization time of 200 ms or more.**
> - **Do not clamp the cables with high-current lines such as a power cable.**

> **NOTE**
>
> When emergency stop input signal is enabled, you cannot restart all the air conditioners unless you disable it.

3.2. iTM plus adaptor

3.2.1. Main specifications

Port	Number	Use
plus ADP IF	1ch	*iTM plus adaptor* (Up to 7 adaptors)
D Ⅲ	1ch	D Ⅲ-NET (Up to 64 groups)
Di(Pi)	4ch	Pulse input,contact signal input

POWER SUPPLY : DCM601A52 AC100V-240V(±10％)(50/60Hz)
INPUT : 6W
MASS : 0.5kg
FUSE AMP : 3.15A
Operating temperature limit : -10℃- +50℃
Operating humidity limit : MAX.15 - 85％
Storage temperature range : -15℃- +60℃
Installation direction : Vertical direction only
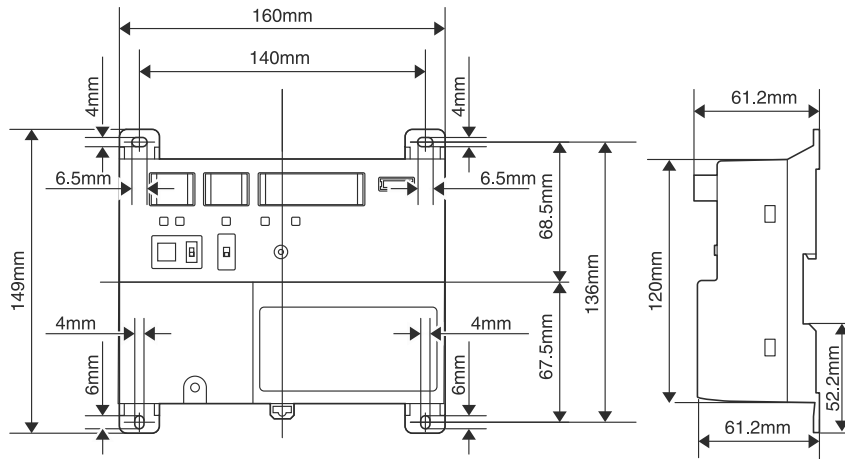
3.2.1.1 Dimensions

iTM plus adaptor body
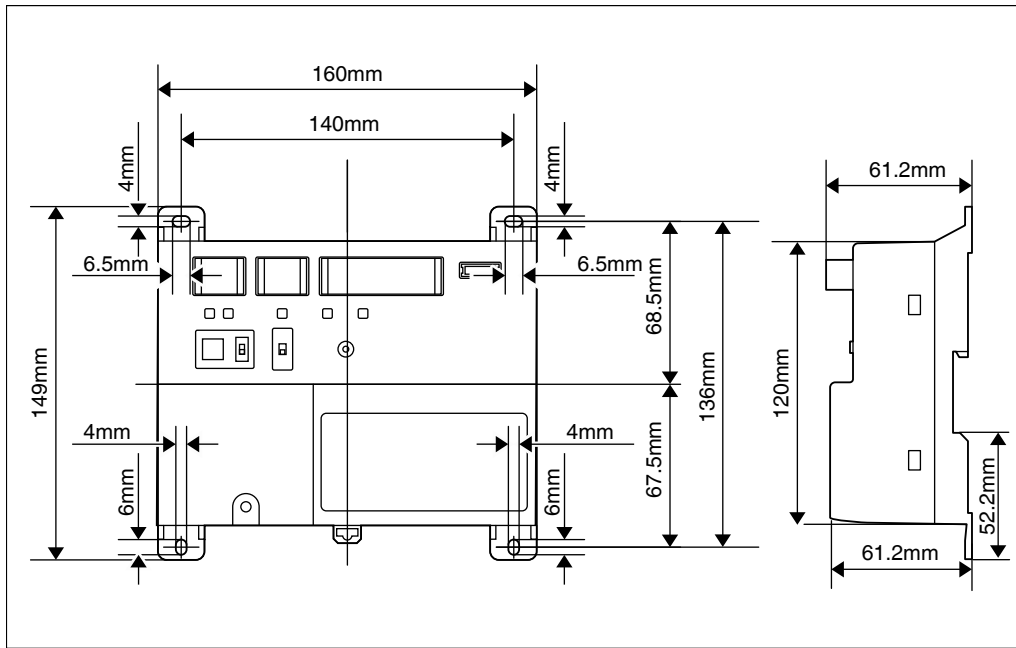
3.2.2 Location of terminals and switches

Understand the arrangement of terminals and switches on the unit and draw up an efficient work plan. For connection details including the cable type, terminal size, and wiring precautions, refer to "2. Connection".

Front face of iTM plus adaptor

All the terminals used during installation are located on the front face of the iTM plus adaptor. Note that only the power terminals are covered with a terminal cover for safety. You can remove this cover by loosening a single screw.

In addition to these terminals, several switches and LEDs are also located on the front face of the iTM plus adaptor.

<Front face of iTM plus adaptor>
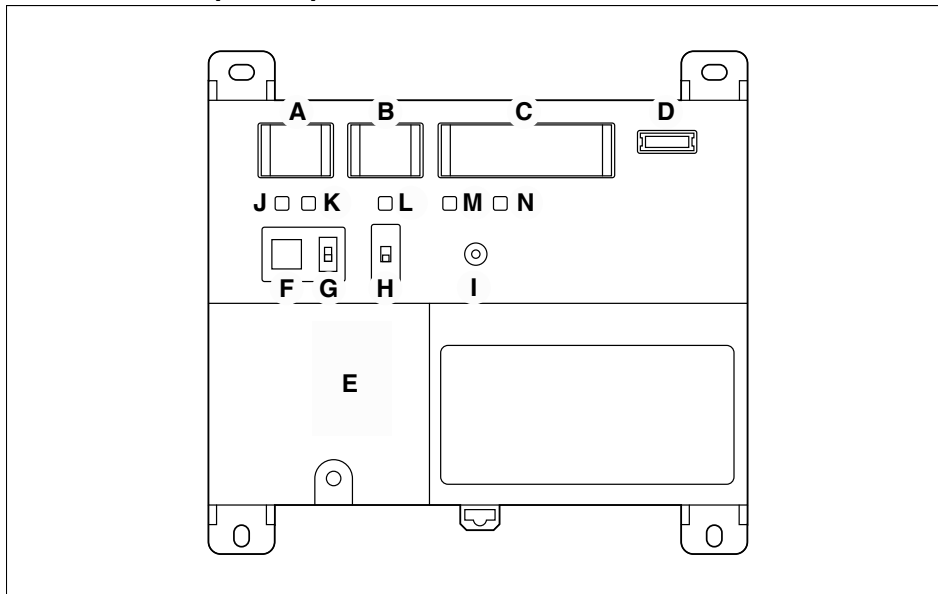
A **[plus ADP IF]** The terminals for connecting an intelligent Touch Manager or iTM plus adaptor installed in parallel.

B **[DIII]** The communication line connection terminals for "DIII-NET", which enables communications with DAIKIN's air conditioning equipment.

C **[Di]** The terminals for connecting an external signal input device for stopping air conditioners in an emergency, or for connecting electric energy meters for calculating the electricity usage of individual indoor air conditioning units.

D **[RESERVE]** No Use.

E **[POWER]** The power line connection terminals. These terminals are covered with a protective cover. A power supply voltage of 100 to 240 VAC (at 50/60 Hz) is required. Near this terminal block, there is a blue resin cable mount used for securing the power supply cables with cable ties.

F **[plus ADP ADDRESS]** The switch for selecting the address of the iTM plus adaptor. For each iTM plus adaptor, set a unique number between 2 to 8.

G **[TERM]** The switch used when multiple iTM plus adaptors are connected in parallel for enabling the termination resistor on the furthest iTM plus adaptor from the intelligent Touch Manager.

H **[DIII MASTER]** The switch used when there are two or more DIII-NET centralized controllers, such as intelligent Touch Managers, are connected for distinguishing between the "MASTER" or the "SLAVE" controllers.

I **[RESET//]** The switch for restarting the iTM plus adaptor.

J **[Tx]** (Green) The indicator that indicates when on that data is being sent to the intelligent Touch Manager.

K **[Rx] (Orange)** The indicator that indicates when on that data is being received from the intelligent Touch Manager.

L **[DIII MONITOR]** (Yellow) The indicator that indicates when on that data is being communicated with DIII-NET.

M **[CPU ALIVE]** (Green) The LED that indicates that the CPU is operating normally. For the relationship between the LED status and the unit's operating condition, refer to the "LED status and operation" table below.

N **[ALARM]** (Red) The LED that turns on or blinks in the event of an error. For the relationship between the LED status and the unit's operating condition, refer to the "LED status and operation" table below.

The table below shows the status of the CPU ALIVE/ALARM LED when the iTM plus adaptor is operating normally or failed.

> **NOTE**
>
> **[LED status and operation table]**
>
> | Operating condition | CPU ALIVE | ALARM |
> |---|---|---|
> | Normal | Blink | Off |
> | Hardware failure | Off | On |
> | Address failure | On | On |
> | plus ADP IF communication failure | On | Blink |

Determining installation place

Be sure to install the iTM plus adaptor in a place that meets the conditions described in 1.4.1 through 1.4.3.

Installation place and mounting direction

Note that the iTM plus adaptor must be installed in a place and in a mounting direction as described below:
• Installation place: Indoor, inside control enclosure (which must be lockable or designed to be opened only with a special tool)
• Mounting direction: Vertical only

Required space

To install the iTM plus adaptor, the following space is required. Also note the following:
• Make sure that there is a minimum clearance of 20 mm between each unit and wiring ducts.
• When installing two or more units side by side, they can be arranged without clearance in the horizontal direction.

Required installation space
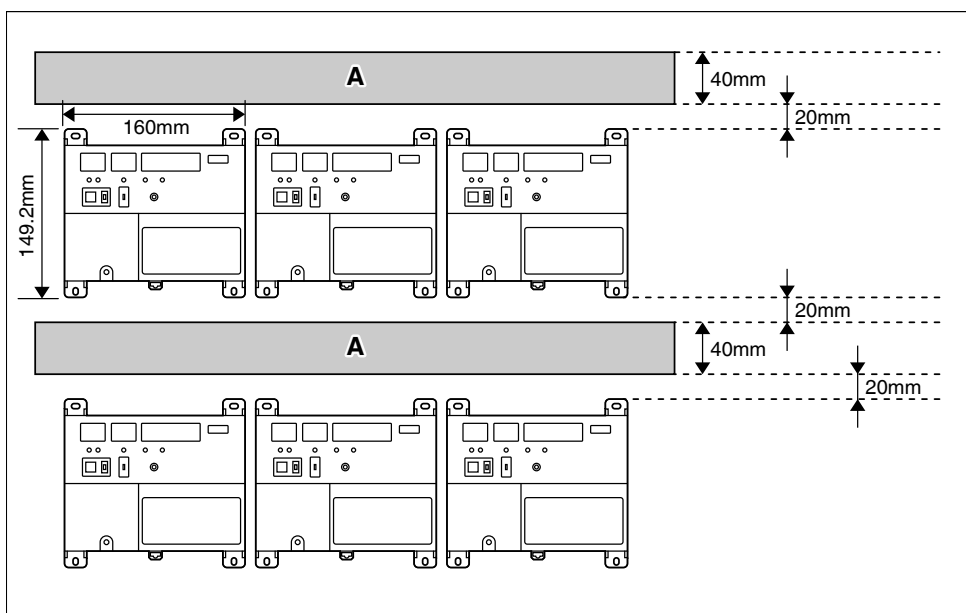
A Wiring duct

Environmental conditions

The installation environment must meet the following conditions:
• Ambient temperature: –10 to 50 ℃
• Ambient humidity: 85% RH or less (without condensation)

3.2.3. Connections

If you have many air conditioners, use iTM plus adaptors to connect them. It is a fact that the number of indoor groups you can control using a single intelligent Touch Manager is limited to 64. By using iTM plus adaptors, however, you can connect additional 64 groups of indoor units per iTM plus adaptor. Moreover, considering that the intelligent Touch Manager can be connected with a maximum of seven iTM plus adaptors, you can control a total of 512 groups of indoor units at a maximum using a single intelligent Touch Manager.

> ⚠️ **WARNING**
>
> - **Be sure to perform this procedure with the power supply turned off. Not doing so may cause an electric shock.**
> - **Do not clamp the cables with high-current lines such as a power cable.**

Terminals location and conceptual connection diagram

Connect an iTM plus adaptor to the plus ADP IF terminals located on the rear face. Be sure to connect the positive wire the "+" terminal and the negative wire to the "−" terminal, respectively, as these terminals have polarity.
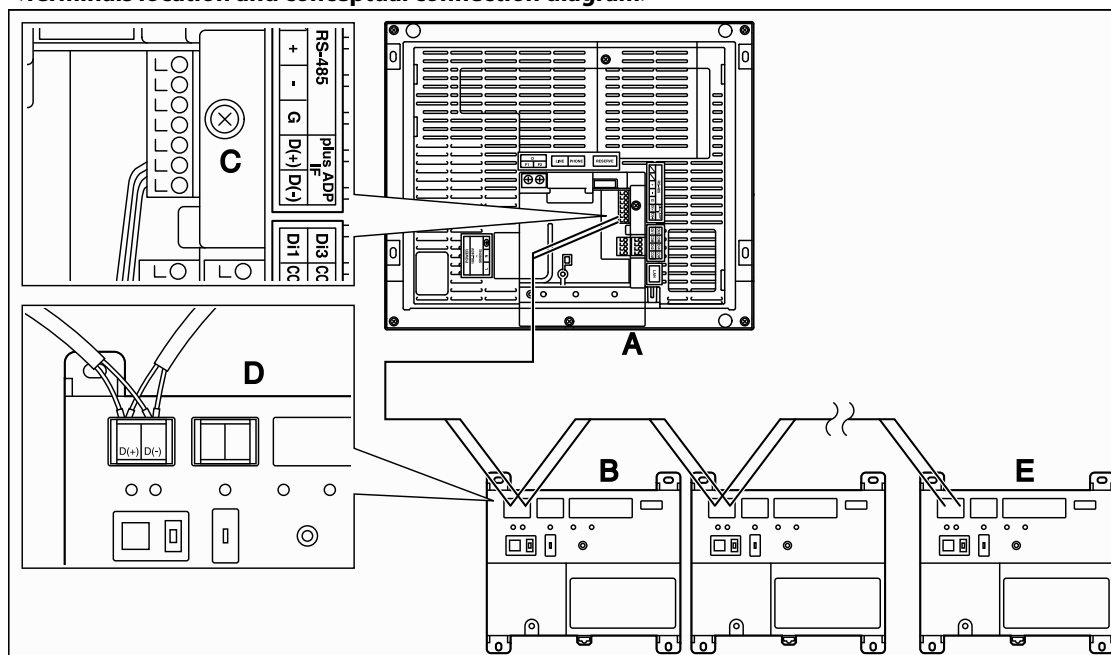
<Terminals location and conceptual connection diagram>

A intelligent Touch Manager (Rear face)
B iTM plus adaptor
C plus ADP IF (intelligent Touch Manager)
D plus ADP IF (iTM plus adaptor)
E iTM plus adaptor on which termination resistor must be enabled

Requirements that must be met

- Cable type: CPEV or FCPEV cable
- Core thickness: φ0.65 - 0.9 mm
- Cable length: 50 meters or less

> **NOTE**
>
> Each air conditioner controlled via an iTM plus adaptor is also assigned a DIII address between "1-00" to "4-15". From the intelligent Touch Manager, it is recognized as "2:1-00", "3:1-02", or the like, with the DIII-NET port number prefixed.
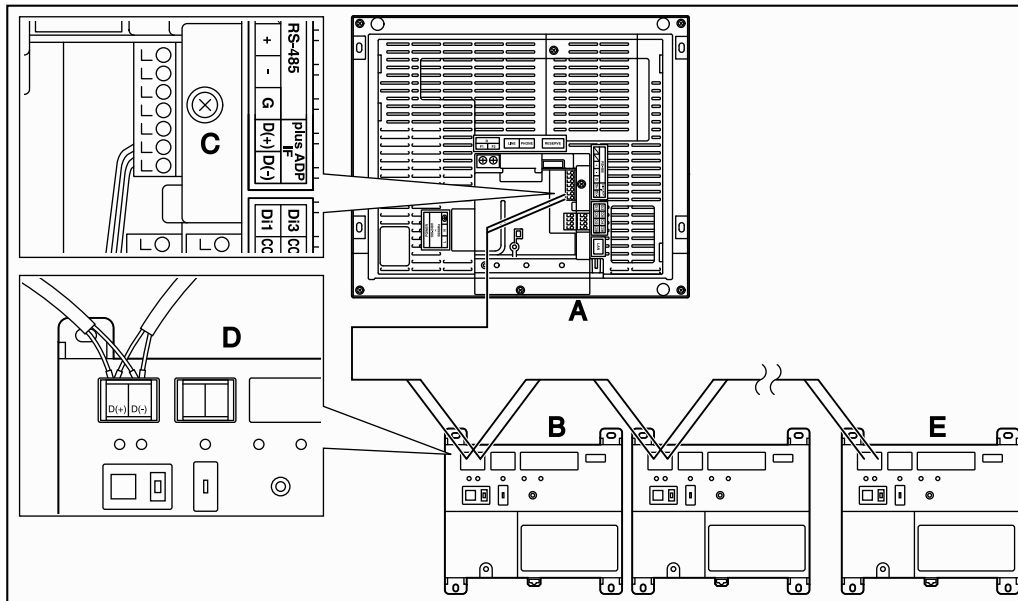
Connecting intelligent Touch Manager

The iTM plus adaptor is a device that enables you to control more air conditioners with the intelligent Touch Manager. It needs to be connected to an intelligent Touch Manager to provide this capability.

Terminals location and conceptual connection diagram

Connect the terminals located in the "plus ADP IF" section of the iTM plus adaptor to the corresponding terminals located in the "plus ADP IF" section on the rear face of your intelligent Touch Manager. Note that these terminals have polarity. Be sure to connect the positive wire to the "+" terminal and the negative wire to the "–" terminal, respectively.

In addition, the intelligent Touch Manager must be connected as a terminal to the wiring.

<Terminals location and conceptual connection diagram>

A intelligent Touch Manager (Rear face)
B iTM plus adaptor
C plus ADP IF (intelligent Touch Manager)
D plus ADP IF (iTM plus adaptor)
E iTM plus adaptor on which termination resistor must be enabled

Requirements that must be met
• Cable type: CPEV or FCPEV cable
• Core thickness: φ0.65 - 0.9 mm
• Cable length: 50 meters or less in total for overall plus ADP IF wiring

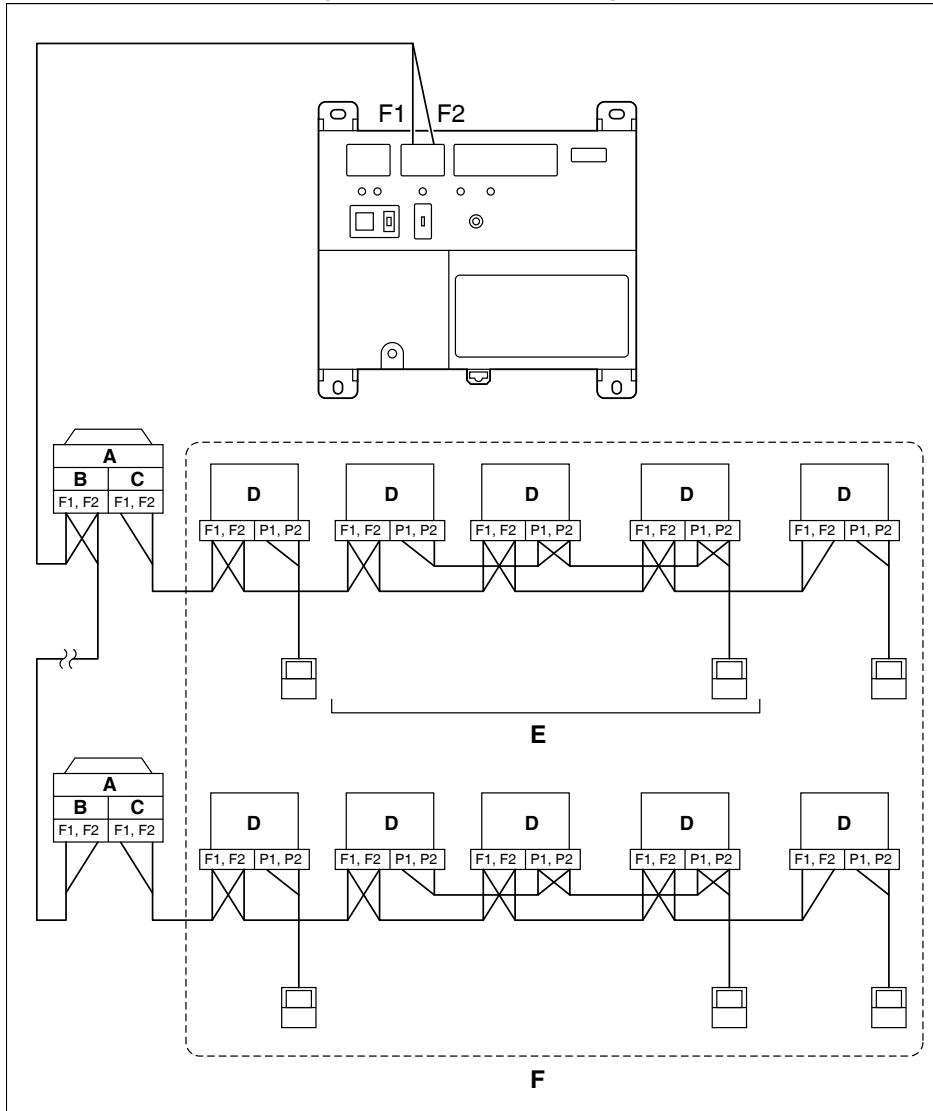## Terminals location and conceptual connection diagram

To connect the DIII-NET communication line, use the two terminals F1 and F2 under the label "DIII". These 2 terminals have no polarity. An example of connecting more than 2 air conditioning devices is shown in the following conceptual connection diagram.

> ⚠ **CAUTION**
>
> **Make sure that the wires you are connecting to the F1 and F2 terminals are not power wires. Inadvertently connecting power wires to these terminals results in a failure of the air conditioner or iTM plus adaptor.**

<Conceptual connection diagram with air conditioning equipment>

A Outdoor unit
B OUT - OUT
C IN - OUT
D Indoor unit
E A maximum of 16 indoor units can be connected per remote controller group.
F A maximum of 64 remote controller groups (128 indoor units) can be connected.
A maximum of 64 indoor units can be connected when power distribution is enabled.

NOTE

• What's a remote controller group?
A single remote controller can simultaneously control a maximum of 16 indoor units. This capability is referred to as group control. A remote controller group is a group of indoor units controlled under the same remote controller.

[Conceptual drawing of a remote controller group]

A   Max. 16 units

Requirements that must be met

Cable specifications

• Cable type: 2-core vinyl-insulated vinyl-sheathed cable/vinyl cabtyre cable or 2-core shielded cable
• Core thickness: $0.75mm^2$ - $1.25mm^2$
• Terminal treatment: Use a round crimp-type terminal (M3) with insulating sleeve.

Precautions

• Do not use multicore cables with three or more cores.
• When using a shielded cable, connect only one end of each steel wire to the ground.
• Keep the DIII-NET communication wiring at least 50 mm away from power supply wiring.
• The maximum wire distance must be kept to 1000 meters or less. The total wire length must be limited to 2000 meters, except when using a shielded cable whose total wire length must be kept to 1500 meters or less.

Precautions for using multiple centralized controllers

Equipment that controls multiple air conditioners is referred to as "centralized controller". DAIKIN's product portfolio includes a wide range of centralized controllers suited to different applications or target sizes, which can be used in combination to construct an optimal air conditioning system.
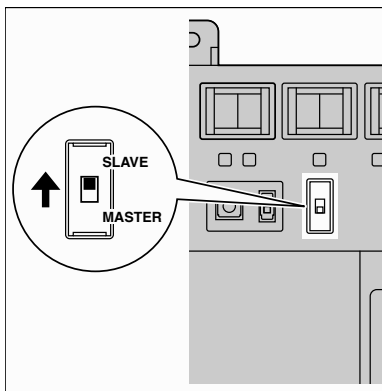
If two or more centralized controllers are used in combination in DIII-NET, you must establish a MASTER to SLAVE relationship among those controllers to prevent confusion. The MASTER authority may be assigned to one controller only. The remaining controllers must be set to SLAVE.

The iTM plus adaptor is set to MASTER by default. Change the setting to SLAVE in any of the following cases:
• Where Interface for use in BACnet is installed in parallel.
• Where Interface for use in LONWORKS is installed in parallel.
• Where there is another MASTER intelligent Touch Manager, or it is connected in relations of main/sub.
• Where there is another MASTER iTM plus adaptor, and it is connected in relations of main/sub.

To set the iTM plus adaptor to SLAVE, use the DIII MASTER switch.
Placing the switch in the upper position (labeled as "SLAVE") changes it to a SLAVE.

<DIII MASTER>

To install multiple centralized controllers, set only the highest priority controller to MASTER and all other controllers to SLAVE according to the following order of priority:

High

Priority

Low

(1) Interface for use in BACnet
(2) Interface for use in LONWORKS
(3) intelligent Touch Manager (Main), **iTM plus adaptor (Main)**
(4) Central Remote Controller (Main)
(5) intelligent Touch Manager (Sub), **iTM plus adaptor (Sub)**
(6) Central Remote Controller (Sub)
(7) ON/OFF Controller (Main)
(8) ON/OFF Controller (Sub)

Centralized controllers that cannot be installed in parallel with iTM plus adaptor

• CALCULATE UNIT
• intelligent Processing Unit
• Parallel Interface
• Intelligent Touch Controller
• DIII-NET Plus Adapter
• Residential Central Remote Controller
• Schedule Timer
• Wiring Adaptor for Electrical Appendices (1) (KRP2)

Connecting contact or pulse input equipment such as electric energy meters

The iTM plus adaptor can be connected with an external signal input device for stopping air conditioners in an emergency, or with electric energy meters for calculating the electricity usage of individual air conditioners (when power distribution is enabled).

> ⚠ **WARNING**
>
> • **Be sure to perform this procedure with the power supply turned off. Not doing so may cause an electric shock.**
> • **Do not clamp the cables with high-current lines such as a power cable.**
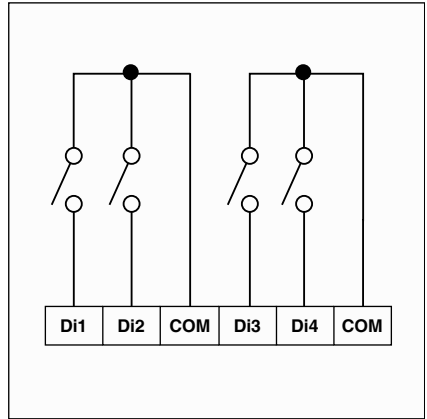
> **NOTE**
>
> Power distribution is available for a maximum of 64 air conditioners (indoor units) per DIII-NET port.

Terminals location and conceptual connection diagram

Use the terminals located under the label "Di" to connect the pulse signal line. The iTM plus adaptor accepts four types of signals through its four channel terminals, Di1, Di2, Di3, and Di4, and two COM terminals (ground).

<Conceptual drawing of Di connection>

NOTE

The COM terminals are all connected internally. So, you can use either of them.
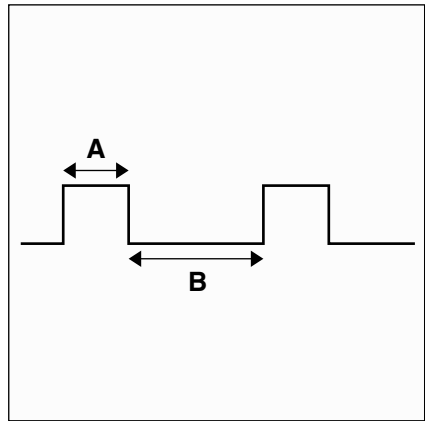However, you can connect up to two wires simultaneously to each COM terminal.

