



technical data

VRV[™] Systems

BACnet Gateway

BACnet Gateway

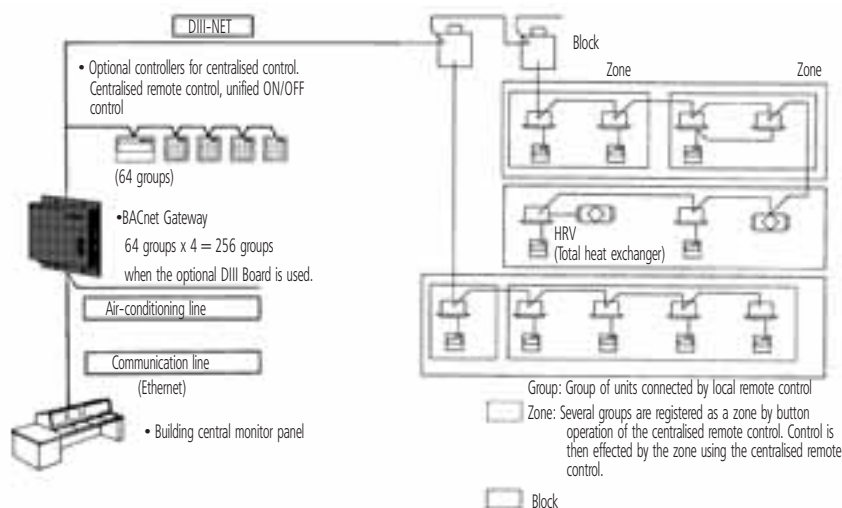
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BACnet Gateway

1 Outline and Features

1. Managing the information on 64 groups of air-conditioners (main units only).
2. Up to 256 groups manageable and controllable at once by adding the optional DIII board.
3. Packaging of air-conditioner objects
 - * Compatible with BACnet (ANSI/ASHRAE-135)
 - * Compatible with BACnet/IP (ANSI/ASHRAE-135a)
 - * Compatible with IIEJ/p-0003-2000 (plan)
(IIEJ is Institute of Electrical Installation Engineers of Japan)
4. Conforming to European, Oceanian, Safety and EMC rules and regulations.

2 System Outline



Name	Functions
BACnet Gateway (DIMS02A51)	Interface unit to allow communications between VRV and BMS. BMS ready to run and monitor the air-conditioning systems through BACnet communications. Up to 64 groups.
Optional DIII board (DAM411A1)	Expansion kit, installed on the BACnet Gateway (DIMS02A51), to provide 3 more DIII-NET communication ports. Not usable independently. Up to 256 groups.

NOTES

- 1 A group consists of several indoor units that can be started or stopped simultaneously. As shown