Requirements that must be met

• Cable type: CPEV cable
• Core thickness: φ0.65 - 0.9 mm

  • Cable length: 200 meters or less

  • Pulse width: 20 to 400 ms
    Pulse interval: 100 ms or more

<Pulse width>

A Pulse width: 20 to 400 ms
**B** Pulse interval: 100 ms or more

⚠ **CAUTION**

• The contact connected to the contact input terminal must be capable of handling 10 mA at 16 VDC.
• If an instantaneous contact is used for triggering an emergency stop, use one that has an energization time of 200 ms or more.
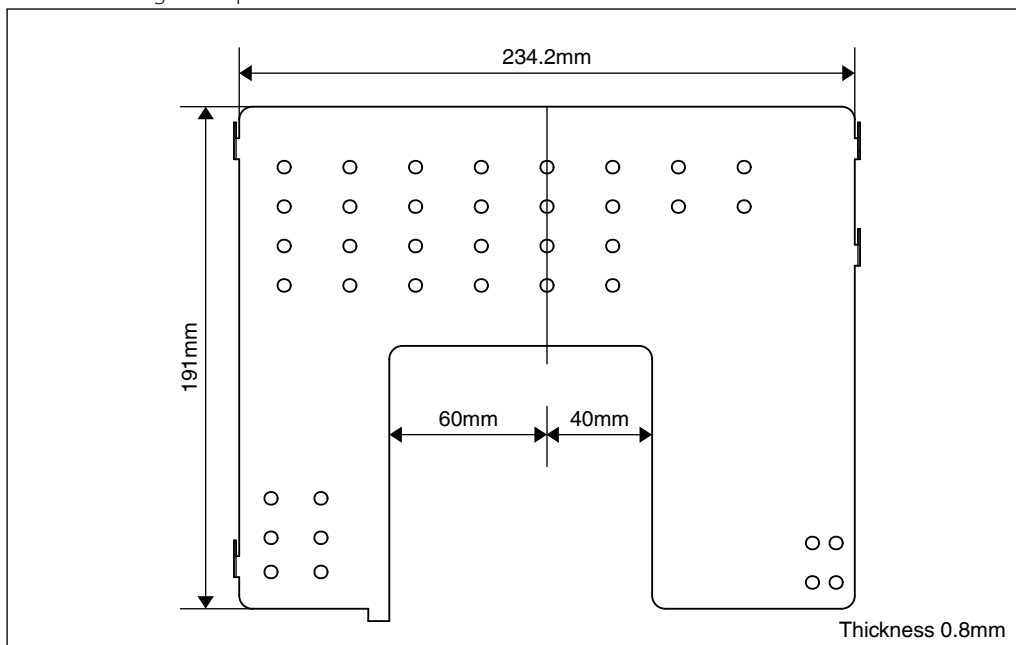• Do not clamp the cables with high-current lines such as a power cable.

3.3. iTM Integrator

3.3.1. Main specifications

• iTM integrator body
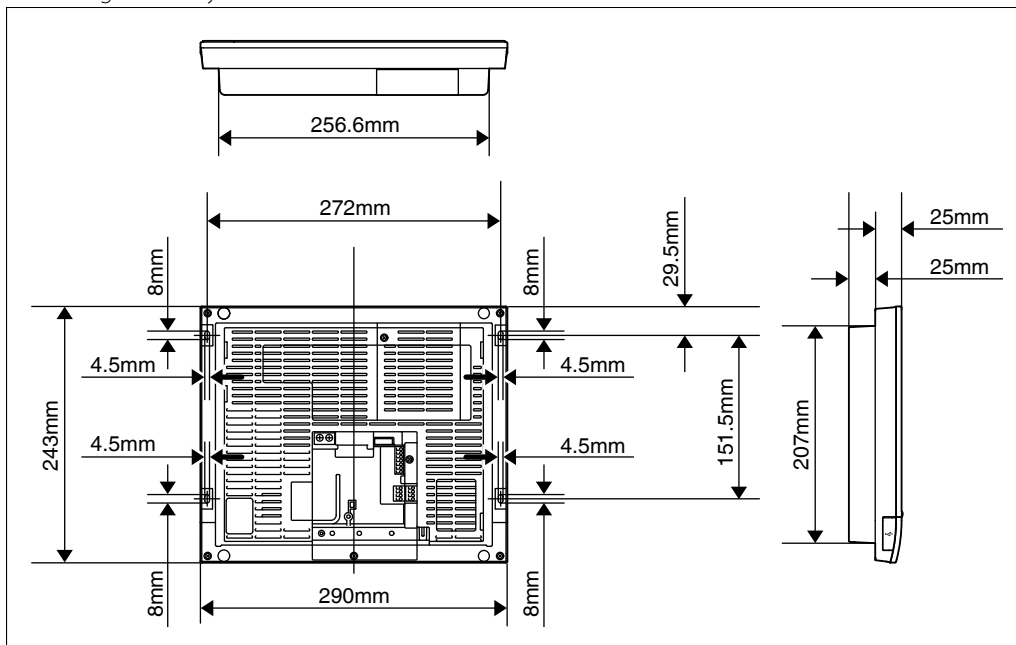

• Wall mounting metal plate

3.3.2. Locations of terminals and switches

Understand the arrangement of terminals and the location of openings on the unit and plan how to route the cable and in which order to connect its wires to facilitate the installation procedure. For connection details including the cable type and terminal size, refer to "2. Connection".

Rear face

Most terminals are located on the rear face of the iTM integrator. However, they are covered with a terminal cover for safety reasons. Removing 2 screws to detach this cover reveals various types of terminals as shown below.

<Rear face of iTM integrator>
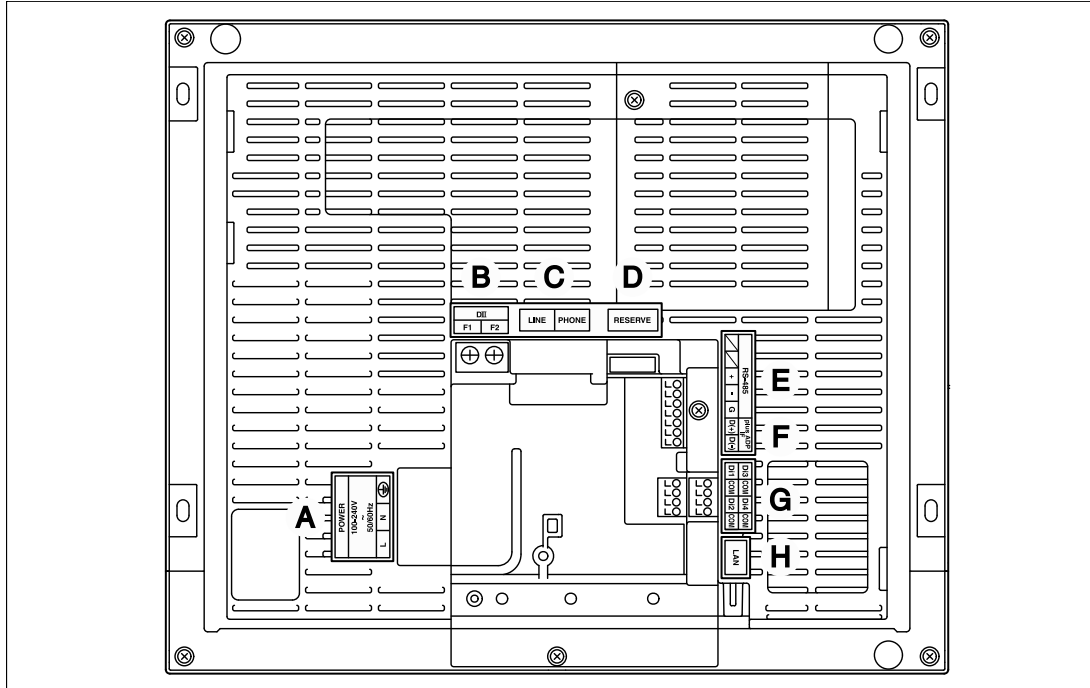
A **[POWER]** The power line connection terminals. A power supply voltage of 100 to 240 VAC (at 50/60 Hz) is required. Near this terminal block, there is a blue resin cable mount used for securing the power supply cables with cable ties.

B **[DIII]** No Use.

C **[LINE, PHONE]** No Use.

D **[RESERVE]** No Use.

E **[RS-485]** No Use.

F **[plus ADP IF]** No Use.

G **[Di (1-4), COM]** No Use.

H **[LAN]** The socket for connecting the iTM integrator to an Ethernet network.

Front panel

Located below the monitor display on the front panel are four LEDs that indicate the operating status of the iTM integrator. Sliding the front slide cover down and then removing a screwed cover reveals terminals used during the setup after installation or during maintenance work.

<Front face of iTM integrator>
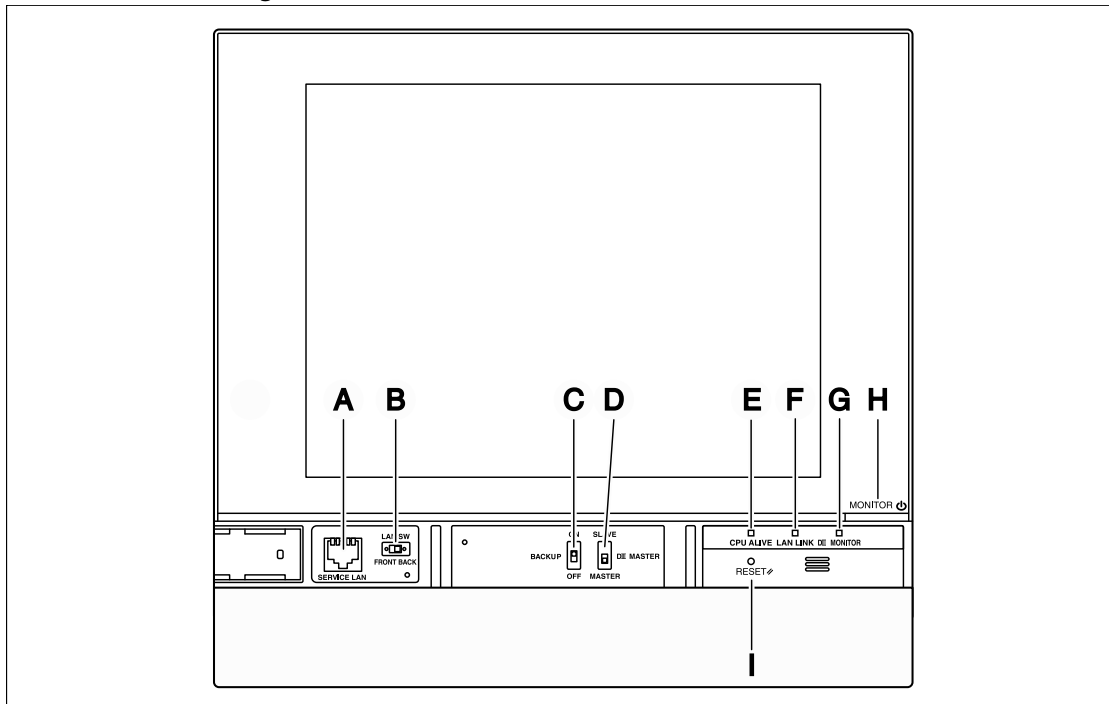
A **[SERVICE LAN]** The socket for temporarily connecting the iTM integrator to a LAN from its front face, instead of its rear face, during installation or maintenance.

B **[LAN SW]** The switch for selecting which Service LAN socket, one on the front face or one on the rear face, is to be activated. You cannot close the cover when the switch set to "FRONT". To close the cover, select "BACK".

C **[BACKUP]** The switch for turning on/off the backup power supply for retaining the current settings.

D **[DIII MASTER]** No Use.

E **[CPU ALIVE]** LED (Green) The LED that indicates that the CPU is operating normally. The CPU is operating normally when this LED is blinking and malfunctioning when it is on or off.
(It takes about 10 seconds for detection of the abnormality.)
On: Installation failure
Off: A hardware failure occurred.

F **[LAN LINK]** LED (Green) The LED that indicates whether or not the hardware connection is established normally between the iTM integrator and the equipment connected to the LAN port. It lights green when the LAN port is linked normally.

G **[DIII MONITOR]** LED (Yellow) This LED blinks when data is being sent or received on DIII-NET.

H **[MONITOR]** key and LED (Orange/Green) Each time you press this key, the monitor display turns on/off. The color of the LED also changes accordingly to the condition of the monitor display.
Off: The monitor is powered off.
On (Orange): The monitor display is off.
On (Green): The monitor display is on.

I **[RESET//]** The switch for restarting the iTM integrator.

Side face

On the left side face of the iTM integrator, a USB port cover is provided. You use this cover during setup after installation or during maintenance. You also see an attached label, bearing the model, weight, power ratings and the serial number of the iTM integrator.
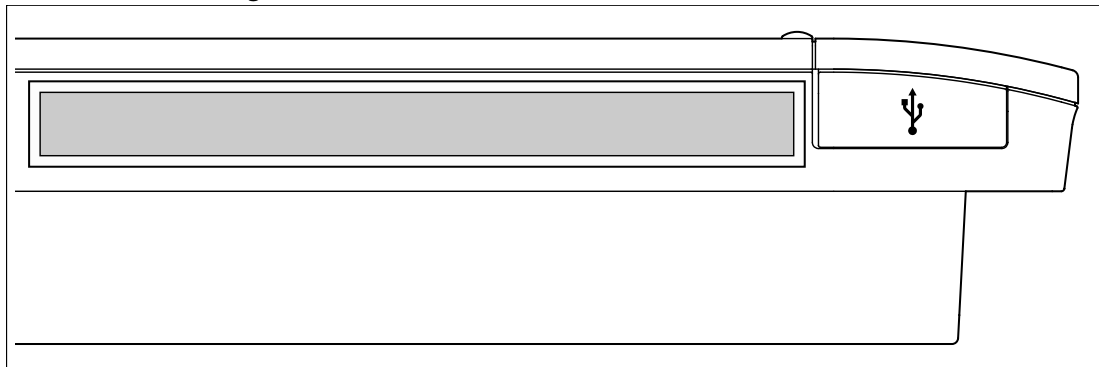
<Side face of iTM integrator>

[⚡] Pulling up the rubber cover reveals a USB socket. This socket can be raised 90 degrees, so you can plug in a USB device to it from the front direction when there is no clearance from the side edge of the unit.

Determining installation place

Be sure to install the iTM integrator in a place that meets the conditions described in 1.4.1 through 1.4.3 below.

Installation place and mounting direction

Below are the description of the installation place and mounting direction. Be sure to confirm.
• Installation place: Indoor, free from dust and water splashes
• Mounting direction: Vertical

Environmental conditions

Make sure that the installation environment meets the following conditions.
• The ambient temperature must be 0 to 40 °C.
• The ambient humidity must be 85% RH or less (without condensation).
• There must be no electromagnetic disturbance.

3.3.3. Required space

To install the iTM integrator, the following space is required. Make sure that there is a minimum clearance of 30 mm from the top edge, 100 mm from the left side edge, 30 mm from the right side edge, and 60 mm from the bottom edge of the unit.

<Installation space required for iTM integrator>

Required installation space
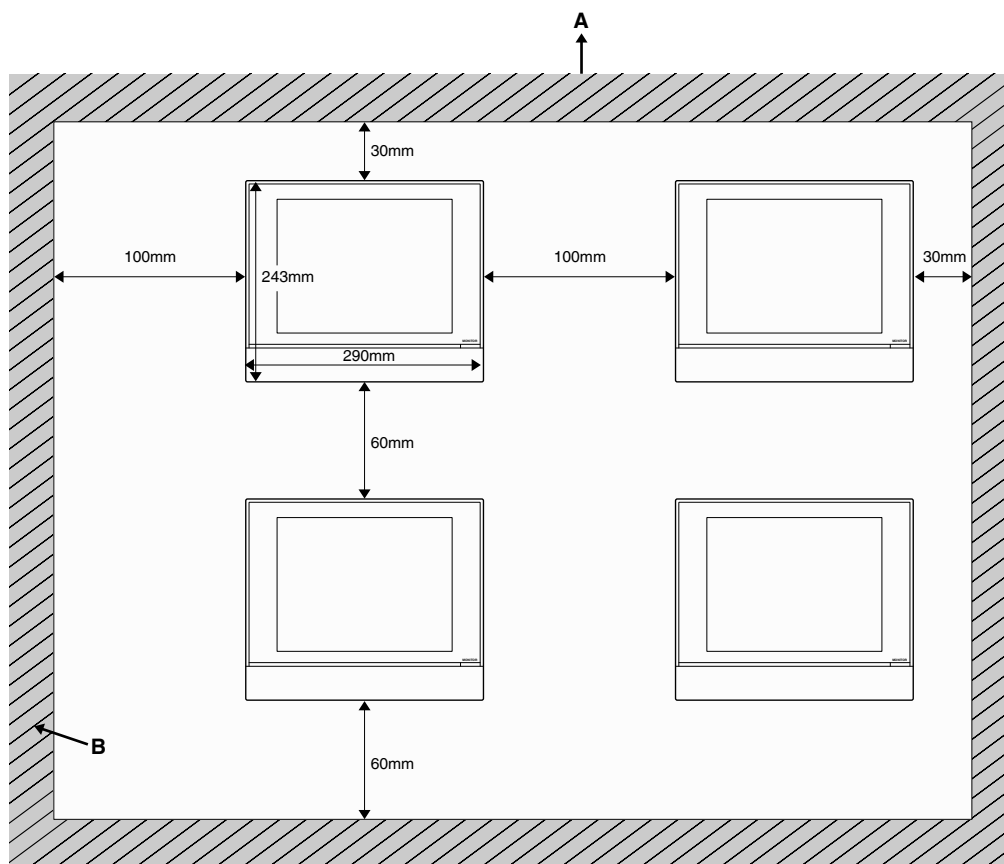
A Top
B Wall

3.3.4. Connections

This chapter describes the procedure for connecting the iTM integrator with the intelligent Touch Manager.

Required procedures   • 2.3 Connecting power supply
                         • 2.2 Connecting a LAN cable

⚠ **WARNING**

- **Do not turn the power supply on until all connections are made. Also, make sure that the local circuit breaker, if available, is turned off. Not doing so may cause an electric shock.**
- **After completing connections, check again that all wires are connected correctly before turning on the power supply.**
- **All field supplied parts and materials, electric works must conform to local codes.**
- **All wiring must be performed by an authorized electrician.**

Removing terminal cover from rear face

Before you start any of these connection procedures, remove the terminal cover from the rear face. To do so, remove two screws using a Phillips screwdriver.

<Removing terminal cover>
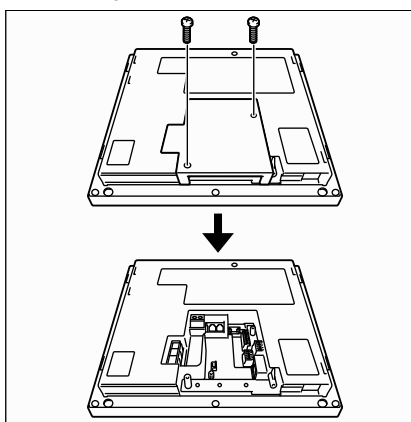
Connecting a LAN cable

Connecting your iTM integrator with network enables you to operate the intelligent Touch Manager from iTM integrator.
One iTM integrator can operate a maximum of 5 intelligent Touch Manager.
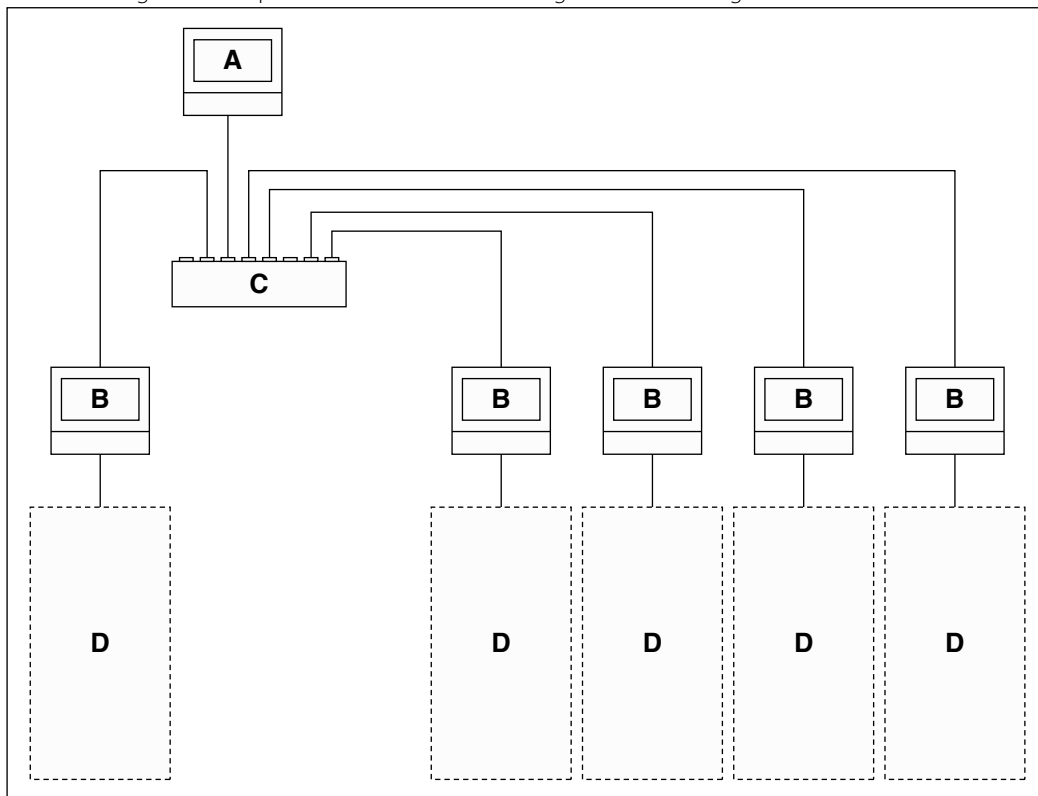
A iTM integrator
B intelligent Touch Manager
C Hub
D Air conditioners or other devices that the intelligent Touch Manager is monitoring.

⚠ **WARNING**

Do not clamp the cables with high-current lines such as a power cable.

NOTE

For how to connect the iTM integrator to a PC network, contact your network administrator.

Terminals location and conceptual connection diagram

Using a LAN cable, connect the LAN socket to the network hub.

<Conceptual drawing of LAN connection>
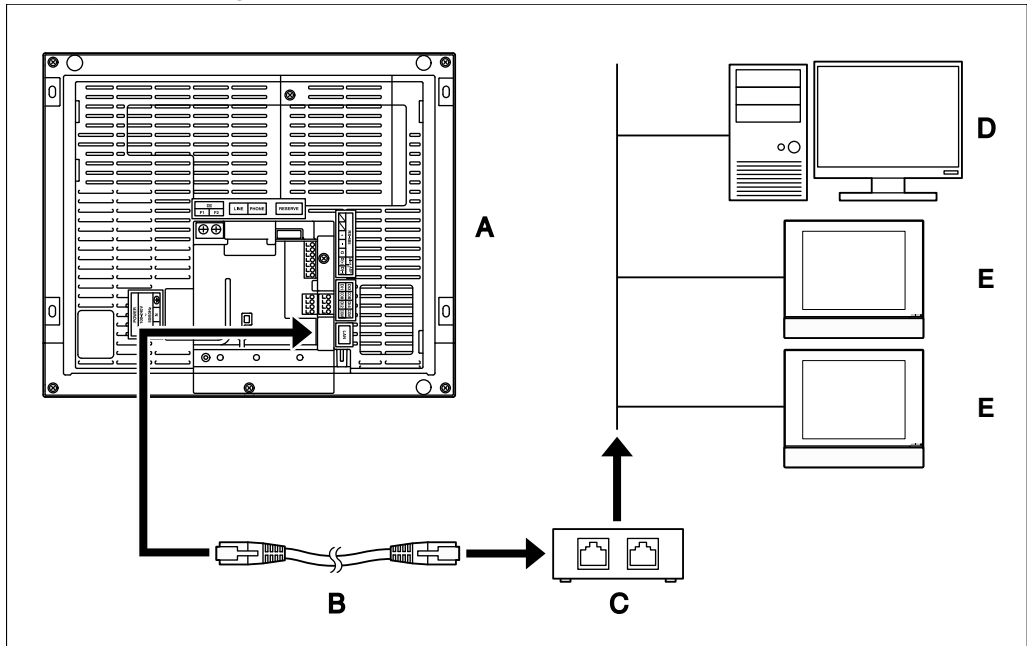
A Rear face of iTM integrator
B LAN cable
C Hub
D PC
E intelligent Touch Manager

Requirements that must be met

• Applicable cable standard: 100Base-TX or 10Base-T
• Connector standard: RJ-45

<SERVICE LAN socket and LAN SW switch>

┌─ **NOTE** ─────────────────────────────┐

• If you are connecting to a LAN temporarily during installation or maintenance, use the SERVICE LAN terminal located on the front face.
  Changing the position of the LAN SW switch to "FRONT" causes the SERVICE LAN socket to activate (enabled for use).
• You cannot close the cover when the switch set to "FRONT". To close the cover, select "BACK".
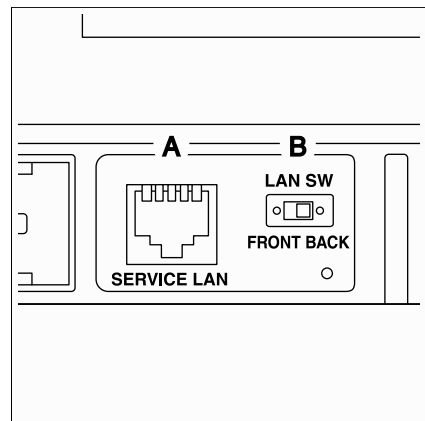
A SERVICE LAN
B LAN SW

4. Accessories

4.1. Di Unit <DEC101A51>

Using this unit, connection of other facilities other than air conditioner is made possible, such as power supply facility, sanitary facility, anti-disaster facility, and crime prevention facility.

Function

Type	BRC1C62	DEC101A51
Item / Group/Zone	One Group	Up to 4 groups
ON/OFF	Possible	Impossible
Temp. setting	Possible	Impossible
Airflow rate setting	Possible	Impossible
Airflow direction setting	Possible	Impossible
Timer setting twice a day	Possible	Impossible
Mode setting	Possible	Impossible
Filter sign reset	Possible	Impossible
Inspection/Test operation	Possible	Operation & Error display only by lamps

Unit (DEC101A51)
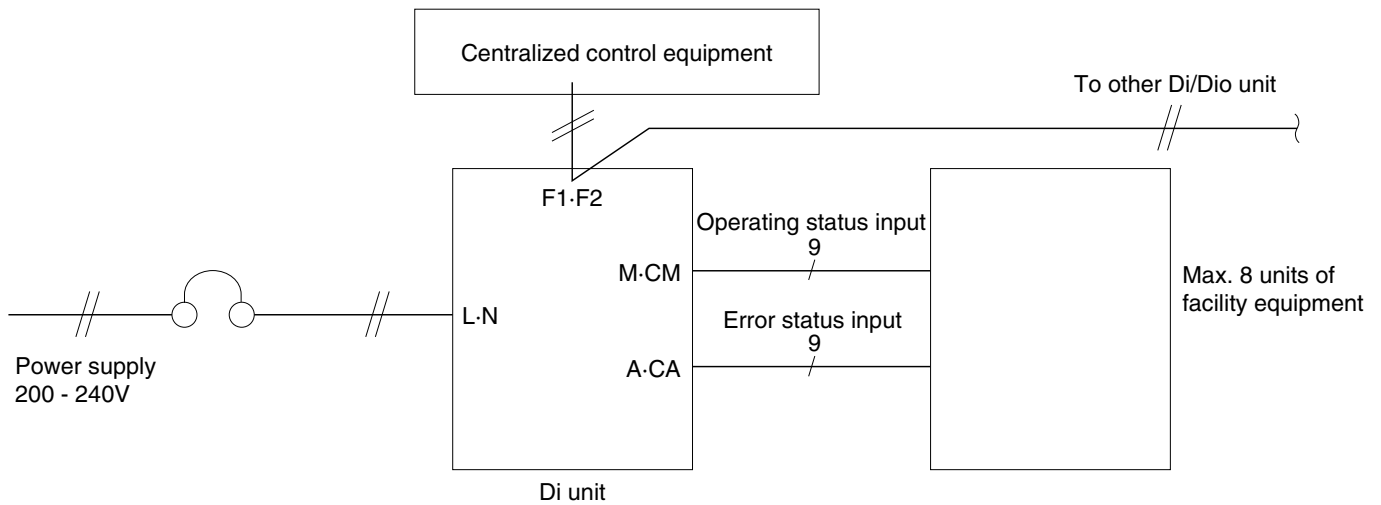
Operating and error input

When the contact is "Open" or "Closed", "Error" is produced. For changeover, refer to **"2. Initial Setting ②"**
Input specifications : No-voltage "a" contact
(The welding current is approx. 10mA when the applied voltage is 20 to 30VDC and the contact is "Closed".)
For input, use the contact for micro current. (12VDC, 1mA max.)
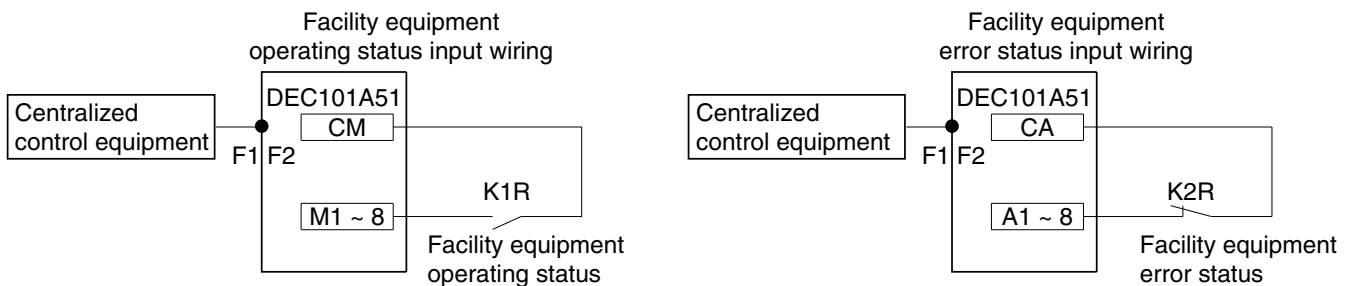
Part Names and Functions
Appearance

Di Unit
DEC101A51

PCB in DEC101A51

The figure below shows the printed circuit board built in this equipment.

DIII-NET Address No. setting switch (RS1/DS1)
Set DIII-NET Address No.

Terminal block for transmission (F1/F2) (Terminal size: M3)
Connect this unit to the terminals F1, F2 of the centralized control equipment.

Power supply terminal block (L, N)
For the power supply, use 1 ~ 200 - 240V.

Transformer connecting connector (CN1/CN2)
The power transformer connector is connected.

Abnormal input detecting switch (DS2/DS3)
Whether the connected equipment "error" is detected with contact input "Open" or "Closed" can be selected.

Transmission error monitor (LED10: Red)
When the transmission is abnormal, the lamp lights up, disabling remote control. (The lamp goes out in the normal condition.)

Switch for selecting the number of facility equipment connected (DS4/DS5)
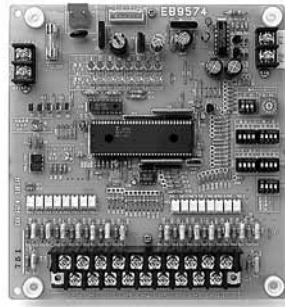Set the switch according to the number of facility equipment connections.

Micro-computer OK monitor (LED-A: Green)
When the micro-computer is in normal operation, the lamp flickers.

Start error mask switch (DS6-1)
It is possible to select whether the error at startup is masked for 10 or 30 seconds.

Quantity change shortcircuit pin (TP1)
Shortcircuit during control quantity setting

Error detecting switch (DS6-2)
It is possible to select whether the equipment connection error is a non-latch or latch error.

Terminal block for monitor input (Terminal size: M3.5)
The facility equipment status is monitored.

Monitor input switch (DS6-3)
Whether or not the abnormal condition of facility equipment during stop is recognized can be selected.

Specifications

	Di board
Input contacts	16 points.
	8 pairs based on a pair of On/Off input and abnormality input
	* Contact information(On/Off, Abnormality) is transmitted to intelligent Touch Controller / intelligent Manager III through DIII-Net communication.
Installation method	Indoor installation
Power supply	To be supplied from outside
Rating	AC200-240V, 50/60Hz
Applied Standard	Safety standard: IEC730, EMC standard: CISPR22-A (EMI), CISPR24 (EMS)
Environment for use	Outdoor air temperature	−15 to 60 °C
	Ambient humidity	95%RH or less (no condensation)
Environment for storage	Outdoor air temperature	−20 to 60 °C
	Ambient humidity	95%RH or less (no condensation)

Installation

(Installation Place)
• Install the unit indoors where it is not exposed to water and dust or dirt.
• Install the unit where both temperature and humidity do not become high.
  (Operating (available) temperature: -10 ~ +40˚C)
  (Operating (available) humidity: 10 ~ 85%)
• Connect the wiring to be connected in the field from the lower surface side.
  It is, therefore, necessary to make arrangements so as not to attach other equipment
  within 80mm from the lower surface of this equipment.
• Install this equipment in a place in which only the authorized personnel can touch it.
(Installation Direction)
• Install this equipment vertically to the floor surface. It should be noted that
  if it is installed in the horizontal direction, a malfunction or failure may result.
(Installation Method)
• Ensure that this equipment is installed with 4 screws (screw size M4 min.).

Restrictions in Continuous Installation

In case where several devices are set up and installation inside the power board is carried out, each equipment installation space and space between the wall surface and this equipment should be left at least as shown below.

Unit (mm)

Fix the DEC101A51 firmly with the installation screws (M4)

(To Remove Front Panel:)
"1.5.4 Electric Wiring Work and Initial Setting" should be performed with the front panel removed. The front panel can be removed by detaching 2 front panel screws shown in the figure above and sliding it lightly to the upper side . Upon completion of all wiring connections and setting operations, close the front panel as it was and screw it firmly.

Electric Wiring Work and Initial Setting

Electric wiring work

Wiring Lead-In

For wiring connection, remove the front panel (secured with 2 screws) of this equipment.

Upon completion of operation given in this paragraph and **"2. Initial Setting"** below, close the front panel with the screws described above.

① To 1 ~ 200 - 240 V and earth

② To facility equipment

③ To facility equipment

④ To terminals F1, F2 of the centralized control equipment or terminals F1, F2 of other equipment (outdoor unit, DEC101A51, 102A51)
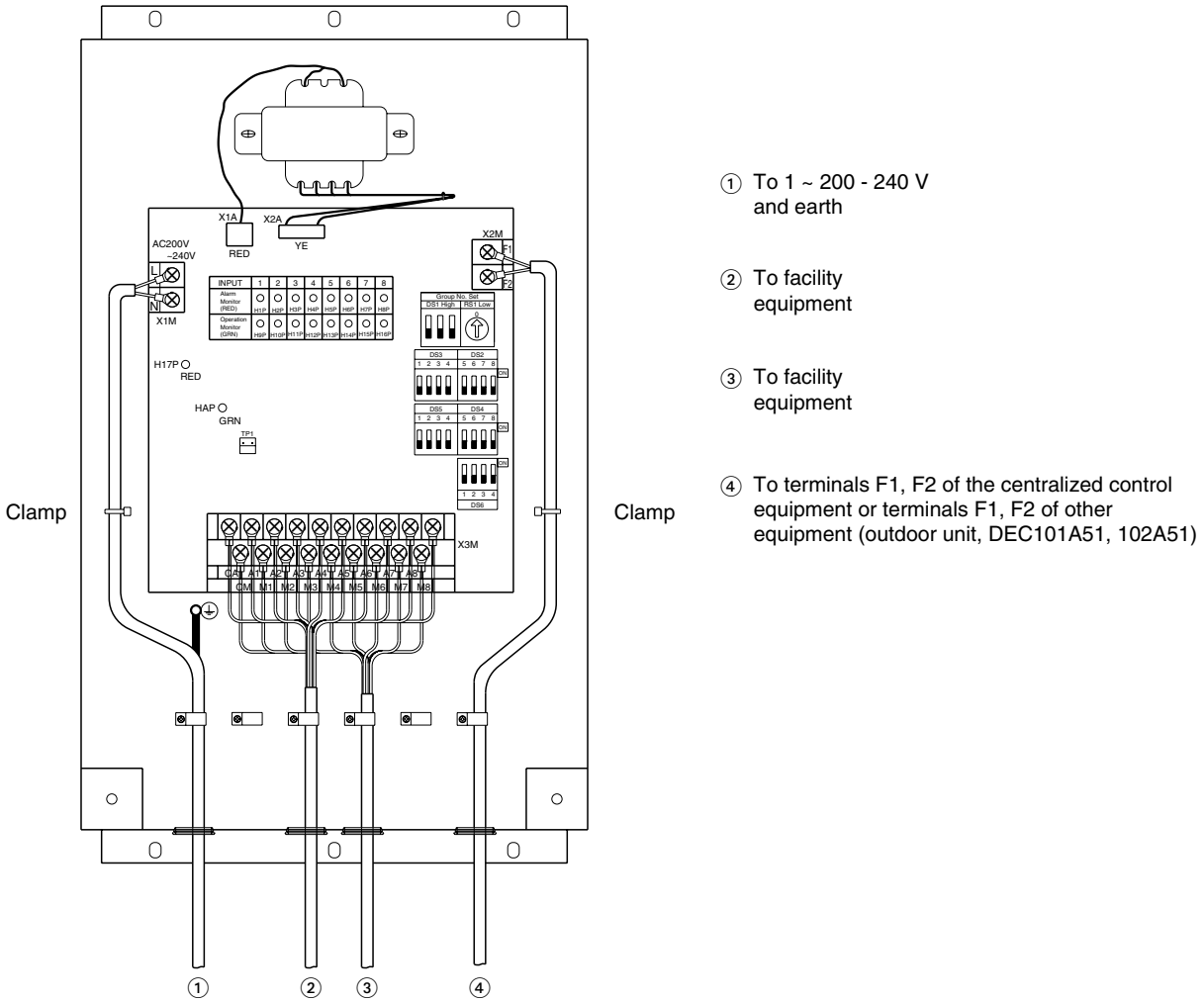
(1) Wire connections and wire clamping should be as shown in the figure above.

(2) No simultaneous clamping is allowed for high-voltage wiring

(power supply wiring (L/N) & earth wiring), low-voltage wiring <Communication wiring (F1/F2), operation input wiring (CM, M1 to 8) and abnormal input wiring (CA, A1 to 8)> since malfunctioning may result. Also, in case where the wirings described above are routed in parallel, be sure to connect the wirings at least 50 mm apart from the other.

Initial setting
• DEC101A51 Switch Settings

	Name	Operation	OFF	ON
DS2	Abnormal input detection Open/Close (Concentrated address +4 to 7)	Abnormal input detection method Open: Close (Normal) Æ Open (Abnormal) Close: Open (Normal) Æ Close (Abnormal)	Open	Close
DS3	Abnormal input detection Open/Close (Concentrated address +0 to 3)		Open	Close
DS4	Buzzer output ON/OFF (Concentrated address +4 to 7)	ON/OFF switching of buzzer output of buzzer unit upon detection of failure.	ON	OFF
DS5	Buzzer output ON/OFF (Concentrated address +0 to 3)		ON	OFF
DS6-1	Startup failure	Masking time after detecting operation input.	10 seconds	30 seconds
DS6-2	Failure detection	Recovery method upon detection of failure.	Automatic reset	Retained
DS6-3	Monitor input	Detection of failure under halting status.	Yes	No

Note:

All are set to "OFF" upon shipment from factory.

① Set the top address of this equipment with the DIII-NET setting switch (DS1/RS1).
  Using the DIII-NET setting switch (DS1), set the range of Address No. that is set in this equipment.
  Address Nos. 1-00 to 1-15 are factory controlled before shipment.

Control range DS1	1-00 ~ 1-15	2-00 ~ 2-15	3-00 ~ 3-15	4-00 ~ 4-15
Control range DS1 (high order) setting (Address range)				

When a product is discharged from the factory

▮ ← This indicates the switch knob.

Set Address No. (low order) with the centralized address setting switch (RS1).
Referring to the table below, set the address number low order.
    (Address Nos. are 1-00, 1-01, --- 1-15, 2-00, --- 4-15.)

RS1 Switch Setting Table

Position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
Address No.	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	(low order)

<when a product is discharged from the factory>

<Example>
When Address No. is set to 1-08

DS1   RS2

High   Low
order : 1 order : 8
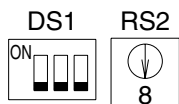
Address No. indicates the following portion in this case.

    1-08
High   Low
order   order

In this case, it follows that this equipment uses Address Nos.
1-08 to 1-15.
(8 numbers max.)

∗ Number of centralized addresses used

The number of centralized addresses used is determined by the top address set in this item and the number of facility equipment connected that is set in "③ TP1 Setting (Facility equipment quantity change)".

Example 1:

When the top address was set to "1-00" and the number of facility equipment was set to "2", it follows that "1-00" and "1-01" are being used.

Example 2:

When the top address was set to "3-15" and the number of facility equipment was set to "8", it follows that "3-15", "4-00", "4-01", "4-02", "4-03", "4-04", "4-05" and "4-06" are being used.

<CAUTION>

This equipment can use the addresses between "1-00" and "4-15".

(It is impossible to use Address 5-00 and subsequent addresses, and use any address in duplication.

Example:

When the top address was set to "4-14", the number of facility equipment cannot be set to "8".

In this case, set it to "1" or "2".)

② DS2 & DS3 Setting

This switch selects whether the input is abnormal with the abnormal input contact (A1 to A8) open or closed.

OFF (factory preset before shipment) -------- Abnormal in the open condition

ON ----------------------------- Abnormal in the closed condition

The relationship between each switch and abnormal input is as described below.

　　Input A1 : DS2, 3-1
　　Input A2 : DS2, 3-2
　　Input A3 : DS2, 3-3
　　Input A4 : DS2, 3-4
　　Input A5 : DS2, 3-5
　　Input A6 : DS2, 3-6
　　Input A7 : DS2, 3-7
　　Input A8 : DS2, 3-8

③ TP1 Setting (Facility equipment quantity change)

This function is used to set the number of facility equipment controllable with this equipment.

(The number of controllable facility equipment factory shipment is 8.)

(Setting Method)

1. Turn the power "ON" with TP1 short-circuited and change the quantity of facility equipment according to the DS4, 5 setting.

   The relation between DS4, 5 setting and facility equipment quantity is as per the table below.

2. Turn the power OFF.

3. Open the TP1 and turn all DS4, 5 switches "OFF".

4. Turn the power ON again.

5. Short-circuit the TP1, and check to see if the setting coincides with the number of facility equipment connected to this equipment.

6. Finally, open the TP1.

TP1	Shortcircuit (with power "ON")			
DS4 DS5	DS5 DS6	DS5 DS6	DS5 DS6	DS5 DS6
Setting Contents	1 unit	2 units	3 units	4 units
TP1	Shortcircuit (with power "ON")			
Operation Monitor DS4 DS5	1 unit	2 units	3 units	4 units
Setting Contents	5 units	6 units	7 units	8 units
Operation Monitor	5 units	6 units	7 units	8 units

By short-circuiting the quantity change TP1 in the normal operating condition, the setting status can be confirmed.

■ ←—— This indicates the switch knob.

☼ This indicates LED lighting.

Electric wiring connection

Wiring Procedure

① <F1/F2> wiring between this equipment and centralized control equipment is required.

② The connection to the facility equipment and setting of various switches are required
See the "Wiring with Facility Equipment" paragraph.

③ Connect the power supply and earth.
See the "Power Supply & Earth Wiring" paragraph.

④ For the wiring connection and clamping method, refer to the "Wiring Lead-in" paragraph.

Power Supply L — Switch — Fuse (10A) — DEC101A51 — F1, F2 — Centralized control equipment
Supply N
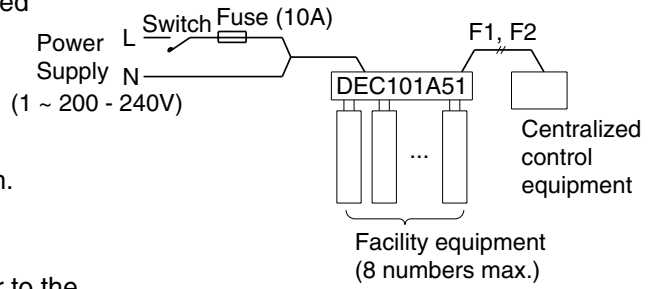(1 ~ 200 - 240V)

... Facility equipment (8 numbers max.)

Wiring with Facility Equipment   <CAUTION> The length of wiring between this equipment and facility equipment is 100m max.

Power Supply & Earth Wiring

• For power supply, 1 ~ 200 - 240 V is used. The wiring to the power terminal block (L/N) is required. The electric wire used should be 1.25 to 2.0mm^2. After checking the power supply specifications, make correct connections.

• Connect the earth wiring to the " ⏚ " terminal. Use a 2.0mm^2 wire.

4.2. Dio Unit <DEC102A51>

Using this unit, connection of other facilities other than air conditioner is made possible, such as power supply facility, sanitary facility, anti-disaster facility, and crime prevention facility.

Function

Type Item	BRC1C62	DEC102A51
Group/Zone	One Group	Up to 4 groups
ON/OFF	Possible	Possible
Temp. setting	Possible	Impossible
Airflow rate setting	Possible	Impossible
Airflow direction setting	Possible	Impossible
Timer setting twice a day	Possible	Impossible
Mode setting	Possible	Impossible
Filter sign reset	Possible	Impossible
Inspection/Test operation	Possible	Operation & Error display only by lamps

• Dio Unit (DEC102A51)
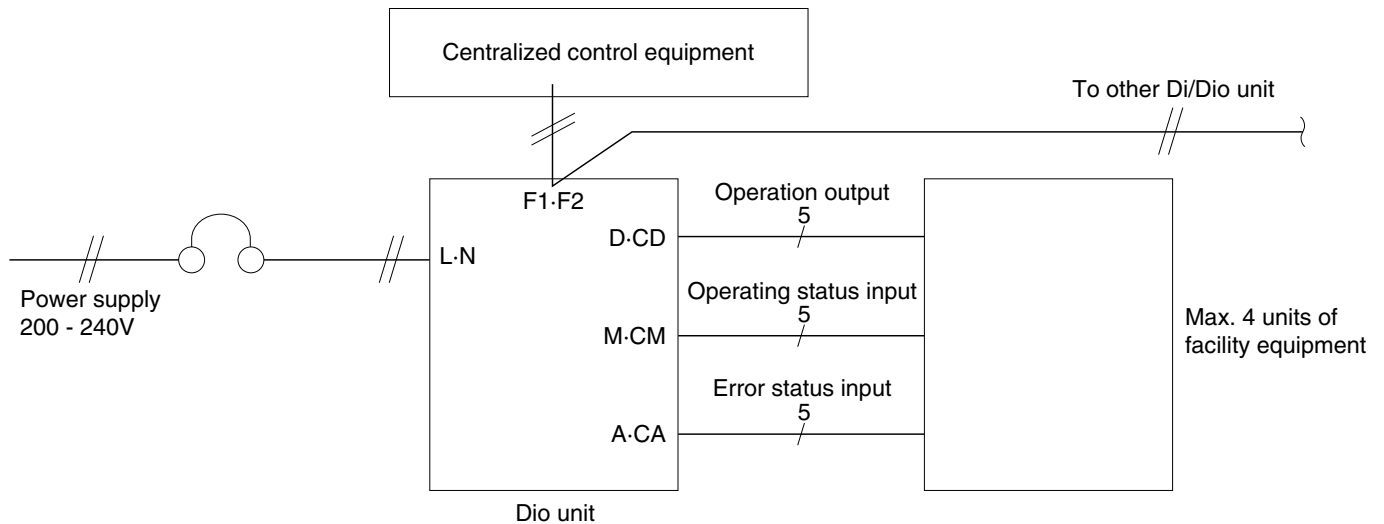
(Operation output)

It is possible to select continuous 1 output (4 points) or instantaneous 2 output (ON/OFF pair-2 points).
For switching, refer to 2. Initial Setting ④

• Wiring at Continuous Output (Up to 4 facility equipments can be connected.)

DEC102A51
1~200-240V
CD
Operation command
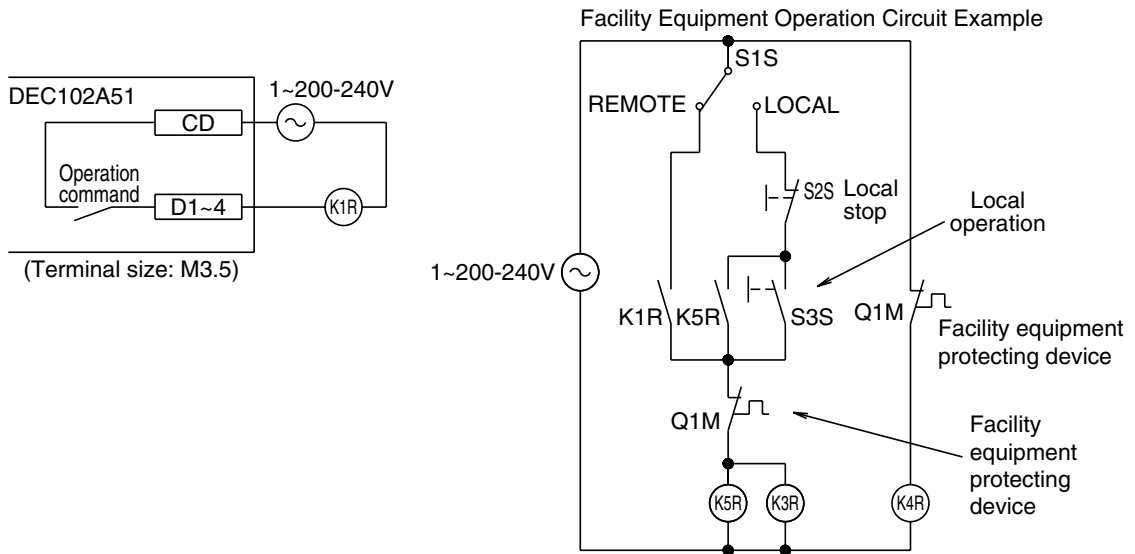D1~4
K1R
(Terminal size: M3.5)

Facility Equipment Operation Circuit Example
S1S
REMOTE — LOCAL
S2S Local stop
Local operation
1~200-240V
K1R K5R S3S Q1M
Facility equipment protecting device
Q1M
Facility equipment protecting device
K5R K3R K4R

• Wiring at Instantaneous Output (Up to 2 facility equipments can be connected.)

Output wiring for facility equipment 1
DEC102A51
Stop command
D2
K2R
1~200-240V
CD
Operation command
D1
K1R
(Terminal size: M3.5)

Output wiring for facility equipment 2
DEC102A51
Stop command
D4
K2R
1~200-240V
CD
Operation command
D3
K1R
(Terminal size: M3.5)

Facility Equipment Operation Circuit Example
S1S
REMOTE LOCAL
K2R
S2S Local stop
1~200-240V
K5R K1R K5R S3S Q1M
Local operation
Facility equipment protecting device
Q1M
Facility equipment protecting device
K5R K3R K4R

Output SPEC: No-voltage "a" contact

Voltage SPEC	Maximum Current	Minimum Current
200-240V	1.5A (Resistive Load)	10mA
DC5~24V	2A (Resistive Load)	10mA

Operation input

When the contact is "Closed", "Run" is to be inputted.

Input SPEC: No-voltage "a" contact (When the applied voltage is 20 to 30V DC and the contact is "Closed", the welding current is approx. 10mA.)

For input, use a contact for micro current. (12V DC, 1mA max.)

Abnormal input

When the contact is "Open" or "Closed", "Error" is produced. For changeover, refer to **"1.5.4 Electric Wiring Work and Initial Setting"**
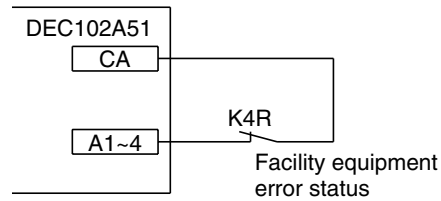
Input specifications: No-voltage "a" contact (The welding current is approx. 10mA when the applied voltage is 20 to 30V DC and the contact is "Closed".)

For input, use the contact for micro current. (12V DC, 1mA max.)

Facility equipment operating status input wiring   Facility equipment error status input wiring
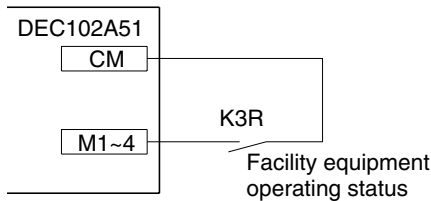
When the switch was set to "Ins." (Instantaneous Output), the operation input terminals M3, M4 and abnormal input terminals A3, A4 are not used.

Terminal used in case where the switch was set to "Continuous Output" (Con.) or "Instantaneous Output" (Ins.)

Facility equipment (Up to 4 units can be connected to single DEC102A51.)	Terminal used in the case of setting to "Continuous Output"					
	Run/Stop output terminal		Operation input terminal		Abnormal input terminal	
1st equipment	CD	D1	CM	M1	CA	A1
2nd equipment	CD	D2	CM	M2	CA	A2
3rd equipment	CD	D3	CM	M3	CA	A3
4th equipment	CD	D4	CM	M4	CA	A4

Facility equipment (Up to 2 units can be connected to single DEC102A51.)	Terminal used in the case of setting to "Instantaneous Output"							
	Operation output terminal		Stop output terminal		Operation input terminal		Abnormal input terminal	
1st equipment	CD	D1	CD	C2	CM	M1	CA	A1
2nd equipment	CD	D3	CD	C4	CM	M2	CA	A2

When the switch was set to "Ins." (Instantaneous Output), the operation input terminals M3, M4 and abnormal input terminals A3, A4 are not used.

Power Supply & Earth Wiring
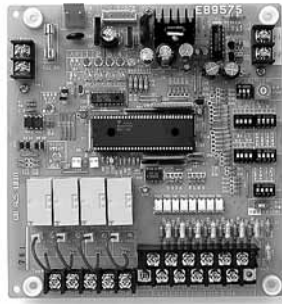
- For power supply, 1~200-240V is used. The wiring to the power terminal block (L/N) is required.
  The electric wire used should be 1.25 to 2.0mm².
  After checking the power supply specifications, make correct connections.
- Connect the earth wiring to the "⏚" terminal. Use a 2.0mm² wire.
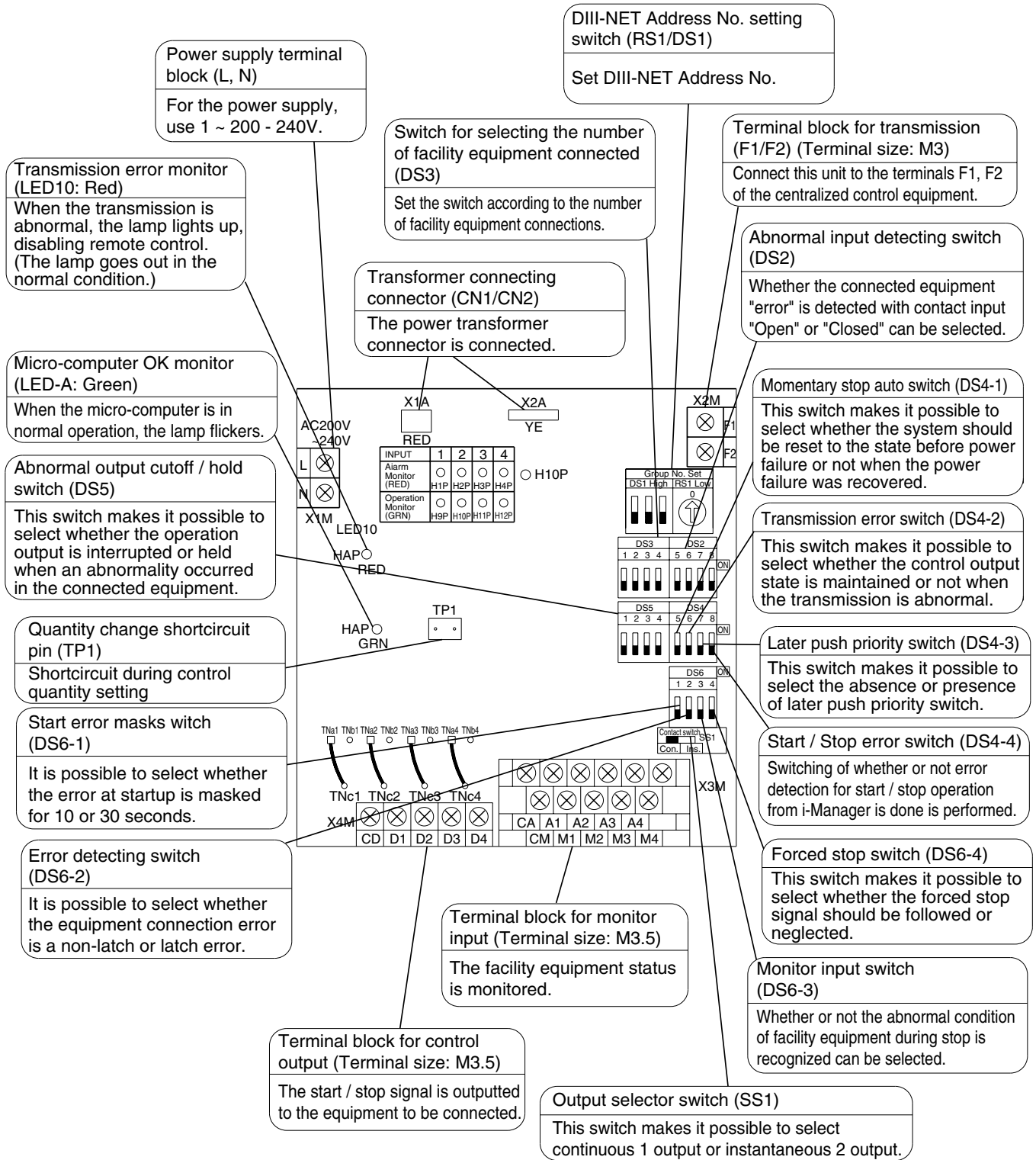
Part Names and Functions

Appearance

Dio Unit
DEC102A51

PCB in DEC102A51

The figure below shows the PC board built in this equipment.

DIII-NET Address No. setting switch (RS1/DS1)

Set DIII-NET Address No.

Power supply terminal block (L, N)

For the power supply, use 1 ~ 200 - 240V.

Switch for selecting the number of facility equipment connected (DS3)

Set the switch according to the number of facility equipment connections.

Terminal block for transmission (F1/F2) (Terminal size: M3)

Connect this unit to the terminals F1, F2 of the centralized control equipment.

Transmission error monitor (LED10: Red)

When the transmission is abnormal, the lamp lights up, disabling remote control. (The lamp goes out in the normal condition.)

Transformer connecting connector (CN1/CN2)

The power transformer connector is connected.

Abnormal input detecting switch (DS2)

Whether the connected equipment "error" is detected with contact input "Open" or "Closed" can be selected.

Micro-computer OK monitor (LED-A: Green)

When the micro-computer is in normal operation, the lamp flickers.

Momentary stop auto switch (DS4-1)

This switch makes it possible to select whether the system should be reset to the state before power failure or not when the power failure was recovered.

Abnormal output cutoff / hold switch (DS5)

This switch makes it possible to select whether the operation output is interrupted or held when an abnormality occurred in the connected equipment.

Transmission error switch (DS4-2)

This switch makes it possible to select whether the control output state is maintained or not when the transmission is abnormal.

Quantity change shortcircuit pin (TP1)

Shortcircuit during control quantity setting

Later push priority switch (DS4-3)

This switch makes it possible to select the absence or presence of later push priority switch.

Start error masks witch (DS6-1)

It is possible to select whether the error at startup is masked for 10 or 30 seconds.

Start / Stop error switch (DS4-4)

Switching of whether or not error detection for start / stop operation from i-Manager is done is performed.

Error detecting switch (DS6-2)

It is possible to select whether the equipment connection error is a non-latch or latch error.

Forced stop switch (DS6-4)

This switch makes it possible to select whether the forced stop signal should be followed or neglected.

Monitor input switch (DS6-3)

Whether or not the abnormal condition of facility equipment during stop is recognized can be selected.

Terminal block for monitor input (Terminal size: M3.5)

The facility equipment status is monitored.

Terminal block for control output (Terminal size: M3.5)

The start / stop signal is outputted to the equipment to be connected.

Output selector switch (SS1)

This switch makes it possible to select continuous 1 output or instantaneous 2 output.

Specifications

	Dio board
Input contacts	8 points. 4 pairs based on a pair of On/Off input and abnormality input
	* Contact information(On/Off, Abnormality) is transmitted to intelligent Manager III through DIII-Net communication.
Output contacts	4 points. In case of normally output, 4 units are controllable. In case of instantaneous output, 2 units are controllable.
	* From intelligent Touch Controller / intelligent Manager III, On/Off and control of the equipment with the external contacts are possible through DIII-NET communication.
Installation method	Indoor installation
Power supply	To be supplied from outside
Rating	AC200-240V, 50/60Hz
Applied Standard	Safety standard: IEC730, EMC standard: CISPR22-A (EMI), CISPR24 (EMS)
Environment for use	Outdoor air temperature	−15 to 60 °C
	Ambient humidity	95%RH or less (no condensation)
Environment for storage	Outdoor air temperature	−20 to 60 °C
	Ambient humidity	95%RH or less (no condensation)

Output specs: Voltage free "a" contact

Voltage specs	Maximum current	Minimum current
AC200–240V	1.5 A (resistance load)	10mA
DC5–24V	2.0 A (resistance load)	10mA

Input specs: Voltage free "a" contact
Micro current load contact input (DC12V, 1 mA or less)
Wiring length: 150 m

Installation

(Installation Place)
• Install the unit indoors where it is not exposed to water and dust or dirt.
• Install the unit where both temperature and humidity do not become high.
  (Operating (available) temperature: -10 ~ +40˚C)
  (Operating (available) humidity: 10 ~ 85%)
• Connect the wiring to be connected in the field from the lower surface side.
  It is, therefore, necessary to make arrangements so as not to attach other equipment within 80mm from the lower surface of this equipment.
• Install this equipment in a place in which only the authorized personnel can touch it.
(Installation Direction)
• Install this equipment vertically to the floor surface. It should be noted that if it is installed in the horizontal direction, a malfunction or failure may result.
(Installation Method)
Install in container box or in panel.
• Ensure that this equipment is installed with 4 screws (screw size M4 min.).
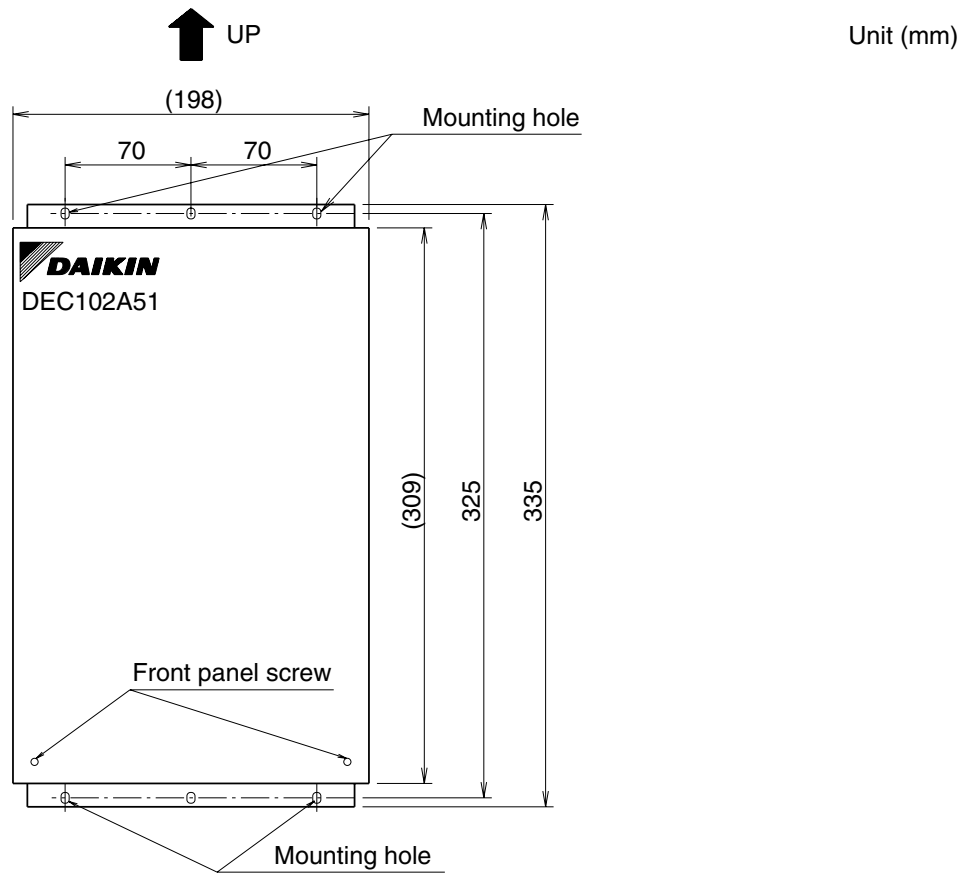
Restrictions in Continuous Installation

In case where several devices are set up and installation inside the power board is carried out, each equipment installation space and space between the wall surface and this equipment should be left at least as shown below.
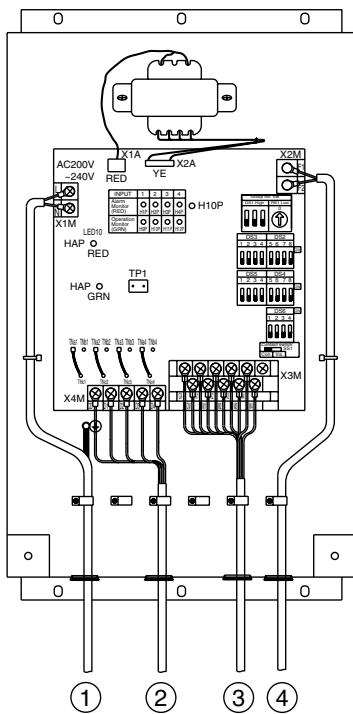
Unit (mm)
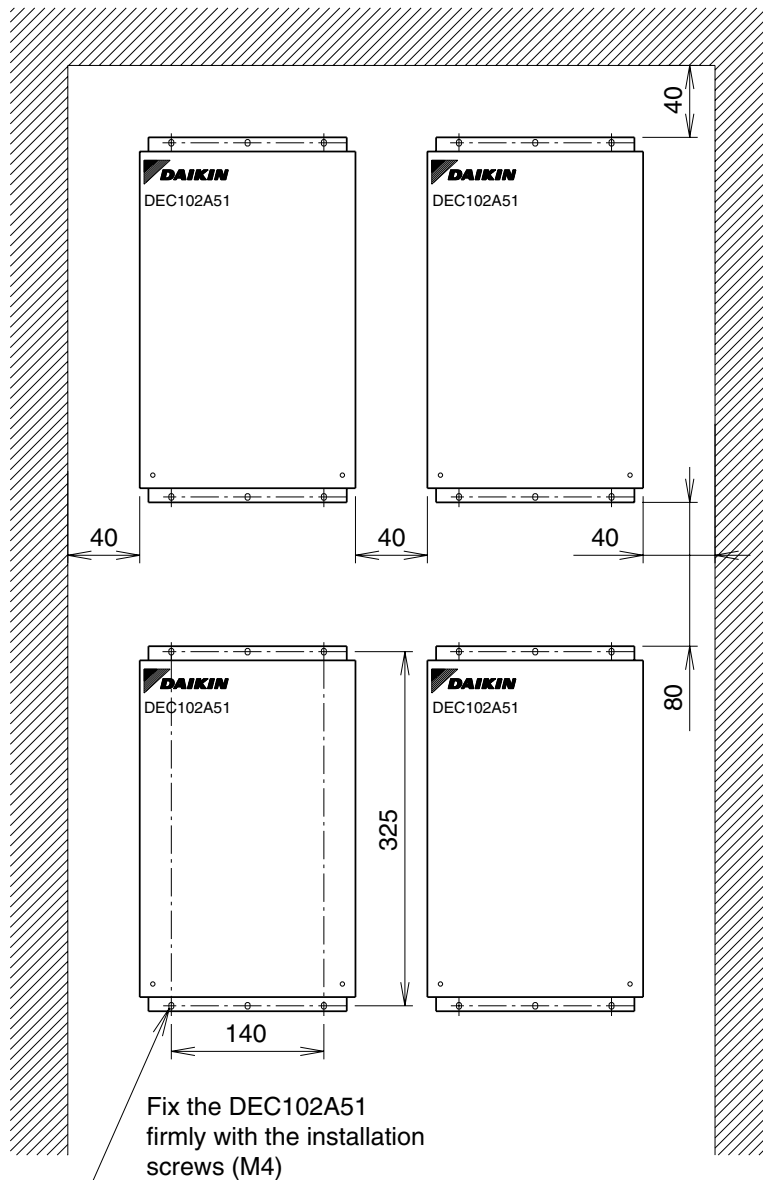
(To Remove Front Panel:)
"**1.4.4 Electric Wiring Work and Initial Setting**" should be performed with the front panel removed. The front panel can be removed by detaching 2 front panel screws shown in the figure above and sliding it lightly to the upper side. Upon completion of all wiring connections and setting operations, close the front panel as it was and screw it firmly.

Electric Wiring Work and Initial Setting
Electric Wiring Work

No simultaneous clamping is allowed for high-voltage wiring
<power supply wiring (L/N), earth wiring, relay output wiring
(CD, D1 to 4)>, low-voltage wiring <communication wiring (F1/F2),
operation input wiring (CM, M1 to 4) and abnormal input wiring
(CA, A1 to 4)> since malfunctioning may result.
Also, in case where the wirings described above are routed in parallel,
be sure to connect the wirings at least 50mm apart from the other.

① To 1~200-240V and earth
② To facility equipment
③ To facility equipment
④ To terminals F1, F2 of the centralized control equipment or terminals
   F1, F2 of other equipment
   (outdoor unit, DEC101A51, 102A51)

Initial setting
• DEC102A51 Switch Settings

	Name	Operation	OFF	ON
SS1	Output switching	Switching control output	Always output "1"	Always output "2"
DS2	Abnormal input detection Open/Close	Failure detection Open: Close (Normal) Æ Open (Abnormal) Close: Open (Normal) Æ Close (Abnormal)	Open	Close
DS3	Buzzer output ON/OFF	ON/OFF switching of buzzer output of buzzer unit upon detection of failure.	ON	OFF
DS4-1	Instantaneous automatic recovery	Recover control output after power failure to status before the power failure.	No	Yes
DS4-2	Transmission failure	Shut off control output upon detecting transfer failure.	Yes	No
DS4-3	Last command priority	Allowing start/stop control from facility.	Yes	No
DS4-4	Start/stop failure	Detecting start/stop failure. (*1)	No	Yes
DS5	Abnormal output shutoff/retain	Shut off control output upon detecting failure.	Yes	No
DS6-1	Startup failure	Masking time after detecting operation input.	10 seconds	30 seconds
DS6-2	Failure detection	Operation upon recovery from failure.	Automatic reset	Retained
DS6-3	Monitor input	Detecting failure under halting status.	Yes	No
DS6-4	Forced termination	Ignoring forced stop signal.	No	Yes

Note:

1. All are set to "OFF" upon shipment from factory.
2. *1 If operating feedback input is not detected within 10 seconds after 1 operation input is received, it results in start/stop failure.

Factory preset before shipment

C/C : Centralized control equipment
C/D : Connectable Devices or Facility equipment

Switch	Condition	Factory preset before shipment
DS1	Range of address No.	1-00, 01, 02, 03
DS2	A1 - AM	Abnormal in the open condition
DS4-1	Power failure, then after power recovery	Stop
DS4-2	Communication abnormal	Stop
DS4-3	Last command priority or C/C only	Last command priority
DS4-4	Operation commands from C/C reach to C/D , but no operation.	No abnormality signal to C/C
DS5	Of abnormal in C/D,	CD- D1~4 is "turned off".
DS6-1	Mask time for abnormal input after operation command from C/C	10 seconds
DS6-2	After error of C/D is recovered	Automatic reset
DS6-3	Abnormal input + stop state of C/D	Error display on C/C
DS6-4	Forced stop command from C/C	C/D stop
SS1	Continuous output "Con" / Instantaneous output "Ins"	Continuous output
TNa	"a" contact or "b" contact for CD- D1~4	"a" contact
DS3	Number of C/D	4

"a" contact: make-contact, "b" contact: break-contact

① Set the top address of this equipment with the DIII-NET setting switch (DS1/RS1).

Using the DIII-NET setting switch (DS1), set the range of Address No. that is set in this equipment.

Address Nos. 1-00 to 1-15 are factory controlled before shipment.

Control range DS1	1-00 ~ 1-15	2-00 ~2-15	3-00 ~ 3-15	4-00 ~ 4-15
Control range DS1 (high order) setting (Address range)	*			

∗ when a product is discharged from the factory

 ← This indicates the switch knob.

Set Address No. (low order) with the centralized address setting switch (RS1).

Referring to the table below, set the address number low order.

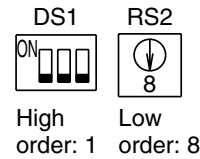(Address Nos. are 1-00, 1-01, --- 1-15, 2-00, --- 4-15.)

RS1 Switch Setting Table   ∗ when a product is discharged from the factory

Position	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Address No.	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15

∗ (low order)

<Example>
When Address No. is set to 1-08

DS1   RS2

High   Low
order: 1   order: 8

Address No. indicates the following portion in this case.

1-8
High   Low
order   order

In this case, it follows that this equipment uses
Address Nos. 1-08 to 1-11. (4 numbers max.)

∗ Number of centralized addresses used

The number of centralized addresses used is determined by the top address set in this paragraph and the number of facility equipment connected that is set in "⑤ TP1 Setting (Facility equipment quantity change)" paragraph.

Example 1: When the top address was set to "1-00" and the number of facility equipment was set to "2",
          it follows that "1-00" and "1-01" are being used.
Example 2: When the top address was set to "3-15" and the number of facility equipment was set to "4",
          it follows that "3-15", "4-00", "4-01" and "4-02" are being used.

<CAUTION>

This equipment can use the addresses between "1-00" and "4-15".

(It is impossible to use Address 5-00 and subsequent addresses, and use any address in duplication.

Example: When the top address was set to "4-14", the number of facility equipment cannot be set to "4".
        In this case, set it to "1" or "2".)

② DS2 Setting

This switch selects whether the input is abnormal with the abnormal input contact (A1 to A4) open or closed.

OFF (factory preset before shipment) --- Abnormal in the open condition

ON --- Abnormal in the closed condition

The relationship between each switch and abnormal input is as described below.

Input A1: DS2-1   Input A2: DS2-2
Input A3: DS2-3   Input A4: DS2-4

③ DS4-1 Setting

This switch selects the control output status after power failure occurred in this equipment and the power was recovered.

OFF (factory preset before shipment) --- The control power after power recovery is handled as stop output.

ON --- The control output after power recovery is handled as output before power failure.

④ SS1 Setting

This switch selects continuous output or instantaneous output for control outputs (D1 to D4) commanded to the facility equipment.

Set to "Con." side (factory preset before shipment) --- Continuous output

(Contacts D1 to D4 at the time of operation command from the centralized control equipment: ON-Contacts D1 to D4 at stop command: OFF)

Operation command   Stop command
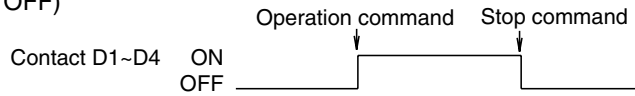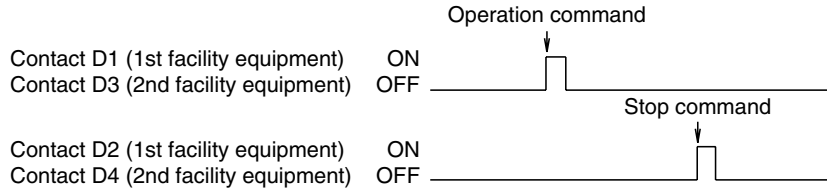
Contact D1~D4   ON
            OFF

Set to "Ins." side --- Instantaneous output

(Contact D1 or D3 at the time of operation command from the centralized control equipment: ON for one second only-Contact D2 or D4 at stop command: ON for one second only)

Operation command

Contact D1 (1st facility equipment)   ON
Contact D3 (2nd facility equipment)   OFF

Stop command

Contact D2 (1st facility equipment)   ON
Contact D4 (2nd facility equipment)   OFF

⑤ TP1 Setting (Facility equipment quantity change)

This function is used to set the number of facility equipment controllable with this equipment.
(The number of controllable facility equipment factory preset before shipment is 4.)
(Setting Method)
1. Turn the power "ON" with TP1 short-circuited and change the quantity of facility equipment according to the DS3 setting.
   The relation between DS3 setting and facility equipment quantity is as per the table below.
2. Turn the power "OFF".
3. Open the TP1 and turn all DS3 switches "OFF".
4. Turn the power ON gain.
5. Short-circuit the TP1, and check to see if the setting coincides with the number of facility equipment connected to this equipment.
6. Finally, open the TP1.

∗ The number of connectable facility equipment is 4 max. at continuous output, and 2 max. at instantaneous output.

TP1	Short circuit (with power "ON")			
DS3	DS3 1 2 3 4 ON	DS3 1 2 3 4 ON	DS3 1 2 3 4 ON	DS3 1 2 3 4 ON
Setting Contents	1 Unit	2 Units	3 Units	4 Units

◻ ◀— This indicates the switch knob.

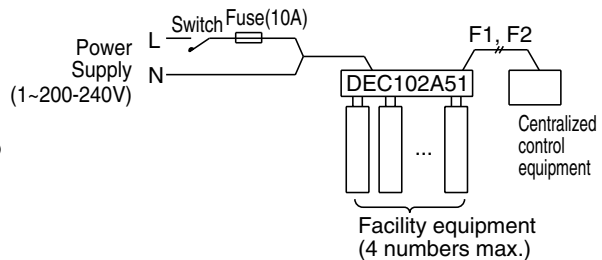By short-circuiting the quantity change TP1 in the normal operating condition, the setting status can be confirmed.

Operation Monitor

	1 Unit	2 Units	3 Units	4 Units
Operation Monitor	☼○○○	○☼○○	○○☼○	○○○☼

☼ This indicates LED lighting.

Electric Wiring Connection

Wiring Procedure

① <F1/F2> wiring between this equipment and centralized control equipment is required.
② The connection to the facility equipment and setting of various switches are required.
    See the "Wiring with Facility Equipment" paragraph
③ Connect the power supply and earth.
    See the "Power Supply & Earth Wiring" paragraph.
④ For the wiring connection and clamping method, refer to the "Wiring Lead-in" paragraph.

Power Supply (1~200-240V)   L   Switch Fuse(10A)   F1, F2
    N

DEC102A51   Centralized control equipment

Facility equipment (4 numbers max.)

Wiring with Facility Equipment

<CAUTION> The length of wiring between this equipment and facility equipment is 100m max.

5. Power proportional distribution

System Architecture

Confirmation of Watthour Meter

For distribution of electric energy, the integrating watthour meter with pulse transmitter is required.
It is important to confirm that the specifications coincide with each other, and also to confirm with the division in charge (normally, electrical work division, not air-conditioning div.).

Specifications of watthour meter to be connected to intelligent Manager
a)   To be an integrating watthour meter with pulse transmitter.
b)   The output pulse unit (pulse weight) is to be from 0.1 kWh/pulse to 10 kWh/pulse.
c)   The pulse width is to be within 20~400 msec and pulse interval have to be more than 100 msec.
d)   The semiconductor relay is to be used for pulse output, and it to be no-voltage output.

If the specifications are not coincident, there is a possibility that the following imperfections are caused:
•   If the pulse width is not within 20~400 msec.
    If it is less than 20 msec, the pulse input cannot be detected, and the result of calculation is smaller than the real value.
    In addition, if more than 400 msec, more than 2 pulses is detected for 1-pulse input, and the result of calculation is larger than the real value.
•   If use of contact other than electronic type relay.
    If it is a mechanical relay, the pulse may not accurately be detected due to relay chattering.

Confirm the following items for the construction process.
•   Construction of pulse signal line is kept away from power cables
    For this pulse signal line, the voltage DC16V should be applied from the intelligent Manager side. It should be constructed separating from the power cables.
•   Max. distance to be 200 m
    Confirm that the distance with the watthour meter~intelligent Manager is within 200 m.

Design Precautions

Calculation Condition
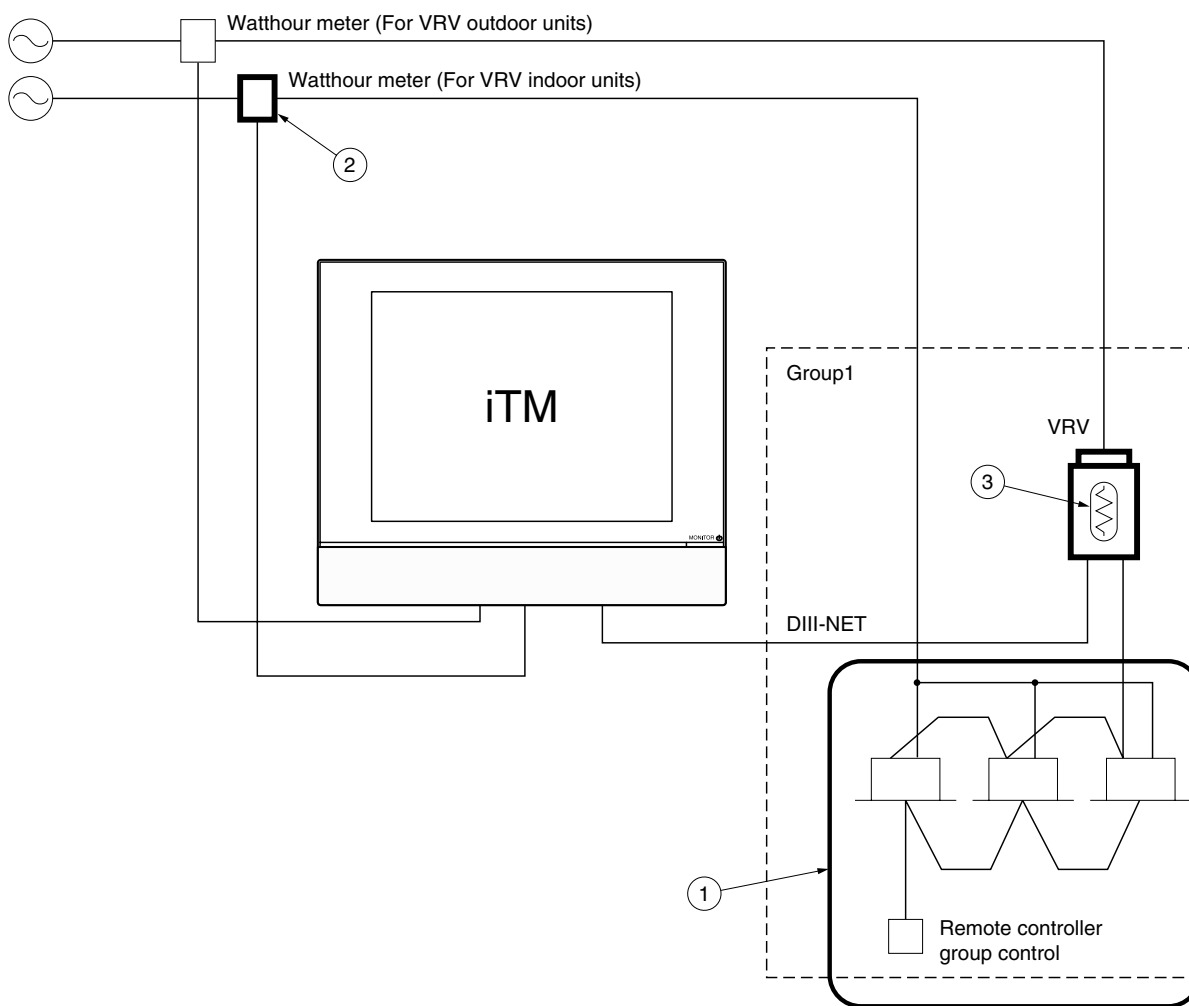
(1) Remote controller group ①

Also in the indoor unit (sub-unit) with remote controller group, set the group address for correct electric energy distributing.

(The group address for sub-unit can be set in the site set mode "30" of the remote controller.

However, after setting with "30", if set with "00", the sub-unit address will be deleted.)

⟶ An imperfection in case collective distribution is done with main-unit running state without setting of group address at sub-unit

Even if the remote controller group control is done, each indoor unit has different thermostat state depending on its installation place.

Therefore, the distribution result will differ depending on the decision which indoor unit is to be as main unit.

(2) In case power consumption of indoor unit to be included ②

It is necessary to connect the watthour meter to the power supply line of the indoor unit and input its pulse to iTM.

In this case, "included power of Fan" has to be set to "Yes" in the PPD setup tool.

(3) Calculation of electric power (Crankcase heater / PCB power consumption) at stopping ③

1. In case of calculation for crankcase heater and PCB when not in operation.
   - (1) The electric power consumed by crankcase heater of the outdoor unit is divided by the capacity of each indoor unit.
   - **Note:** The calculation also includes the indoor units which are not in operation. (eg.vacant)
       In this case, "included power during STOP" has to be set to "Yes" in the PPD setup tool.
2. In case of not calculating for crankcase heater and PCB when not in operation.
   - (1) It is possible to exclude the power consumed by crankcase heater and PCB.
     Therefore the power will not be added to each indoor unit.
     In this case, "included power during STOP" has to be set to "No" in the PPD setup tool.

Setting of Each Electric Power Group

Watthour meters have to be installed for Heat Pump type VRV and Heat Recovery type VRV respectively as shown below figure and make power groups respectively.
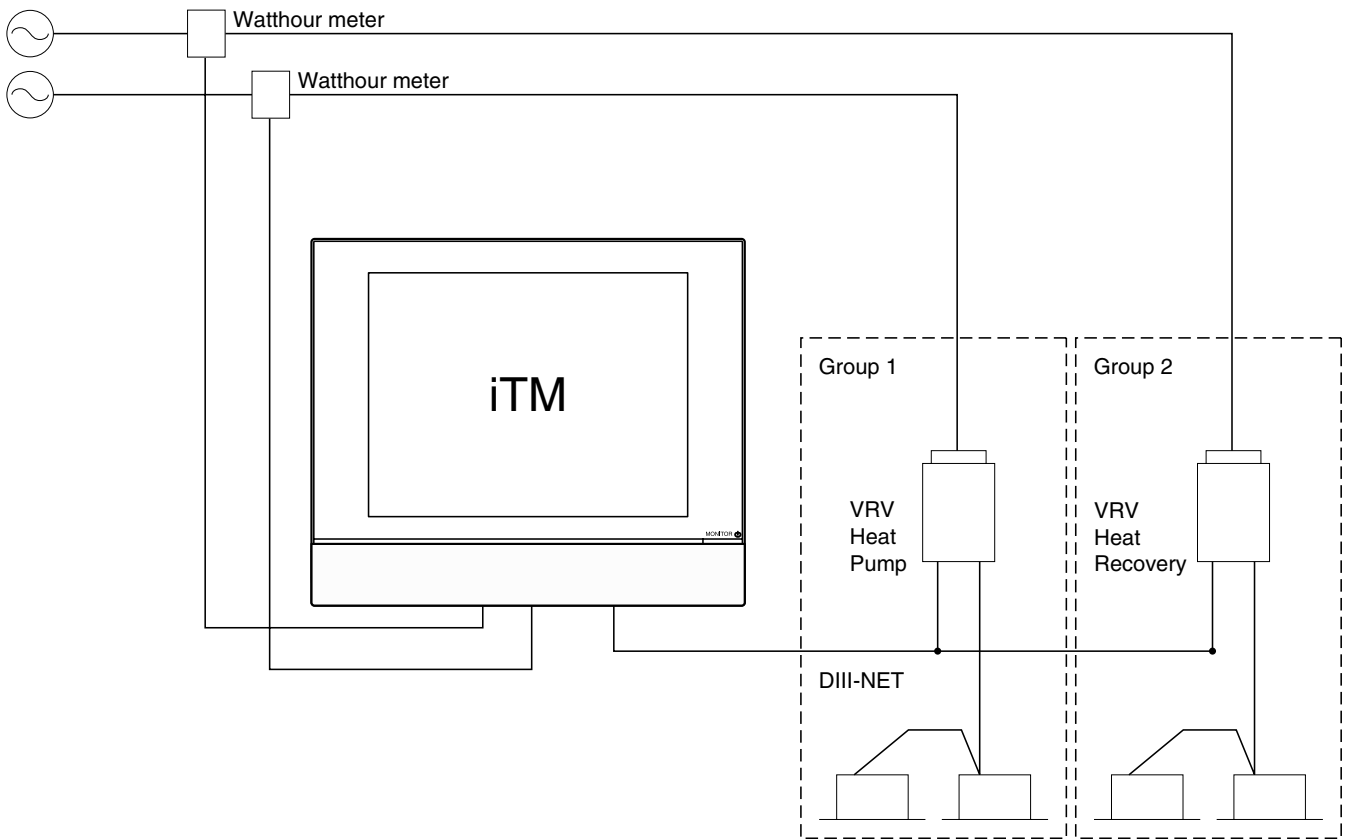
The Reason why VRV Heat Recovery must not be Included

For Heat Recovery outdoor units, the watthour meter must be independently installed.

(1) For heat recovery, there is a case that the power consumption is less than VRV and VRV Plus.
(2) However, if different systems are put on the one meter, the electric power distribution would be calculated by constant counting, and the calculation result would then more than the actual value on all indoor units.

Therefore, it is necessary to install the watthour meter independently as shown in Fig. 2.
In addition, the power port No. in Address Table must be different from others. (To be set at test operation)
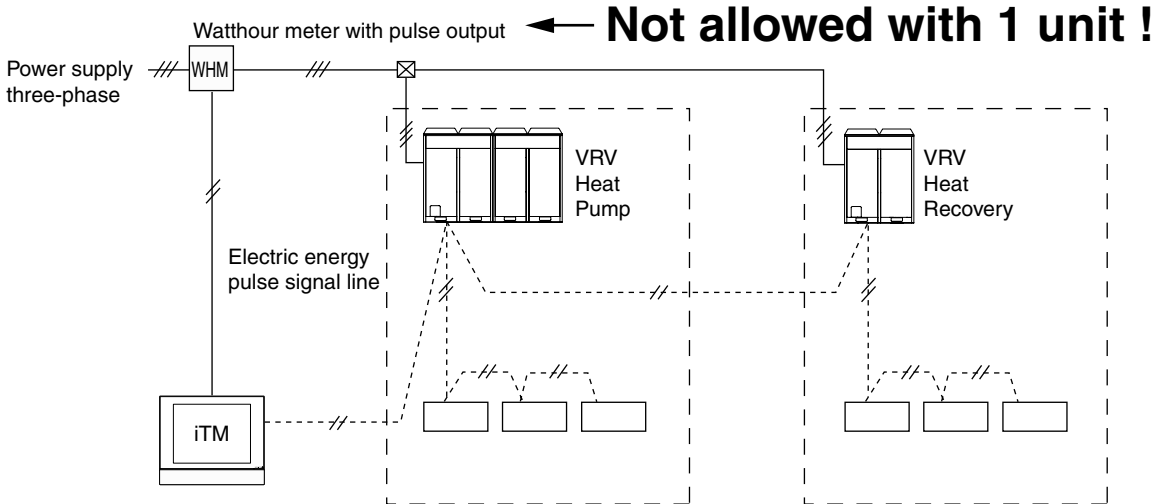

Fig.1 Not Recommended : Watthour meter is shared.
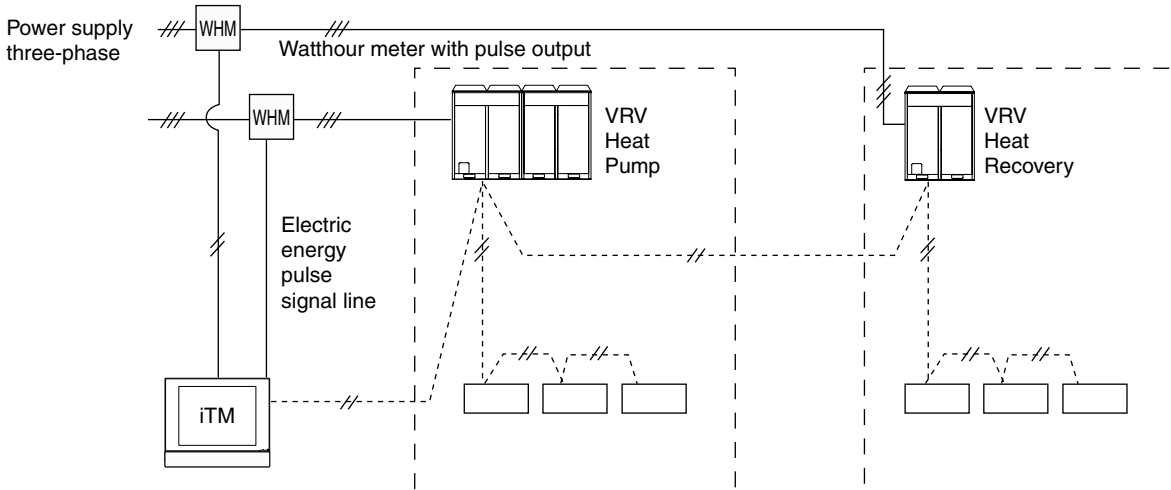
Fig.2 Recommended : Heat Recovery and other system watthour meter are separated.

Caution:

It is possible to register to the same electric power group for the following combination.

1. VRV, VRVII Heat Pump (R-22, R-407C)
2. VRV Heat Recovery (R-22, R-407C)
3. VRVII, VRVIII Heat Pump (R-410A)
4. VRVII, VRVIII Heat Recovery (R-410A)

When the combination of the above-mentioned is not observed, a correct power proportional distribution calculation cannot be done.

Explanations of Power Proportional Distribution

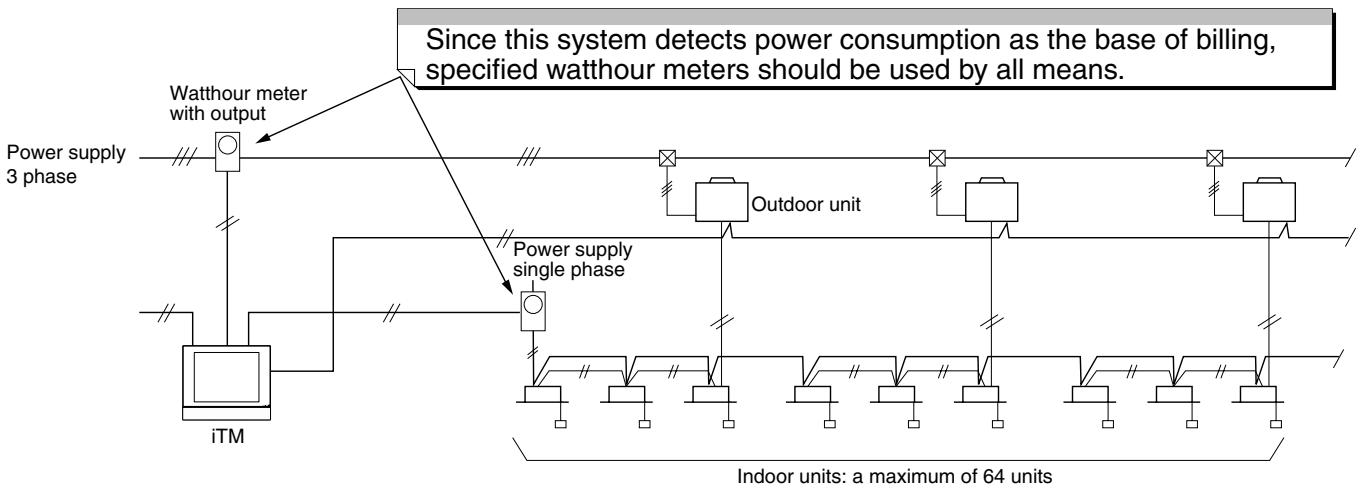## What is the Power Proportional Distribution (PPD)

(System Ex. : Normal VRV)

> Since this system detects power consumption as the base of billing, specified watthour meters should be used by all means.

Indoor units: a maximum of 64 units

- Previously the general way for requesting the electricity charge at tenant buildings was that a management staff read a watthour meter and billed the tenants by manual-account based on the operation time which were counted through time-counters.
  However, this method takes a lot of time for the management staff. In addition, as air-conditioning consumes much different electricity for either the operation of air-conditioning (thermostat-ON) or the operation of fan only (thermostat-OFF), it might cause to give unfair sense to the tenants inhabited in the spaces with different heat load, though "operation-time" itself is the same.
  For instance, even if a certain higher set temperature is applied in summer for energy saving, fee for air-conditioning may equal to the fee without set temperature so far as it is counted based on the operation time.
- Electric energy distributing function of iTM carries out the proportional division computation in consideration of those thermostat-ON and thermostat-OFF operations and saves time for building management staffs to read watthour meters, and also supplies tenants printed data useful for making the bills.
  Namely, iTM is the product created by the concept to help the assignment of bill-issuing and offers users the reasonable price of the products.
- Yet, since the iTM is constantly assuming each indoor unit's power consumption based on the data which is transferred from indoor units, it should be noticed that the iTM is not which complies with the Weight and Measure Act as shown in the catalogue.
  The details of the cause to count error is described at chapter 1.3.2.

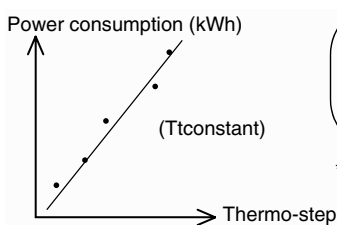### (1) Count method (for a conventional VRV system)

1) The following proportional division calculation is carried out every one hour and assigns the power consumption of air-conditioning system to each indoor unit.

   Heat load depending on the operation conditions of air-conditioner = power consumption of indoor unit's fan
   + power consumption of optional heater
   + the rated power consumption in cooling (*1) $\times$ a
   + the rated power consumption in heating (*1) $\times$ b

*1: The value which is registered at the test operation, adapting the indoor unit's capacity

$$a = (a1 + a2 \times T) \times \frac{\text{Thermo.-step (*2)}}{10}$$

$$b = (b1 - b2 \times T) \times \frac{\text{Thermo.-step (*2)}}{10}$$

a1, a2 : correction factor for cooling
b1, b2 : correction factor for heating
T : indoor unit's suction air temperature

As shown in the left, heat load is calculated from an equation of the first degree which approximates the correlation, among thermo-step, indoor unit's suction air temperature and power consumption, into the linear line under the standard conditions of the unit.

*2: "Thermo.-step" signifies that an air-conditioning capacity is expressed in a range of the values 0-5 mainly based on the opening grade of an electronic expansion valve in an indoor unit.

$$\text{Indoor units N's power consumption (kWh)} = \text{total pulse input from wattmeters} \times \frac{\text{Heat load by one hour calculated through the operating of air-conditioner N}}{\text{total heat load by one hour calculated through the operating conditions of all the air-conditioners}}$$

2) Counting the electricity at the stopped condition of the unit

Even if a VRV is stopped or in the condition of thermostat -OFF (the condition that the compressors are stopped as the temperature in the space where all the indoor units are installed falls down to the set temperature), the VRV consumes energy due to the energy consumption mainly by the crankcase heater in the outdoor unit.

When the iTM is used, the rated power consumption of the crankcase heater is divided by the number of indoor units in usual connection (for instance, two indoor units of 2.5 HP are connected to an outdoor unit of 5 HP etc.) and the value is registered at the test operation, adapting each indoor unit's capacity.

(Example)

RXYQ5P
(Crankcase heater's output=50W)

FXFQ80P×2
(Power consumption at no operation=50/2=25W)
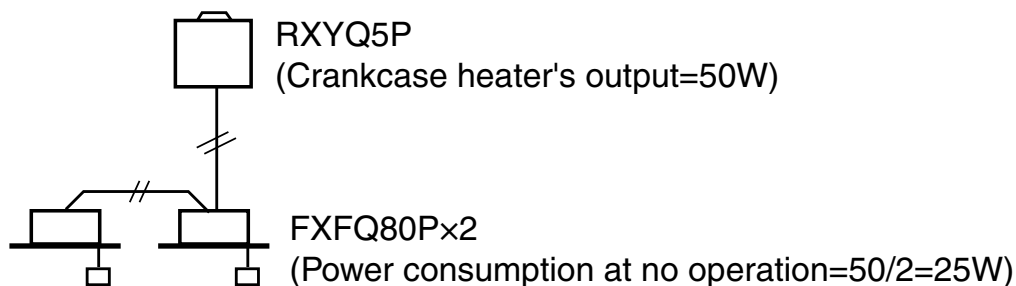
The iTM counts the indoor unit's operating conditions every 20 seconds.

Since the indoor units send ON/OFF data of the crankcase heater to iTM, it adds one(+1) to the power counter inside iTM at no operation of the air-conditioner when the crankcase heater is ON.

When this counter reaches 180, it judges that the crankcase heater was ON for one hour, and in case of the above mentioned indoor unit, the counter goes back to zero after 25 Wh is added to the counting result.

This calculation process is conducted separately from the proportional division computation mentioned on this section, and this input is got rid of from the pulse input of the watthour meter. Because of this procedure, the power consumption in the space where the air-conditioner is not used at all is counted constantly every month.

(However, as this air-conditioning system is a multi-system, in case that one outdoor unit is shared to another tenant, the count output can be seen in lower value rather than the crankcase heater's power consumption registered, because the crankcase heater does not actuate when another tenant operates the VRV.)

Count Accuracy

(1) Cause of error
(System example)

Legend ⬭ : Read on wattmeter
#: Indoor unit's address

<Case of arising error>
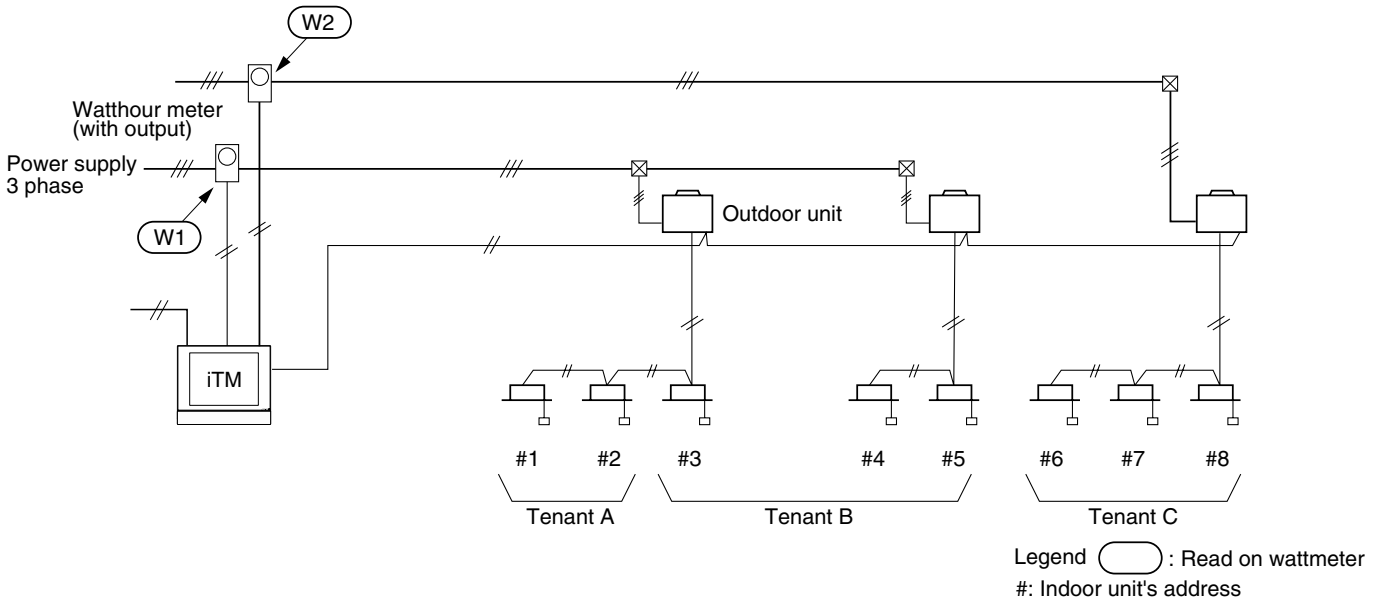
❶ (W1) + (W2) ≒ Count conclusive total for indoor unit #1~#8 ➝ Refer to the "REASON"

❷ (W1) ≠ Count conclusive total for indoor unit #1~#5

   (W2) ≠ Count conclusive total for indoor unit #6~#8   ➝ Refer to the next page

❶ (W1) + (W2) ≒ Count conclusive total for indoor unit #1~#8* : The reason to get and the error size

* **REASON**
  iTM counts every one hour's power consumption.
  Though fraction in case of computation occurs at this time, it is computed after leaving off a 1-W figure to avoid the risk for the owners.
  As a result, the error by the leaving-off occurs by 0.5W/ hour in average value as per each indoor unit.

(Calculation example)
(1) Count for errors in 8-day
   Tenant A + B : 0.5 (Wh) × 24 hr × 8 days × 5 units = + 0.48 kWh
   Tenant C : 0.5 (Wh) × 24 hr × 8 days × 3 units = + 0.288 kWh
   total = + 0.768 kWh
(2) Assuming that the reads on watthour meters are as follows:
   W1: read on watthour   meter   = 490 kWh
   W2: read on watthour   meter   = 200 kWh
              total   = 690 kWh
(3) Finally it is concluded as total error = 0.768 / 690 × 100 = 0.11%

❷ (W1) ≠ Count conclusive total for indoor unit #1~#5 :

   (W2) ≠ Count conclusive total for indoor unit #6~#8 :

iTM counts the power consumption as the following conditions (1)~(6) for the standards. So, the gap to be raised from these conditions may cause the error. Since these errors vary depending on the surrounded situations, the worst error value cannot be drawn out from the computing.

(1) Combination rate of indoor units connected to an outdoor unit　(100%)
(2) Outdoor air temperature　(35°C)
(3) Indoor unit's suction air temperature　(19°C)
(4) Piping length　(5m)
(5) Level difference　(0m)
(6) Pipe diameter　(f22.2)

(2) The way to reduce errors

The error ❶ cannot be reduced, however this error is small and negligible, therefore so it can generally clear troubles if excusing the reason caused to tenants.

The way to reduce the error ❷ will be described as follows.

As shown in the drawing below, when the relation between a watthour meter and indoor units are clear, "Power group setting" for each watthour meter can reduce the error.

On the above example, watts at W1 and watts at W2 are shared by indoor units #1~#5 and indoor units #6~#8, respectively.

The above setting results in the followings:
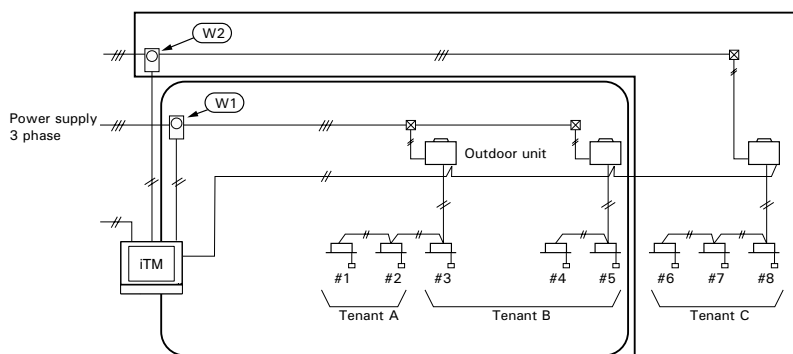
W1 ≒ Count conclusive total for indoor unit #1~#5

W2 ≒ Count conclusive total for indoor unit #6~#8

Caution:

If management staff checks the watts in the procedure mentioned below, they would find the calculation to be incorrect due to an uncompleted cycle.

Example:

(1)　May/24th, read watthour meter and records the watts at 10:00 am

(2)　June/24th, read watthour meter and records the watts at 10:00 am

(3)　When the count in a period of May/24th to June/23rd is printed out, the total value does not meet the value detected mentioned above on (2) - (1).
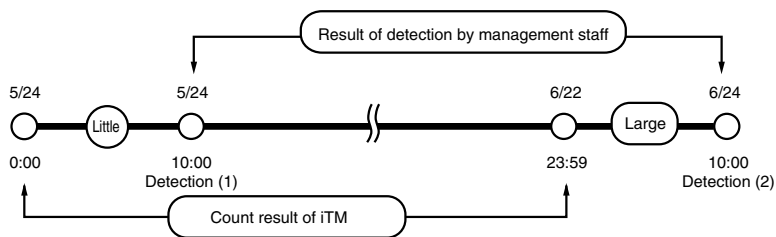
iTM stores the information collected in a period of 0:00 am through 23:59 pm as one day information as shown above.

It results in the fact that there are ten hours gaps between on the first day of the counting and on the last day of the count in the above mentioned column of "Result of detection by management staff" and "Count result".

As shown in the figure above, this error increases in the season from the intermediate forwarding to the season in which air-conditioning is highly required.

For more accuracy, it is necessary to compare with the value detected at 0:00 am.

Notes

• It is not possible to apportion power consumption for the VRV series indoor unit FXUQ (ceiling suspended cassette type).

(Reason)

VRV and SkyAir use different methods to calculate thermo step, which is a parameter necessary for power consumption apportionment. For the VRV, the indoor unit calculates thermo step. Whereas for the SkyAir, the outdoor unit calculates thermo step. Although FXUQ is a SkyAir-based indoor unit, it cannot gather thermo step information from the outdoor unit because of an intervening BEV unit. Therefore, power consumption apportionment is not possible.
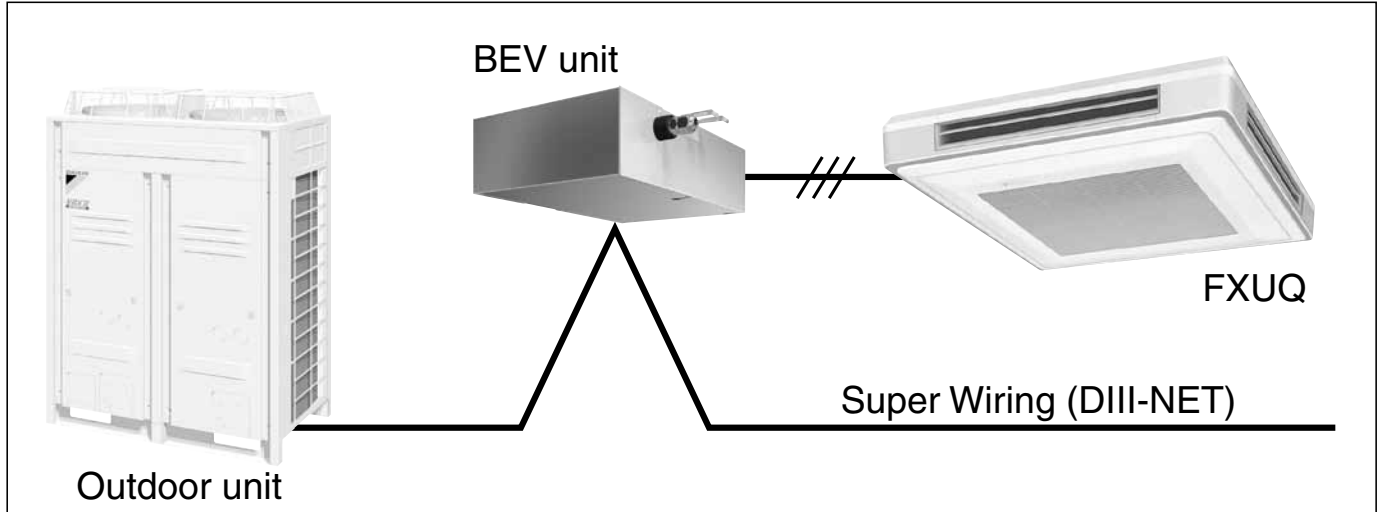
Reference Material

Case Examples

(1) A value on a wattmeter of each outdoor unit system does not correspond to PPD result.

Electric power of wattmeter A is nearly the same as that of wattmeters B + C + D.
However, the PPD result of outdoor unit system 1 (4 indoor units) does not correspond to the value on wattmeter B.

[Reason]
An intersystem difference causes this problem.
The PPD function does not recognize how many outdoor units exist in an electric power group. It regards outdoor units as one big unit to perform PPD calculation.

[Countermeasure]
If each outdoor unit system has a watthour meter, make a power group for each outdoor unit system.
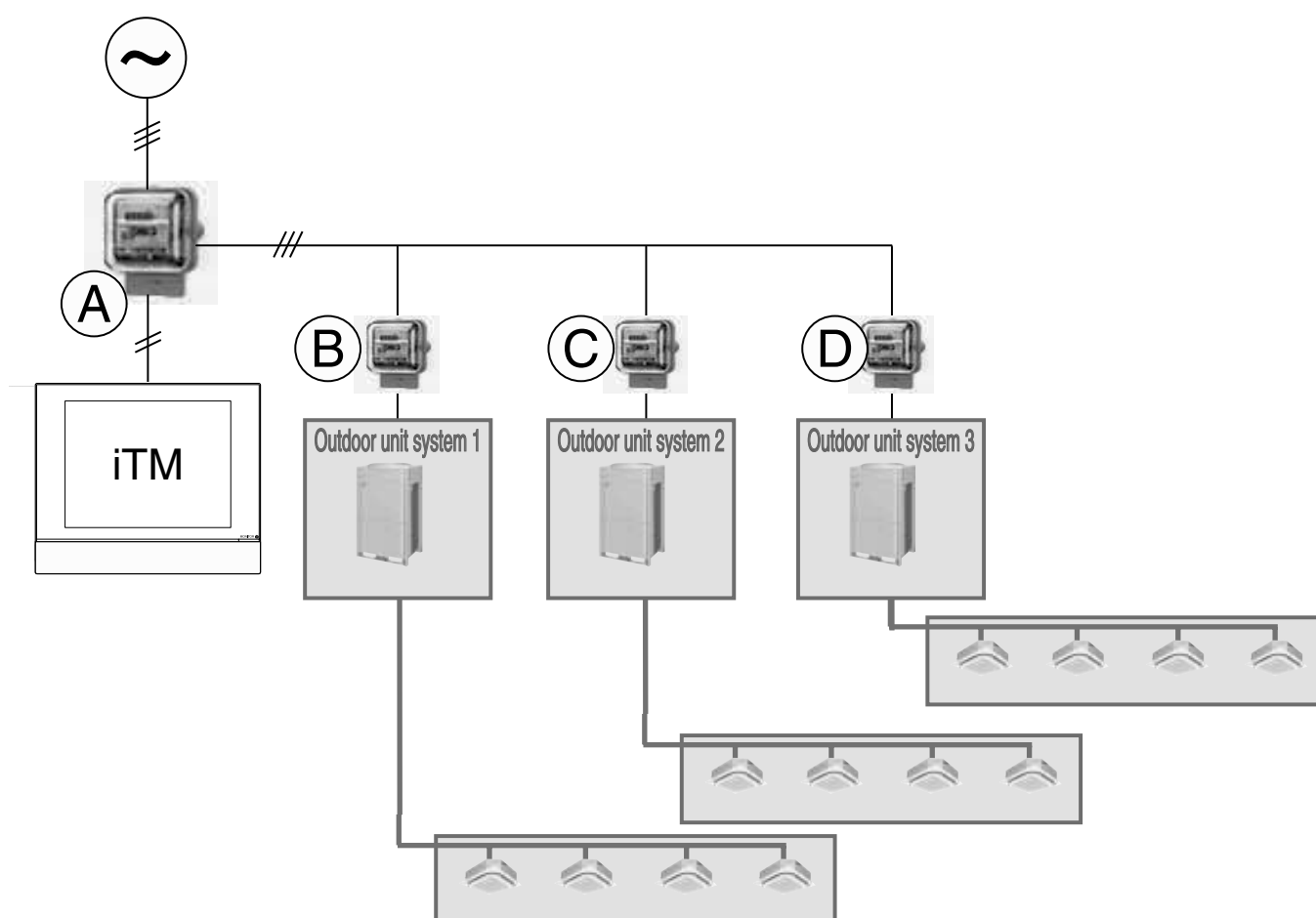
(2) A group address is not set to a slave indoor unit with remote controller group.

iTM cannot control slave indoor units (Indoor units B, D, G, and H in the following figure) in remote controller group. In general, the setting of a group address is not required for control with a remote controller group. However, it is necessary to set a group address even to slave indoor units and register it with a power group at PPD setup because a thermo. step and a suction air temperature for each slave indoor units are required for PPD.

If a group address is not set, electric power is not distributed to the indoor unit.
Electric power is distributed among indoor units whose group addresses are registered.

> **Set a group address to B, D, G, and H for PPD.**
> **This setting can be configured in the field setting No. 30 by remote controller.**
> **The setting method is described in Page 332.**
> Slave indoor units can not be displayed on the screen of iTM if they are removed from registration at a management point because iTM cannot control the slave indoor units.
> Even if slave indoor units are not displayed on the iTM screen, electric power can be distributed to the indoor units as long as the group addresses are registered with a power group at PPD setup.

(3) A PPD calculation result for a certain tenant is excessively large.

iTM distributes electric power based on operation data from an indoor unit.
If only one VRV indoor unit is in operation, electric power consumed by an outdoor unit increases because a compressor is turned ON only for one indoor unit in operation.
Stopped indoor units do not consume energy power at stopping (standby electricity) because the compressor is turned ON and the crankcase heater is turned OFF.

If accidentally keeping an air conditioner ON at a certain tenant, the power consumption will increase.

iTM

In the following case, power consumption of the outdoor unit is allocated to Indoor unit H.

There is no particular remedy.
Take measures such as setting a schedule to turn OFF units.

A	B	C	D	E	F	G	H
OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
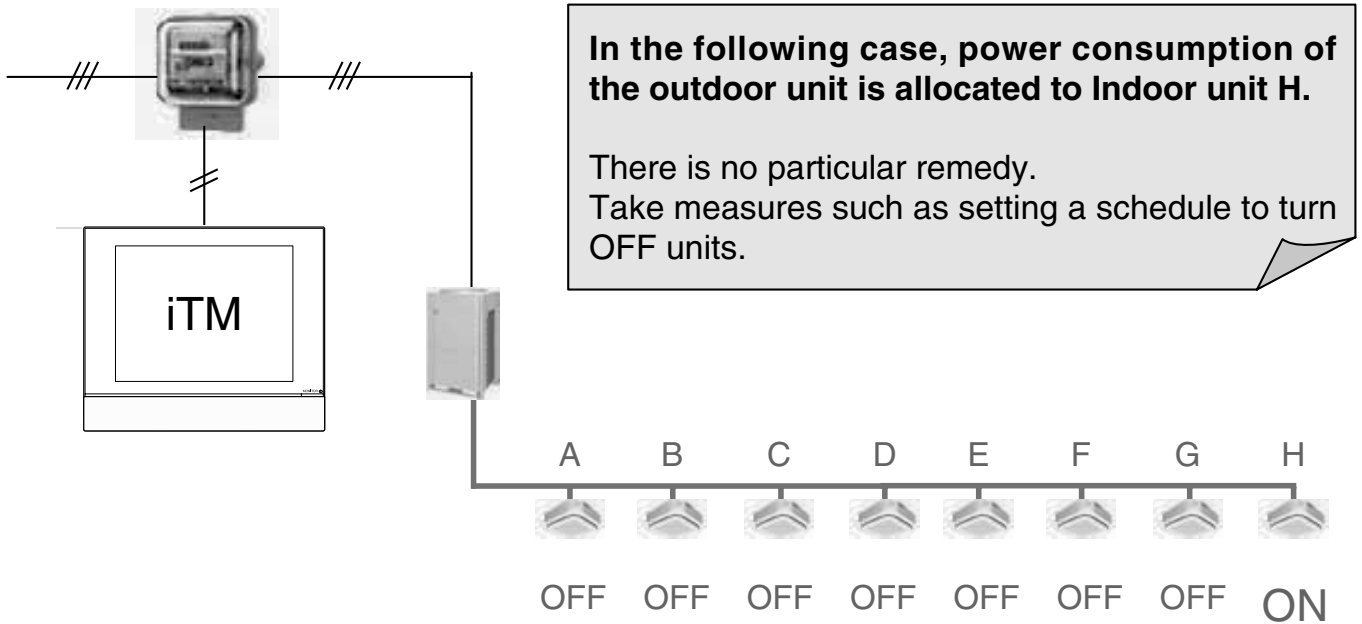
(4) When setting the Excluded Time, is there a way to get to know a PPD result of the time?

A power pulse and a thermo. step are not counted during the excluded time.
There is no way to get to know a PPD result or a power pulse inputted during the excluded time.

6. Design of DIII-NET

Features of DIII-NET

What is DIII-NET?

DIII-NET is a proprietary high-speed communication method developed by Daikin, with which huge amount of information can be transmit at high speed and various facilities of a building, such as air conditioners, can be freely connected via networks in accordance with the usage, scale, and conditions.

- Various types of air-conditioners installed in a whole building are integrated, and detailed monitoring and control are provided.
- The non-polar 2-wire system reduces the number of required cables inside a building. It also reduces mis-connection, facilitating the connection operation.
- Post-installation can be done easily. Wiring up to 2km in total extension is available.
- Various control devices can be freely connected, and hierarchical risk diversification system can be established as well.
- Comprehensive management of our Heat Reclaim Ventilator and heat source devices is also available.

Terminal Number
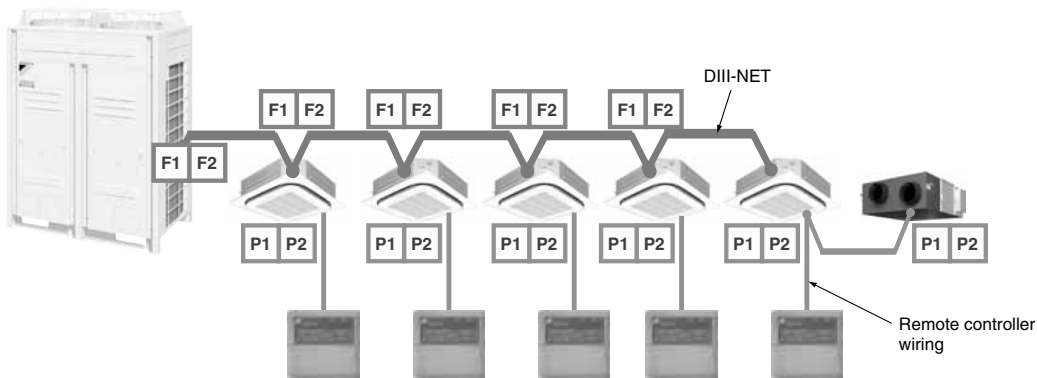
Just for operation with each remote controller

Detail of Outdoor Unit Terminal No.
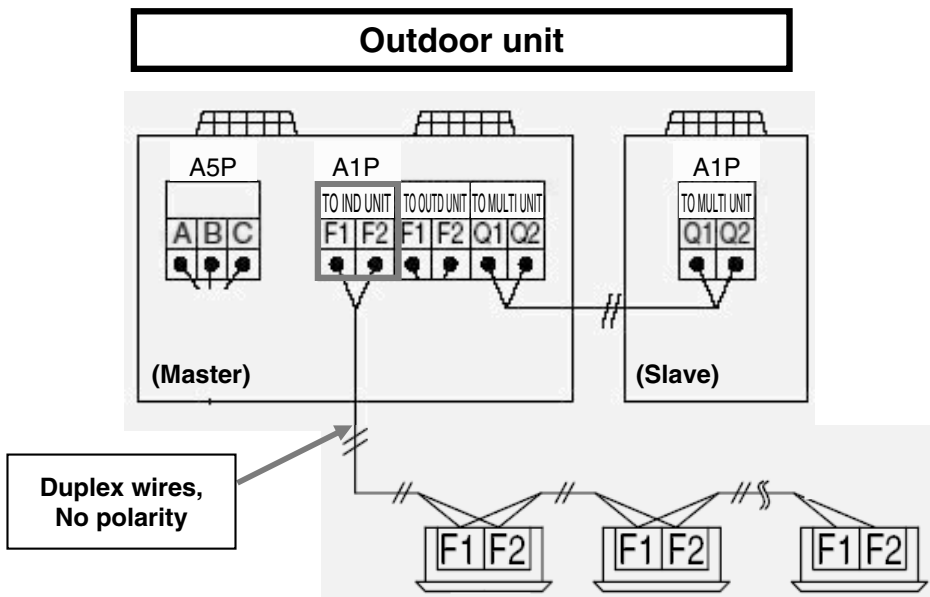
Connection Method

Correct Wiring

- Series wiring method only should be used.

  [Example]

Connect indoor units and outdoor units without branch connection.

Indoor-outdoor connection

VRV Outdoor unit

IN/OUT
F1 | F2
OUT/OUT
F1 | F2

Outdoor-outdoor connection

VRV Indoor unit

Connect outdoor units without branch connection.

IN/OUT
F1 | F2
OUT/OUT
F1 | F2

SkyAir

IN/OUT
F1 | F2
OUT/OUT
F1 | F2

Connect the centralized control equipment to the outdoor-outdoor connection.

Centralized
Control
Equipment

Caution:

Be sure to have indoor-outdoor control wiring and that of refrigerant system coincide.

Crossed wiring will cause malfunctioning.

Wiring Example

Example of Control Wiring

- Be sure to connect the wiring of the centralized control equipment to control wiring between outdoor units.
  When wiring connections are made between indoor and outdoor units, there may be cases where control over normal systems may become impossible if one of the connected systems should happen to fail.
- Be sure to prevent the connection of three wires on the same terminal.

<Pattern 1>

■ When all the centralized control equipment is located at one place.

Unified ON/OFF Controller
(DCS301BA61)
Up to 8 controllers can be connected

intelligent Touch Manager
(DCM601A51)

Possible★
(α1)

Control wiring between indoor unit and outdoor unit
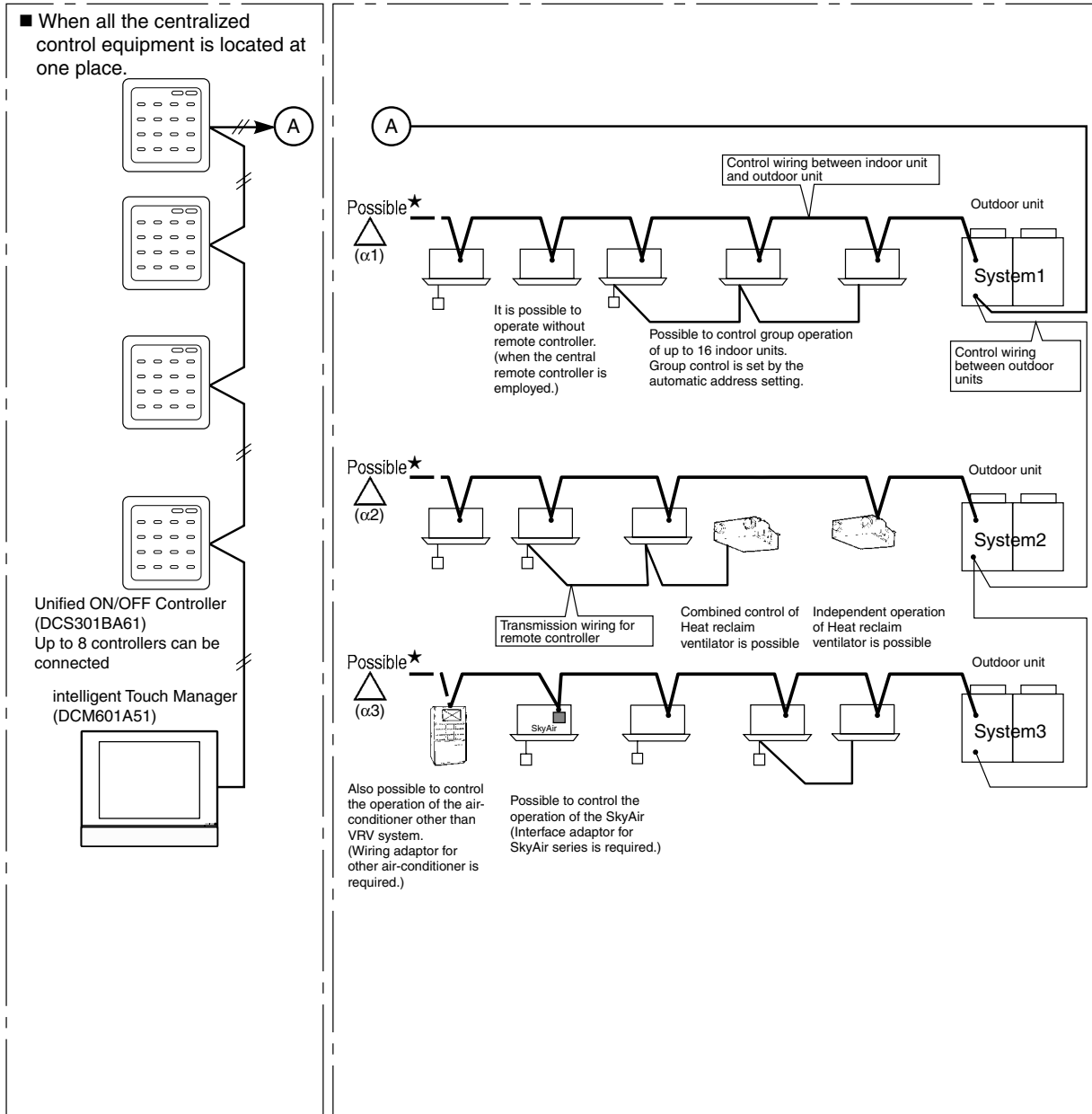
Outdoor unit

System1

It is possible to operate without remote controller. (when the central remote controller is employed.)

Possible to control group operation of up to 16 indoor units. Group control is set by the automatic address setting.

Control wiring between outdoor units

Possible★
(α2)

Outdoor unit

System2

Transmission wiring for remote controller

Combined control of Heat reclaim ventilator is possible

Independent operation of Heat reclaim ventilator is possible

Possible★
(α3)

Outdoor unit

SkyAir

System3

Also possible to control the operation of the air-conditioner other than VRV system. (Wiring adaptor for other air-conditioner is required.)

Possible to control the operation of the SkyAir (Interface adaptor for SkyAir series is required.)

The advantages when the centralized control equipment are connected to A.

- If the centralized control equipment are connected to A, it is still possible to have a centralized control, even if the power supply of other circuit connected to the centralized control equipment is shut off. (even if the power is shut off due to long vacation etc.)

Caution:

★ 1. It is not recommended to connect the centralized control equipment on (a1), (a2), (a3), as there is a risk to loose control over all systems.
   Ex.; If intelligent Touch Manager (iTM) is connected on (a1), and System1 shut down, control over System2 and System3 units is lost.

<Pattern 2>

■ When the centralized control equipment are located at several places.

iTM → (A)

Unified ON / OFF controller (DCS301BA61) Up to 8 controllers can be connected.

(A)

Possible★ (α1)

Control wiring between indoor unit and outdoor unit

Outdoor unit

System1

It is possible to operate without remote controller. (when the central remote controller is employed.)

Possible to control group operation of up to 16 indoor units. Group control is set by the automatic address setting.

Control wiring between outdoor units

Possible★ (α2)

Outdoor unit

System2

Transmission wiring for remote controller

Combined control of Heat reclaim ventilator is possible

Independent operation of Heat reclaim ventilator is possible

Possible★ (α3)

SkyAir

Outdoor unit

System3

Also possible to control the operation of the air-conditioner other than VRV system. (Wiring adaptor for other air-conditioner is required.)

Possible to control the operation of the SkyAir (Interface adaptor for SkyAir series is required.)
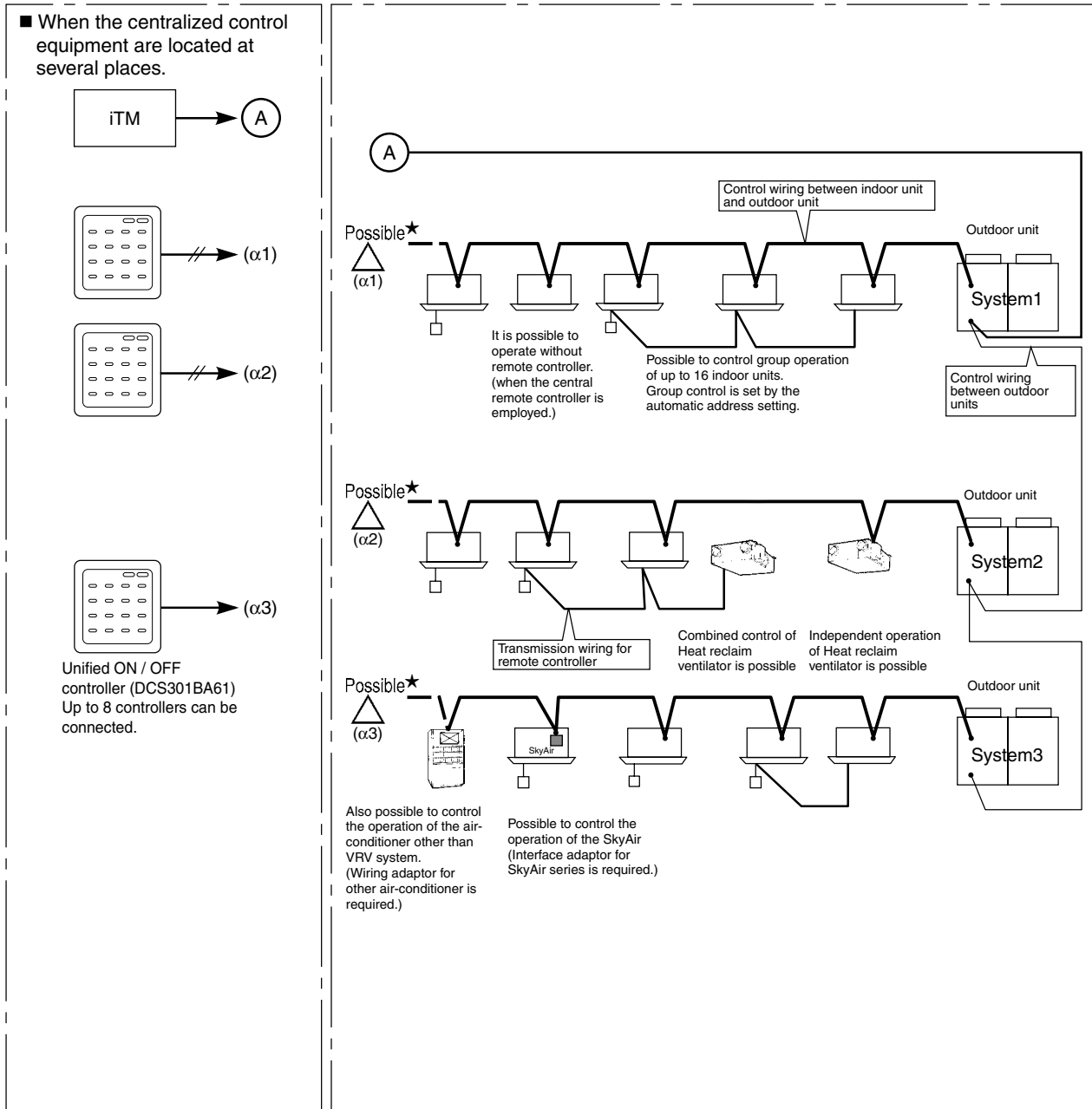
The advantages when the centralized control equipment are connected to A.
- If the centralized control equipment are connected to A, it is still possible to have a centralized control, even if the power supply of other circuit connected to the centralized control equipment is shut off. (even if the power is shut off due to long vacation etc.)

Caution:
★ 1. It is not recommended to connect the centralized control equipment on (a1), (a2), (a3), as there is a risk to loose control over all systems.
    Ex.; If intelligent Touch Manager (iTM) is connected on (a1), and System1 shut down, control over System2 and System3 units is lost.

Wiring Length

- Total length must be 2000m or less. (The total wiring length is 1500m when shielded wire use.)
- Max. length must be 1000m or less.

[Example]
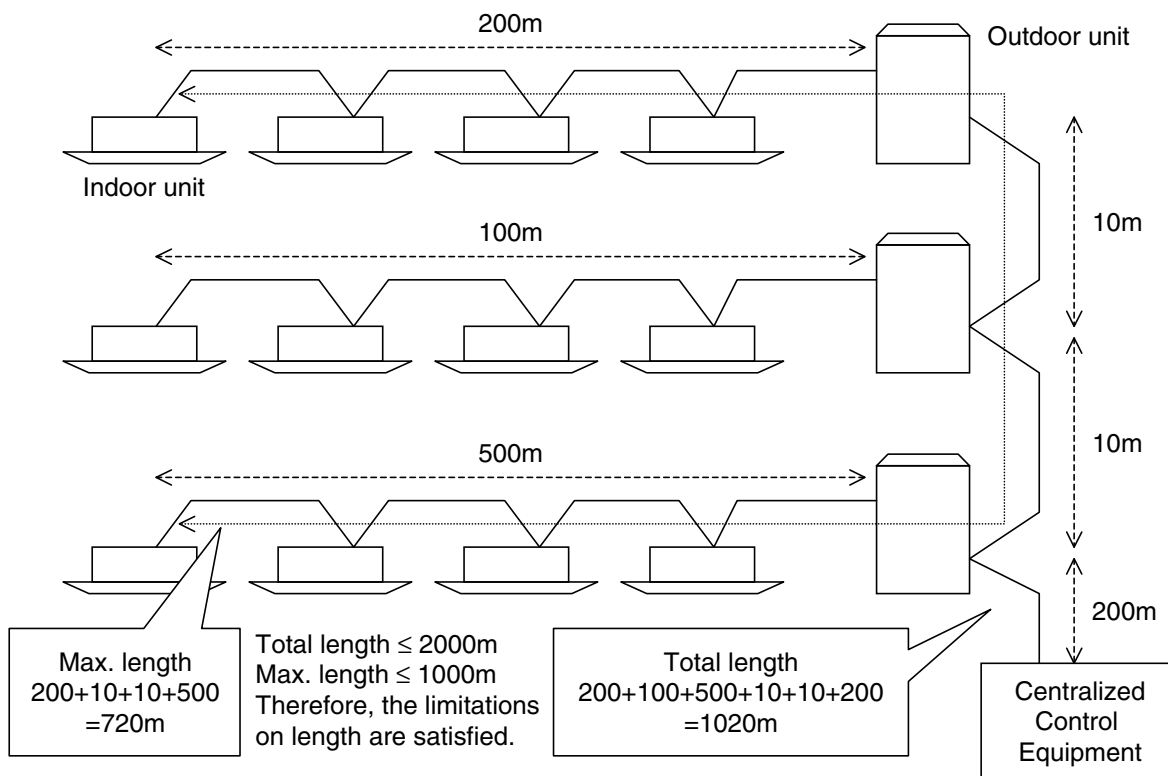
Recommendation of Installation DIII-NET Expander Adaptor

Intelligent buildings in recent years have increased in the amount of communication equipment and power supply wiring and this may have an effect on DIII-NET communications. In the cases listed below, it is recommended that the "DIII-NET Expander Adaptor" (DTA109A51) be installed.

- Where there are 8 or more outdoor unit systems
- Where it is not possible to verify that restrictions on DIII-NET wiring length, branched wiring and wire types are observed

Wiring Specifications of DIII-NET

Be sure to use either 2-core sheathed vinyl cord or cable as mentioned below.

• Vinyl cab tire round cord	VCTF	JISC3306
• Vinyl insulated, vinyl sheathed cable for control	CVV	JISC3401
• Round vinyl sheathed cable for control	CVS	JISC3401
• Round vinyl insulated, vinyl sheathed cable	VVR	JISC3342
• 600V vinyl cab tire cable	VCT	JISC3312
• Polyethylene insulated vinyl sheathed cable	CPEV(★)	
• Mesh insulated cable	MVVS(★)	

★When the shield wire is used, be sure to ground the one side of the shield wire.

★Do not use the shield wire with other type of wire in the same system.

- The total wiring length is 1500m when shielded wire is used.

<Example>Section of cord

Electrical wire

Insulation

Sheath
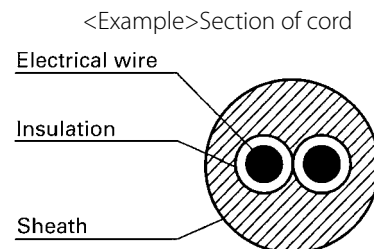
Cautions:
1. **Never use a 3 or more core of cord or cable.**
2. **The size of wire should be 0.75~1.25mm².**
3. **Never bundle the cable or cord of transmission line.**
4. **Be sure to keep the transmission wiring distant from power wiring as shown below to prevent electrical noise.**

Capacity of power wiring		Distance between Power wiring and control wiring	
		Daikin air-conditioner (★1)	Other air-conditioners
220V or less	10A or less	50mm or more (H★)	300mm or more
	50A or less		500mm or more
	100A or less		1000mm or more
	100A or more		1500mm or more
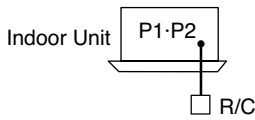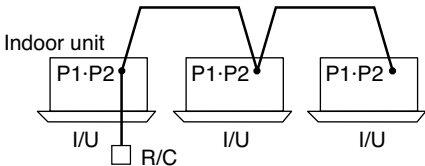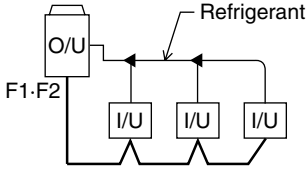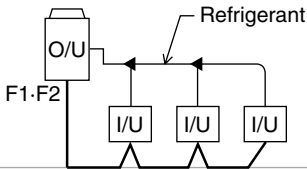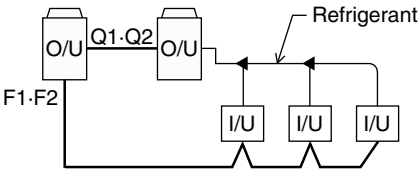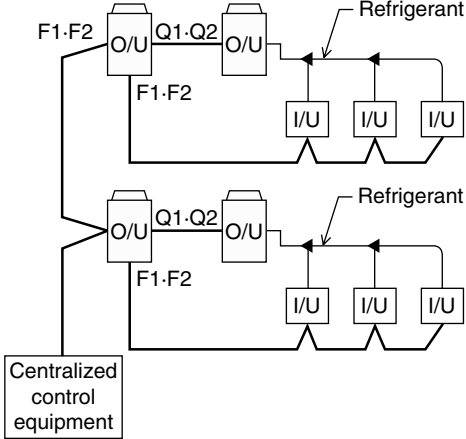
Note:
1. ★1 .....VRV system, SkyAir series and other air-conditioner.
2. ★2 .....VRV system or other Daikin air-conditioner produces less electrical noise, so that the distance of 50mm or more is sufficient.
   For control wiring, never use the shield wire together with other sheathed vinyl cord in the same system, which may cause the malfunction in transmission.

[Example]
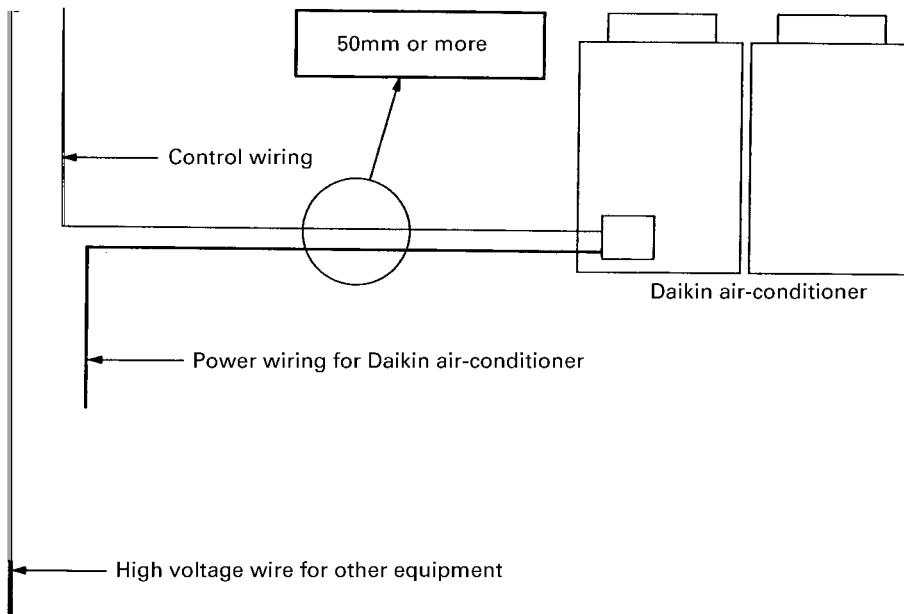
Unit and Group

Indoor Unit and R/C	No. of Group	No. of Indoor Unit
Indoor Unit $\quad$ P1·P2 $\quad$ R/C	1	1
Indoor unit $\quad$ P1·P2 $\quad$ P1·P2 $\quad$ P1·P2 $\quad$ I/U $\quad$ R/C $\quad$ I/U $\quad$ I/U	1	3

Outdoor Unit	No. of Outdoor Unit
10HP O/U — Refrigerant F1·F2 I/U I/U I/U	1
18HP O/U — Refrigerant F1·F2 I/U I/U I/U	1
28HP O/U Q1·Q2 O/U — Refrigerant F1·F2 I/U I/U I/U	1
28HP F1·F2 O/U Q1·Q2 O/U — Refrigerant F1·F2 I/U I/U I/U O/U Q1·Q2 O/U — Refrigerant F1·F2 I/U I/U I/U Centralized control equipment	2

I/U: Indoor unit   O/U: Outdoor unit   R/C: Remote controller

Number of Connectable Units

Number of Units to be Connected [VRV] (Supplementary Explanation)

- **Up to 10** VRV outdoor units can be connected to DIII-NET.
  - In case of VRVII and VRVIII, an outdoor unit which consists of multiple modules is counted as one unit.

2-unit module   3-unit module   Each module is counted as 1 unit.
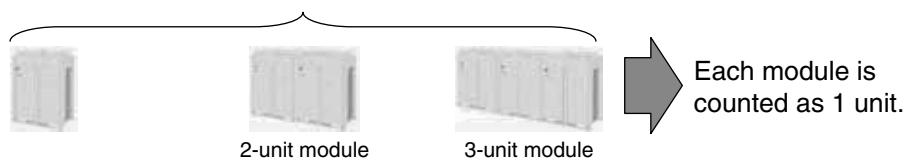
- **Up to 64 VRV indoor unit groups** can be connected to DIII-NET.
  - If you create remote control groups of indoor units, up to 128 units can be connected. (Max. number of groups is 64.)
  - In case of power proportional distribution, the number of indoor units that can be connected is 64 units at the maximum even if you create remote control groups.

[Example]

In the case of more than 64 units in total

. . .

All the units can be connected by integrating them into 64 groups using remote control groups.
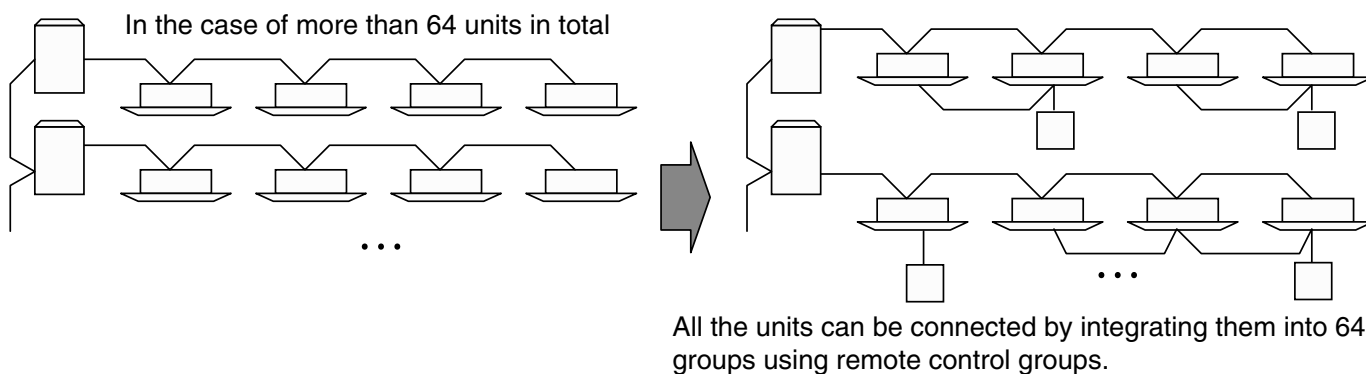
Connection of Devices other than VRV

- You can connect adaptors and other devices (SkyAir adaptor, RA adaptor, Di/Dio units, etc.), which are not VRV, to either indoor-outdoor connection or outdoor-outdoor connection.
- You cannot connect a chiller (which accommodates DIII-NET) to the same DIII-NET to which VRV, SkyAir, and RA are connected.
  - If you connect a chiller which accommodates DIII-NET to intelligent Manager III, divide the DIII-NET for VRV use and for the chiller.

[Example]

- The maximum number of adaptors, except VRV indoor units, to be connected is 64 groups including VRV indoor untis.
  - One air-conditioner connecting adaptor (SkyAir adaptor, etc.) is counted as one group.
  - One Di unit is counted as 8 groups.
  - One Dio unit is counted as 4 groups.
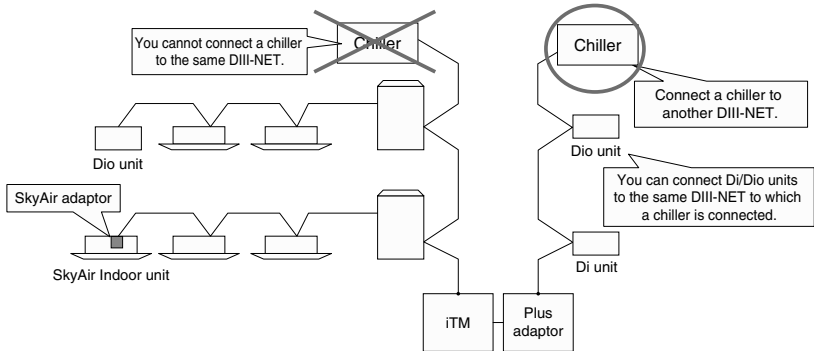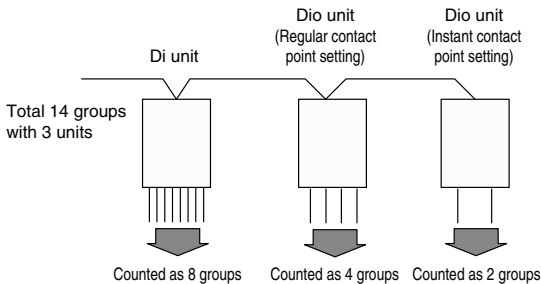 - When the output of Dio unit is set to an instant contact point, one unit is counted as 2 groups.
  - * Regarding Di/Dio units, if you specify the number of groups to be connected to each unit, you can reduce the number of groups connected to one unit.

Centralized control equipments which can use with intelligent Touch Manager

Following centralized control equipments can connect to the same DIII-NET with an intelligent Touch Manager.

Centralized control equipment	Description
DMS502B51(Interface for use in BACnet®) or DMS504B51(Interface for use in LONWORKS®)	One of these interfaces can connect to the same DIII-NET. DIII MASTER switch of intelligent Touch Manager should be set to "SLAVE".
DMS601A51 (intelligent Touch Manager) or DMS601A52 (iTM plus adaptor) or DCS302CA61 (Central remote controller)	One of these controllers can connect to the same DIII-NET. -DIII MASTER switch of DMS601A51 and DMS601A52 should be set to "SLAVE". -DIII Master connector of DCS302CA61 should be removed. -These controllers have to be set to "SLAVE".
DCS301BA51 (Unified On/Off controller)	Totally 8 DCS301BA51 can connect to the same DIII-NET. Refer to DCS301BA51 installation manual for setting.

Integration of
RA, Sky Air, VRV, Daikin Altherma Flex and AHU in BMS or home automation systems

RTD-RA

› Modbus interface for monitoring and control of residential indoor units

RTD-NET

› Modbus interface for monitoring and control of Sky Air, VRV, VAM and VKM

RTD-10

› Advanced integration into BMS of Sky Air, VRV, VAM and VKM through either:
  - Modbus
  - Voltage (0-10V)
  - Resistance
› Duty/standby function for server rooms

RTD-20

› Advanced control of Sky Air, VRV, VAM/VKM and air curtains
› Clone or independent zone control
› Increased comfort with integration of CO_2 sensor for fresh air volume control
› Save on runningcosts via
  - pre/post and trade mode
  - set point limitation
  - overall shut down
  - PIR sensor for adaptive deadband

RTD-HO

› Modbus interface for monitoring and control of Sky Air, VRV, VAM and VKM
› Intelligent hotel room controller

RTD-W

› Modbus interface for monitoring and control of Daikin Altherma Flex Type, VRV HT hydrobox and inverter chillers

Overview functions

Main functions		RTD-RA	RTD-NET	RTD-10	RTD-20	RTD-HO
Dimensions	H x W x D mm	80 x 80 x 37,5		100 x100 x 22		
Key card + window contact						✓
Set back function		✓				✓
Prohibit or restrict remote control functions (setpoint limitation, ...)		✓	✓	✓	✓**	✓
Modbus (RS485)		✓	✓	✓	✓	✓
Group control		✓(1)	✓	✓	✓	✓
0 - 10 V control				✓	✓	
Resistance control				✓	✓	
IT application		✓		✓		
Heating interlock				✓	✓	
Output signal (on/defrost, error)				✓	✓****	✓
Retail application					✓	
Partitioned room control					✓	
Air curtain			✓***	✓***	✓	

(1): By combining RTD-RA devices

Control functions	RTD-RA	RTD-NET	RTD-10	RTD-20	RTD-HO
On/Off	M,C	M	M,V,R	M	M*
Set point	M	M	M,V,R	M	M*
Mode	M	M	M,V,R	M	M*
fan	M	M	M,V,R	M	M*
Louver	M	M	M,V,R	M	M*
HRV Damper control		M	M,V,R	M	
Prohibit/Restrict functions	M	M	M,V,R	M	M*
Forced thermo off	M				

Monitoring functions	RTD-RA	RTD-NET	RTD-10	RTD-20	RTD-HO
On/Off	M	M	M	M	M
Set point	M	M	M	M	M
Mode	M	M	M	M	M
fan	M	M	M	M	M
Louver	M	M	M	M	M
RC temperature		M	M	M	M
RC mode		M	M	M	M
nbr units		M	M	M	M
Fault	M	M	M	M	M
Fault code	M	M	M	M	M
Return air temperature (Average /Min/Max)	M	M	M	M	M
Filter alarm		M	M	M	M
Termo on	M	M	M	M	M
Defrost		M	M	M	M
Coil In/Out temperature	M	M	M	M	M

Main functions		RTD-W
Dimensions	H x W x D mm	100x100x22
On/off prohibition		✓
Modbus RS485		✓
Dry contact control		✓
Output signal (operation error)		✓
Space heating / cooling operation		✓
Domestic hot water control		✓

Control functions	RTD-W
On/Off Space heating/cooling	M,C
Set point leaving water temperature (heating / cooling)	M,V
Room temperature setpoint	M
Operation mode	M
Domestic Hot Water reheat	M,C
Domestic Hot Water storage	M
Quiet mode	M,C
Weather dependent setpoint enable	M
Weather dependent curve shift	M
Control source prohibition	M

Monitoring functions	RTD-W
On/Off Space heating/cooling	M,C
Set point leaving water temperature (heating/cooling)	M
Room temperature setpoint	M
Operation mode	M
Domestic Hot Water reheat	M
Domestic Hot Water storage	M
Number of units stored in the group	M
Average leaving water temperature	M
Remocon room temperature	M
Fault	M,C
Fault code	M
Circulation pump operation	M
Compressor status	M
Desinfection operation	M
Setback operation	M
Defrost/ start up	M
Pump running hours accumulated	M
Actual leaving water temperature	M
Actual return water temperature	M
Actual DHW tank temperature (*)	M
Actual outdoor temperature	M

M : Modbus / R : Resistance / V : Voltage / C: control
*   : only when room is occupied / ** : setpoint limitation / (*) if available
*** : no fan speed control on the CYV air curtain / **** : run & fault

Integration of Split, Sky Air and VRV in HA/BMS systems

Connect split indoor units to KNX interface for Home Automation system

Concept

Interface Daikin protocol/ KNX

light

house

shutter control

Domotica Controller

tv

Connect Sky Air / VRV indoor units to KNX interface for BMS integration

Concept

Interface Daikin protocol/ KNX

light

shop

shutter control

Domotica Controller

tv

KNX interface line-up

The integration of Daikin indoor units through the KNX interface allows monitoring and control of several devices, such as lights and shutters, from one central controller. One particularly important feature is the ability to programme a 'scenario' - such as "Home leave" - in which the end-user selects a range of commands to be executed simultaneously once the scenario is selected. For instance in "Home leave", the air conditioner is off, the lights are turned off, the shutters are closed and the alarm is on.

KNX interface for

	KLIC-DD Size 90x60x35mm	KLIC-DI Size 45x45x15mm	
	Split	**Sky Air**	**VRV**
BASIC CONTROL			
ON/OFF	✓	✓	✓
Mode	Auto, heat, dry, fan, cool	Auto, heat, dry, fan, cool	Auto, heat, dry, fan, cool
Temperature	✓	✓	✓
Fan speed levels	3 or 5 + auto	2 or 3	2 or 3
Swing	Stop or movement	Stop or movement	Swing or fixed positions (5)
ADVANCED FUNCTIONALITIES			
Error management	Communication errors, Daikin unit errors		
Scenes	✓	✓	✓
Auto switch off	✓	✓	✓
Temperature limitation	✓	✓	✓
Initial configuration	✓	✓	✓
Master and slave configuration		✓	✓

Integrated control system for seamless connection
between VRV, applied Systems, air handling units and BMS systems

BMS

› Interface for BMS system
› Communication via BACnet protocol
  (connection via Ethernet)
› Unlimited sitesize
› Easy and fast installation
› PPD data is available
  on BMS system (only for VRV)

BACNET / ETHERNET

VRV network

DMS502A51   Local Control

DIII- NET

VRV
Outdoor unit

HRV

up to 256 units connectable per interface

Remote Control

Applied systems network

EKCMBACIP
EKCMBACMSTP

Serial
sequencing
panel
EKDSSP-S

EKCM200J   EKCM200J   EKCM200J

Air handling unit network

EKCMBACIP
EKCMBACMSTP

Fire alarm   Security   Power supply facility

Pump   Lighting   Elevator

BUILDING
CONTROL
NETWORK

BACnet interface for VRV

Compatibility with leading BMS systems

Manufacturer*	Type	
Andover Controls	Continuum ver. 1.6	1.6
Cinmetrics Sauter	OPC Server	
Honeywell	EBI	V2.0
Iconix Sauter	OPC Server	
Invensys (Sacthwell) Polar Soft	System Manager BACdoor	
Johnson Controls	Metasys BSI	V9.01C
Johnson Controls	Metasys N30	
Priva		
Reliable Systems	Mach	
Siemens	System 600 Apoaee Insight	V3.2
Siemens	System 600 Apoaee Insight	V3.4
Siemens	Desigo Insight	V1.01
Siemens	PX Desigo Insight	V2.2
TAC Pacific	OPC Server	
Trane	Tracer Summit	
Trend		
Tridium	Niagara Framework	2.301.321.v1
Trilogy		

(*) Please contact your Daikin distributor for further details or other manufacturers concerning compatibility.

Specifications

BACnet Interface (DMS502A51)		Description
Rated Electrical conditions	Rated Voltage and Frequency	Single Phase AC 200-240, 50/60 Hz
	Rated Power	Maximum 20 W
Conditions for Use	Power Supply Fluctuation	±10% of the Rated Value
	Ambient Temperature	-10~+50℃
	Ambient Humidity	0~98° (Sweating is not acceptable)
	Preservation Temperature	-20~+60℃
Performance	Insulation Resistance	50MW or more by DC500 megohmmeter
Mass		2.8 kg

Components
The following parts are attached to this unit. Make sure to check them before installation.

Accessories

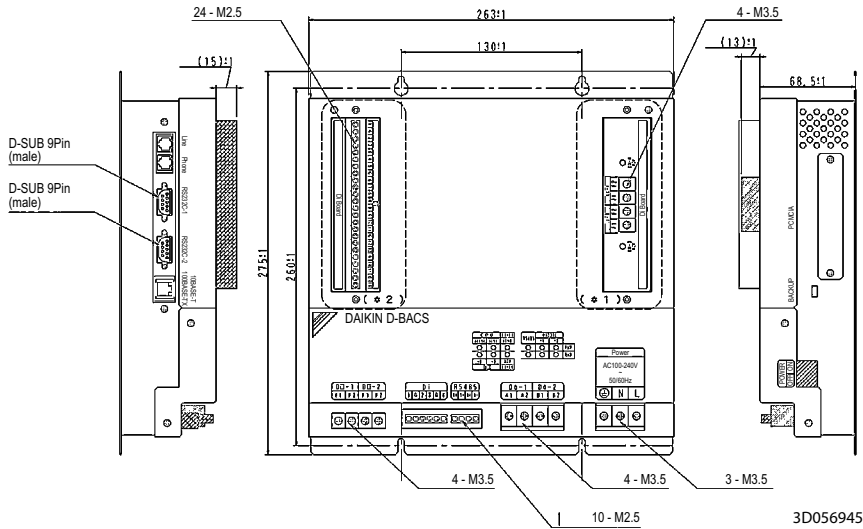| Item		Description
DIII board	DAM411B51	Extension of 2 x DIII lines (2 x 64) indoor groups
Digital input /output	DAM412B51	In case of PPD to provide up to 12 pulse input points
Interface adapters	KRP928B2S	For connection to Split units
	DTA102A52	For connection to R-22/R-407C Sky Air units
	DTA112B51	For connection to R-410A Sky Air units

Dimensions

BACnet Interface (DMS502A51)

BACnet Interface outside drawing
(DMS502A51)

24 - M2.5   263±1   4 - M3.5

130±1   (13)±1

(15)±1   68.5±1

D-SUB 9Pin
(male)

D-SUB 9Pin
(male)

275±1   260±1

DAIKIN D-BACS

Power
AC100-240V
50/60Hz

N L

4 - M3.5   4 - M3.5   3 - M3.5

10 - M2.5   3D056945

Option DIII board (DAM411B51)

This kit is for adding 2 ports to the DIII-NET communication port by installing it on the BACnet Interface DMS502A51. The kit can not be solely used.

Outside dimensions of PCB

(27) (12.7)

30±3

DAIKIN INDUSTRIES, LTD.

140±1.2

(104.5)   Master central setting connector
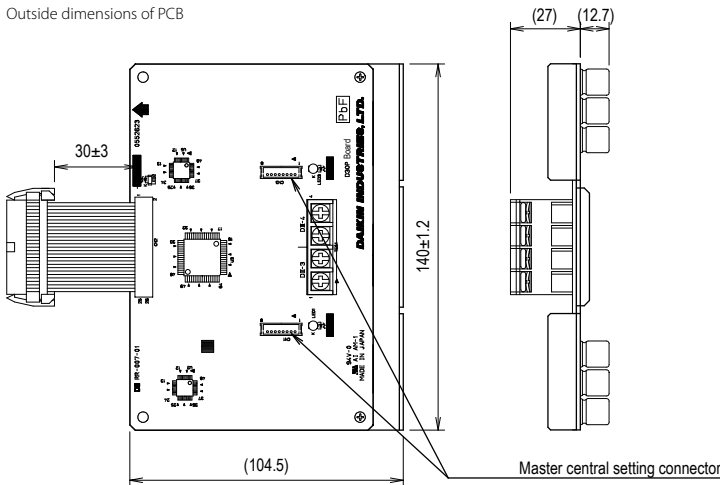
C : 1P191165B

Option Digital Input / Output (DAM412B51)

Outside dimensions of PCB

(28.86)   (8.5)

30±3

DAIKIN INDUSTRIES, LTD.

140±1.2

(104.5)
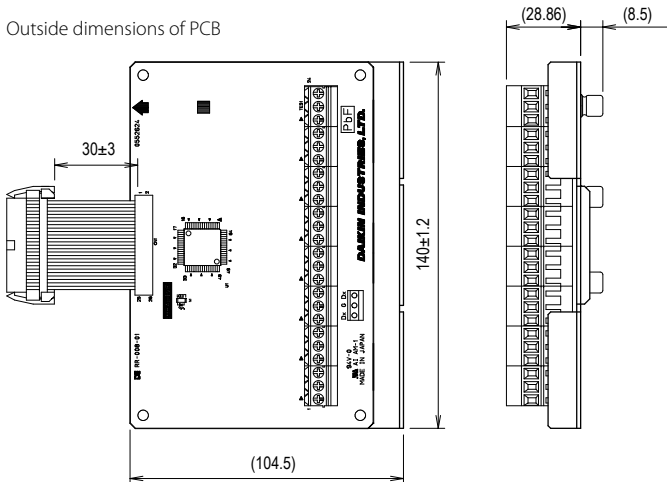
C : 1P191166C

Communications Check Sheet

BACnet object list

Memner number	Name	Object name (XXX: Air Con Logical Group Number)	Object type	Unit Inactive Text-1	Active Text-2	Text-3	Text-4
1	Start/stop (setting) (Note 2)	Start stop command_XXX	BO	Stop	Operation		
2	Start/stop (status)	Start stop status_XXX	BI	Stop	Operation		
3	Alarm	Alarm_XXX	BI	Normal	Malfunction		
4	Malfunction code	Malfunction code_XXX	MI	Normal	Manufacturer specific		
5	Air conditioner mode (Setting) (Note 2)	AirConModeCommand_XXX	MO	Cooling	Heating	Fan	Auto
6	Air-conditioning mode (status)	AirConModeStatus_XXX	MI	Cooling	Heating	Fan	
7	Air flow rate level (setting) (Note 2)	Air flowRate command_XXX	MO	Low	High		
8	Air flow rate level (status)	AirFlowRateStatus_XXX	MI	Low	Gigh		
9	Measured room temperature (Note 1)	Roomtemp_XXX	AI	°C			
10	Set room temerature (Note 2)	TempAdjust_XXX	AV	°C			
11	Filter sign signal	FilterSign_XXX	BI	No	Yes		
12	Filter sign segnal reset	FilterSignReset_XXX	BV	Reset			
13	Remote control enable / disable (start / stop)	RemoteControlStart_XXX	BV	Enabled	Disabled		
14	Remote control enable / disable (air-conditioning mode)	RemoteControlAirConModeSet_XXX	BV	Enabled	Disabled		
15	Blank						
16	Remote controller enable / disable (set temperature)	RemoteControlTempAdjust_XXX	BV	Enabled	Disabled		
(*)17	Central control 'lower central control disable)	CL_Rejection_XXX	BV	Enabled	Disabled		
18	Blank						
19	Accumulated power	ElecTotalPower_XXX	BV	Enabled	Disabled		
20	Communication status	CommunicationStatus_XXX	BI	Normal communication	Communication error		
(*)21	Forced system stop	SystemForcedOff_XXX	BV	Clearance	Forced stop		
22	Air direction (setting) (Note 2)	AirDirectionCommand_XXX	AV				
23	Air direction (status)	AirDirectionStatus_XXX	AI				
24	Forced thermostat disble (setting)	ForcedThermoOFFCommand_XXX	BO	Clearance	Set		
25	Forced thermostat disable (status)	ForcedThermoOFFStatus_XXX	BI	Clearance	Set		
26	Energy saving (setting)	Energy EfficiencyCommand_XXX	BO	Clearance	Set		
27	Energy saving (status)	EnergyEfficiencyStatus_XXX	BI	Clearance	Set		
28	Thermostat status	ThermoStatus_XXX	BI	OFF	ON		
29	Compressor status	CompressorStatus_XXX	BI	Stop	Operation		
30	Indoor fan status	IndoorFanStatus_XXX	BI	Stop	Operation		
31	Heater operation status	HeaterStatus_CCC	BI	Stop	Operation		

Central control (lower central control disable) and orced systemm stop are obly available for 000, 064, 128, and 192.

Notes

1   The room temperature is measured with the suction air. Since the indoor unit fan stops when the thermostat is disabled or the air conditioner is stopped, or in z special operation such as defrosting, temperature measurement may be affected by the heat exchanger, and may detect and transmit a different temperature from the actual room temperature, For this reason, this value should be considered as a reference for the room temperature.

   If the building management system manufacturer uses this value for system control (e.g., switching the airconditioning mode or preset temperature), the manufactureer must take on the whole responsibility.

2   The air conditioner saves the settings for the temperature, start/stop status, air-conditioning mode, air direction, and air flow rate in the nonvolatile memory each time they are changed, so that the settings will not be lost when a power cut occurs. This nonvolatile memory has a write count limit and may cause a failure if it is written exceeding the limit count.

   Therefore when the temperature, start / stop status, air-conditioning mode, air direction, and air flow rate of each indoor unit are automatically controlled from the central monitoring panel, be sure that the number of changes for each setting **should not exceed 7,000 timer per year.**

Function

Outline of functions

- This BACnet Interface enables interfacing between the VRV system and central monitoring board.
- Data of up to 256 groups of air conditioner (when the option DIII board is used) are controllable by the BACnet Interface.
- Air conditioners are operable and the state can be monitored from the central monitoring board by BACnet communication.

Main functions

The BACnet Interface can monitor and control air conditioners from a maximum of 256 groups, on a unit by unit basis.
Major features are listed below.

1. Switches the ON/OFF operation and monitors operational state.
2. Monitors indoor units for malfunctions.
3. Monitors and changes temperature.
4. Monitors indoor unit temperature.
5. Monitors and resets filter clean sign.
6. Switches the operation mode.
7. Sets remote control operation
8. PPD data is available on BMS-system

Names and functions of each part

1P191169C
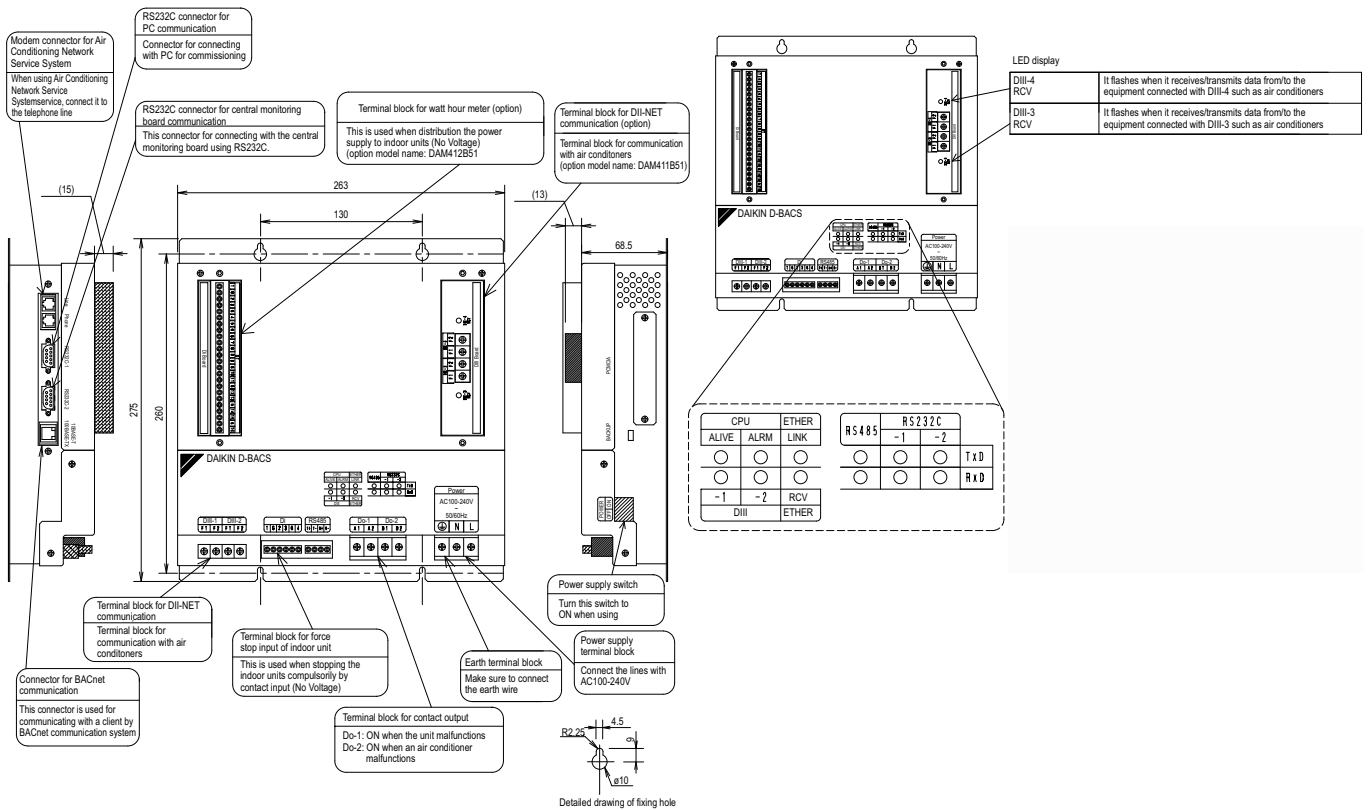
LED display

|	
CPU ALIVE	It flashes when the unit is in normal operation.
CPU ALRM	It flashes when the unit is abnormal operation.
D III -1	It flashes when it receives/transmits data from/to the equipment connected with DIII-1 such as air conditioners
DIII-2	It flashes when it receives/transmits data drom/to the equipment connected with DIII-2 such as air conditioners
Ether RCV	It flashes when it receives/tranmits data from/to BACnet client.
Ether link	It lights when the 10BASE-T acable or 100BASE-TX cable
RS485 (TxD)	This LED display cannot be used with this unit
RS485 (RxD)	This LED display cannot be used with this unit
RS232C-1 (TxD)	It flashen when it tramits data to PC
RS232C0-1 (RxD)	It flashen when it receives data from PC
RRS232C-2(TxD)	It flashes when it tranmits data to the central minitoring board.
RS232C-2(RxD)	It flashes when it receives data from the central minotoring board.

Function

Major functions of air-conditioner devices

Function	Air-conditioning equipment				Remarks
	VRV Inverter series	Interface adapter for Sky Air series (SA Heat Pump)	HRV	Wiring adapter for other air-conditioners	
Start/stop control and monitoring	0	0	0	0	
Air-conditioner error notification	0	0	0	0	
Indoor air temperature monitoring	0	0	X	X	
Temperature setting and monitoring	0	0 16~32	X	X	
Air-conditioning mode setting and monitoring	0	0	X	X	Air-conditioning mode switching is effective only for indoor units for which cool/heat selection is permitted.
*1 Remote control mode setting and monitoring	0	0	X	X	
Filter sign monitoring and reset	0	X	X	X	
Cumulative power value monitoring	0	X	X	0	
Thermostat status monitoring	0	X	X	X	
Compressor operation status monitoring	0	X	X	X	
Indoor fan operation status monitoring	0	X	X	X	
Heater operation status monitoring	0	X	X	X	
Air direction setting and monitoring	0	X	X	X	
Air flow rate setting and monitoring	0	X	X	X	
Forced thermostat off setting and monitoring	0 *2	X	X	X	
Forced thermostat on setting and monitoring	0 *2	0 *2	X	X	
Energy efficiency command (Setting temperature shift)	0	X	X	X	

Notes

1 *1: Remote control mode is for acceptance or rejection of on/off operation, temperature setting and air conditioning mode setting by remote control.

2 *2: If set locally, the host is not notified. Thus, monitoring cannot be accomplished from the host.

3 The meaning of 0, C are as follows
   0: Possible functions
   C: Impossible functions

Wiring and Setting Procedures

System Wiring
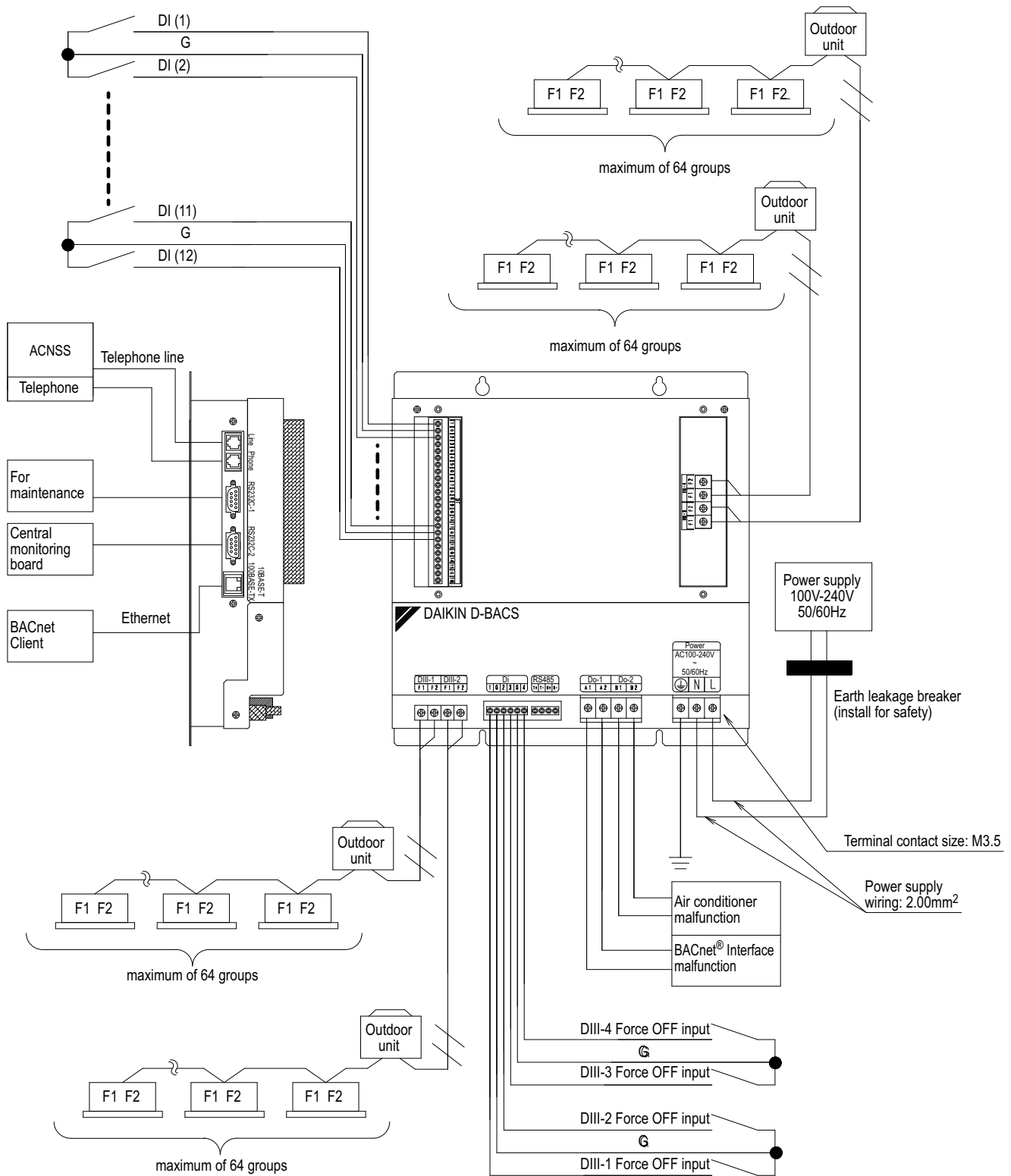
C : 1P191170C

[DIII-NET master] setting

Make sure to connect the unit with [DIII-NET master]. Do not remove the master central setting connector.
Remove the master central setting connectors of the centralised management controllers or ON/OFF controllers when using togheter with other centralised controllers such as centralised management controllers or ON/OFF controllers.

Wiring and Setting Procedures

External wiring
Everything relating with field wiring must be supplied in the field.

Ethernet communication wiring
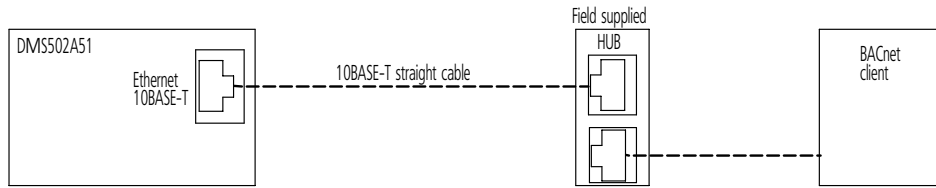
DIII-NET wiring
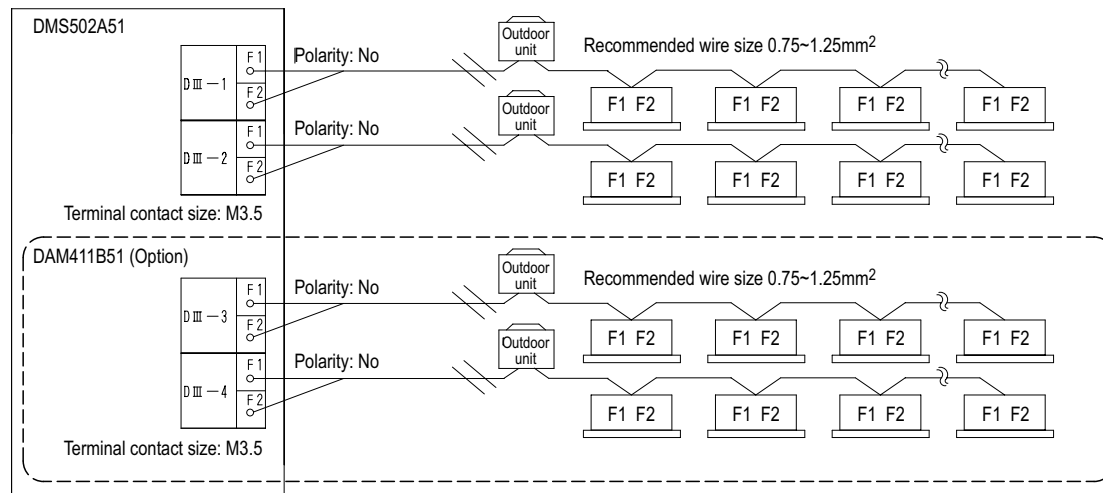
Cautions
1 Do not use multicore cables with three or more cores.
2 Use wires of sizes between 0.75 mm2 and 1.25 mm2.
3 Wire length: Max 1,000 m
4 Do not bind the wire for DIII-NET
5 Wirings for DIII-NET must be isolated from the power lines.

Do-1 and 2

Do-1 : ON when the unit malfunctions
Do-2 : ON when an air conditioner malfunctions

No voltage contact output contact specification is as follows
: Allowable current 10m A ~ 1 A
: Allowable voltage MAX, AC250 V
Wiring length   : Max. 150 m
Terminal contact size : M4
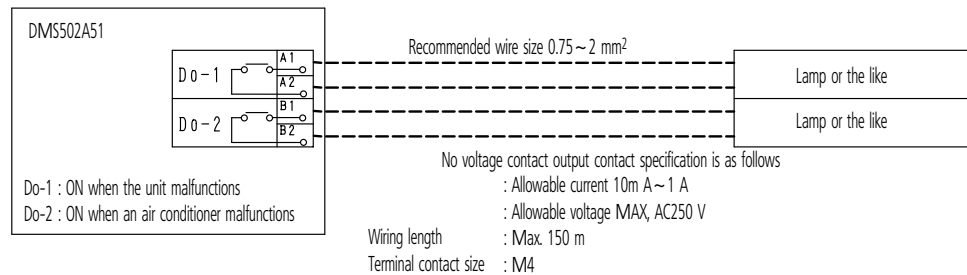
Main specifications	
Temperature range	-10~50°C
Humidity range	0~98% (No frost formation)
Power supply	1~AC200-240V 50/60Hz
Power consumption	Max.20 W
Weight	4.0 Kg

Open network integration of VRV,
applied systems and air handling units monitoring and control functions into LonWorks networks

› Interface for Lon connection to LonWorks networks
› Communication via Lon protocol (twisted pair wire)
› Unlimited sitesize
› Quick and easy installation

LON BMS

VRV network

ETHERNET (TCP/IP)

adapter — LonTalk

DIII- NET

DMS504B51   Local Control

VRV Outdoor unit

HRV

up to 64 units connectable per interface

Remote Control

Applied systems network

adapter — LonTalk

EKCMLON

Serial sequencing panel
EKDSSP-S

EKCM200J   EKCM200J   EKCM200J

Air handling unit network

adapter — LonTalk

EKCMLON

adapter — LonTalk

LonPoint   LonPoint

BUILDING CONTROL NETWORK

Security   Fire alarm System

LowWorks Interface for VRV

Survey of Functions

	Function	Description
Controlling items	ON/OFF Command	Starts/stops air conditioner operation.
	Operation Mode Setting	Sets operation mode (heating/cooling/ventilation/auto).
	Temperature Setting	Sets room temperature.
	Airflow Rate Setting	Sets airflow rate.
	Filter Sign Reset	Resets filter sign.
	Forced Thermostat OFF Setting	Sets forced thermostat OFF.
	Remote ON/OFF Control Rejection	Sets whether permit/prohibit ON/OFF control rejection of the air conditioner with a hand-held remote control.
	Remote Operation Mode Control Rejection	Sets whether permit/prohibit operation mode control rejection of the air conditioner with a hand-held remote control.
	Remote Temperature Setting Control Rejection	Sets whether permit/prohibit room temperature setting control rejection of the air conditioner with a hand-held remote control.
	System Forced OFF Setting	Forcibly stops the air conditioner connected to the DIII-NET /Resets the Forced OFF setting.
	Sub Group Address Control Rejection Setting	Permits/prohibits controlling of the centralized device connected to the DIII-NET.
Monitoring items	ON/OFF Status Report	Monitors ON/OFF status of the air conditioner.
	Operation Mode Status Report	Monitors operation mode status (heating/cooling/ventilation) of the air conditioner.
	Temperature Setting Report	Monitors the set room temperature.
	Room Temperature Report	Monitors the room temperature.
	Airflow Rate Setting Report	Monitors the set airflow rate.
	Filter Sign Report	Checks limit of filter use and monitors if it has reached the limit.
	Error Status Report	Monitors error status of the air conditioners.
	Error Code Report	Displays the manufacturer-specified error codes if any errors occur.
	Thermostat Status Report	Monitors whether the air conditioner's thermostat is working.
	Forced Thermostat OFF Setting Status Report	Monitors the forced thermostat OFF status.
	Remote ON/OFF Operation Rejection Report	Monitors the status if the air conditioner is permitting/prohibiting remote ON/OFF control with a hand-held control.
	Remote Control Operation Mode Setting Rejection Report	Monitors the status if the air conditioner is permitting/prohibiting remote control operation mode with a hand-held control.
	Remote Control Temperature Setting Operation Rejection Report	Monitors the status if the air conditioner is permitting/prohibiting remote control temperature setting with a hand-held control.
	System Forced OFF Setting Report	Monitors the status of the forced OFF setting of the air conditioner connected to the DIII-NET.
	Sub Group Address Control Operation Rejection Setting Report	Monitors the status if the air conditioner is permitting/prohibiting control of a centralized device connected to the DIII-NET.
	A/C Communication Status Report	Monitors the communication status (No Occupancy/ Communication normal/ Communication error) of the air conditioner.

Applicable Models

Function	Air Conditioners					
	VRV	Large Sky Air Multi	Sky Air (Adapter for Sky Air)	Facility A/C (Centralized control adapter)	HRV	RA (General purpose adapter)
ON/OFF operation and monitoring	▲	▲	▲	▲	▲	▲
A/C error report	▲	▲	▲	▲	▲	▲
Room temperature monitoring	▲	▲	▲	▲	X	X
Temperature setting and monitoring	▲	▲	▲	▲	X	X
Operation mode setting and monitoring (Note 3)	▲	▲	▲	▲	X	X
Remote control mode setting and monitoring	▲	▲	▲	▲	▲	X
Filter sign monitoring and reset	▲	▲	▲	X	▲	X
Thermostat status Monitoring	▲	▲	▲	X	X	X
Airflow rate setting and monitoring	▲	▲	▲	X	Only monitoring (Note 2)	X
Forced thermostat OFF setting and monitoring	▲ (Note 1)	▲	▲	X	X	X

Notes

1 When this is set from a remote control, it is not reported to the upper system and, therefore, this setting cannot be monitored by the upper system.

2 The triangle (G) denotes a function that is only available for some models.

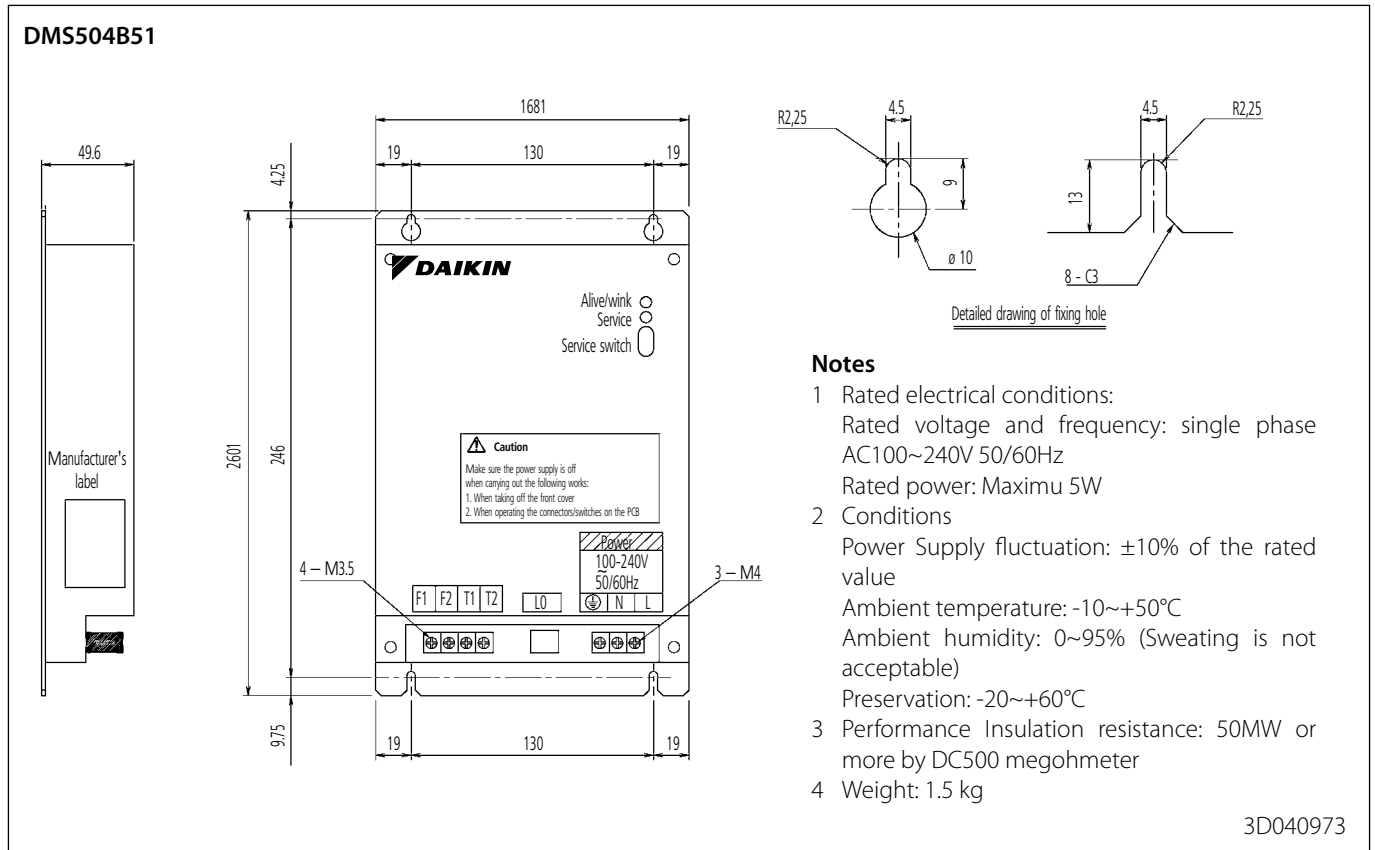3 Operation mode can be changed only on indoor units that allow a selection between heating and cooling.

Specifications

Item		Specifications
Model		DMS504B51
Dimensions	mm	168 (W) x 260 (H) x 50 (D) mm
Weight	kg	1.5 kg
Power supply		Single phase AC100-240V 50/60Hz
Power consumption		Max. 5W
Operation range		−10 to 50 °C
Storage temperature range		−20 to 60 °C
Humidity		Up to 95% (no condensation)
Protocol		LonTalk
Transmission speed		78Kbps
Installation		Mounted to indoor distribution board
Topology		FTT-10A (Free topology)
Transmission medium		Twisted pair wire
Contact input		Forced OFF x 1 (A/Cs en bloc)

Accessories

Item		Description
Interface adapters	KRP928A2S	For connection to Split units
	DTA102A52	For connection to R-22/R-407C Sky Air units
	DTA112B51	For connection to R-410A Sky Air units

Dimensional drawing

DMS504B51

Notes

1 Rated electrical conditions:
Rated voltage and frequency: single phase AC100~240V 50/60Hz
Rated power: Maximu 5W

2 Conditions
Power Supply fluctuation: ±10% of the rated value
Ambient temperature: -10~+50℃
Ambient humidity: 0~95% (Sweating is not acceptable)
Preservation: -20~+60℃

3 Performance Insulation resistance: 50MW or more by DC500 megohmeter

4 Weight: 1.5 kg

3D040973

External connection diagram

DMS504B51

3D040974

No. ※	Wiring specifications
1	**LonWorks Network Communication wiring** Use the dedicated line for the LonWorks Network DMS504B51 — L 0 — Polarity: No
2	**DIII-net wiring** DMS504B51 — T1 T2 — Polarity: No — Outdoor unit — F1,F2 F1,F2 F1,F2 F1,F2 **Cautions for wiring** 5 Do not use multicore cables with three or more cores 6 Use wires of sizes between 0.75mm2 and 1.25mm2 7 Wire length: MAX 1,000m 8 Do not bind the wire for DIII-net 9 Wirings for DIII-net must be isolated from the power lines. 10 Terminal contact size: M3.5
3	**Forced OFF input** DMS504B51 — T1 T2 — 0.75mm~1.25mm² vinyl cord or cable with sheath (2 wire) up to 150m maximum — Forced OFF When forced OFF input is kept on, the indoor units connected to this system are unable to be operated because they are forced off. 11 Use a no voltage contact 12 Use a contact which can guarantee mimimum application load DC16V and 10 mA 13 Do not use multicore cables with three or more cores 14 Wirings must be isolated from the power lines 15 Terminal contact Size: 3.5

Definition of LED and switch

LED

ALIVE/WINK	CPU normal monitor	Green	Normal	Blinking every 0.4 sec
		Red	WINK command reception	Blinking every 0.2 sec.
SERVICE	LON status	Yellow	Normal	Light off
			Unconfigurate state	Blinking every 0.5 sec
			SERVICE SW on	Light on
			Error	Blinking/flashing every 0.84 sec

Switch

SERVICE SW: Neuron ID is sent upon pushing this switch

Air Conditioning Network Service System (ACNSS)

The challenge of your technical management is safeguarding in the long term optimal operation of your air conditioning system without incurring huge costs along the way. Daikin's Air Conditioning Network Service System improves the effectiveness of your management.

The network service system is a link via the internet, between the air conditioning system and Daikin's Remote Monitoring Centre. In so doing, expert service engineers monitor the operating status of the entire system nonstop all through the year. The 'ACNSS monitoring service' prevents troubles and prolongs the life of your equipment.

Thanks to the prediction of malfunctions and the technical advise following from data analysis, you not only maximise equipment availability, but also control cost without sacrificing comfort levels.

Daikin's ACNSS is also supported by the optional 'ACNSS energy saving service' as energy use is one of the largest operating expenses of any business. This service enables you to optimise on power consumption without failing to keep the customer's amenity.
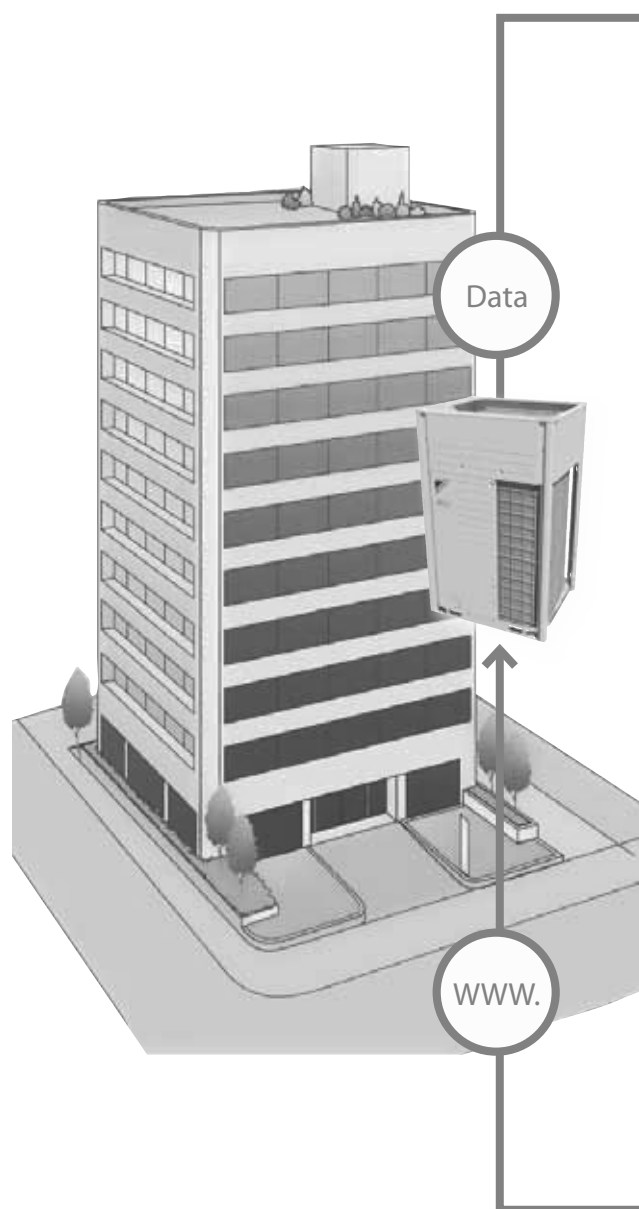
ACNSS monitoring service

+

ACNSS energy saving service

# COMFORT MAINTAINED

1 Data transmission

Air conditioners's running information and other necessary data are collected and compiled, and sent to the centre. Advance failure forecasts and monitoring data for accidental problems are transmitted.

OPTION:

energy-saving control determination

Operating information is analyzed, and the optimum energy-saving control settings are calculated according to weather data for the region.
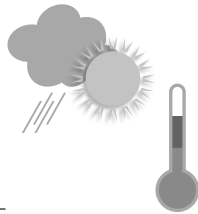
Weather information

2 Daikin Remote Monitoring Centre

Daikin's control implemented

intelligent touch Controller

intelligent touch Manager

Information to customers, service company

3 data analysis & system monitoring

Reporting data is reviewed and system is monitored 24/7 for any occurances.

Energy-saving Report
Maintenance Report
Malfunction and prediction call

* A contract with Daikin is necessary for applying Energy-saving Air conditioning Network Service System. If you would like an estimation, please contact us.

Simplified commissioning:
graphical interface to configure, commission and upload system settings

Simplified commissioning

The Daikin configurator for Daikin Altherma and VRV is an advanced software solution that allows for easy system configuration and commissioning:
› Less time is required on the roof configuring the outdoor unit
› Multiple systems at different sites can be managed in exactly the same way, thus offering simplified commissioning for key accounts
› Initial settings on the outdoor unit can be easily retrieved

Simplified
commissioning

Retrieve initial
system settings

Wireless room temperature sensor

Flexible and easy installation

›   Accurate temperature measurement thanks to flexible placement of the sensor

›   No need for wiring

›   No need to drill holes

›   Ideal for refurbishment

PLUG & PLAY

Connection diagram Daikin indoor unit PCB (FXSQ-P example)

Power supply – **X35**, X13

Air sensor – **X16A**, X19

RF RECEIVER

RF SENDER
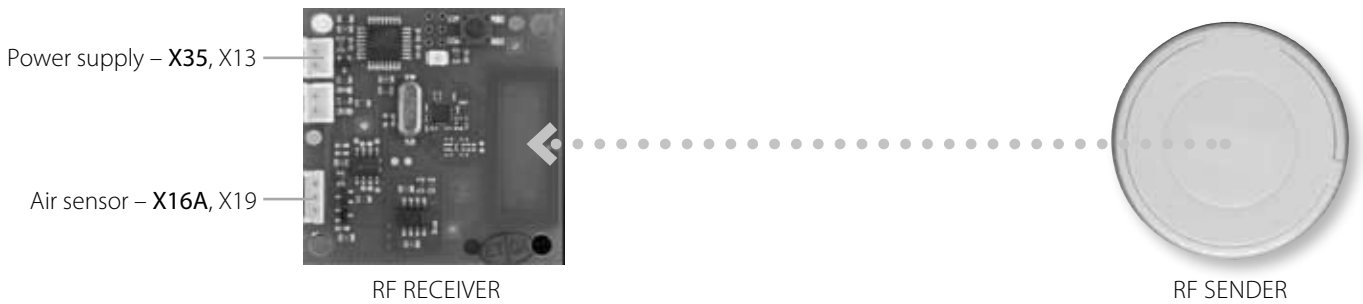
Specifications

		WIRELESS ROOM TEMPERATURE SENSOR KIT (K.RSS)	
		WIRELESS ROOM TEMPERATURE RECEIVER	WIRELESS ROOM TEMPERATURE SENSOR
Dimensions	mm	50 x 50	ø 75
Weight	g	40	60
Power supply		16VDC, max. 20 mA	N/A
Battery life		N/A	+/- 3 years
Battery type		N/A	3 Volt Lithium battery
Maximum range	m	10	
Operation range	°C	0~50	
Communication	Type	RF	
	Frequency	MHz	868.3	

›   Room temperature is sent to the indoor unit every 90 seconds or if the temperature difference is 0.2°C or larger.

Wired room temperature sensor

› Accurate temperature measurement, thanks to flexible placement of the sensor

Specifications

Dimensions (HxW)	mm	60 x 50
Weight	g	300
Length of branch wiring	m	12

Daikin's adapter PCB's provide simple solutions for unique requirements. They are a low cost option to satisfy simple control requirements and can be used on single or multiple units.

	(E)KRP1B* adapter for wiring	• •	Facilitates integration of auxiliary heating apparatus, humidifiers, fans, damper Powered by and installed at the indoor unit
	KRP2A*/KRP4A* Wiring adapter for electrical appendices	• • • •	Remotely start and stop up to 16 indoor units (1 group) (KRP2A* via P1 P2) Remotely start and stop up to 128 indoor units (64 groups) (KRP4A* via F1 F2) Alarm indication/ fire shut down Remote temperature setpoint adjustment
	DTA104A* Outdoor Unit External Control Adapter	• • •	Individual or simultaneous control of VRV system operating mode Demand control of individual or multiple systems Low noise option for individual or multiple systems

Concept and benefits

› Low cost option to satisfy simple control requirements
› Deployed on single or multiple units

EEDEN13-100

EEDEN13-204

Daikin products are distributed by:

DAIKIN EUROPE N.V. Naamloze Vennootschap - Zandvoordestraat 300, B-8400 Oostende - Belgium - www.daikin.eu - BE 0412 120 336 - RPR Oostende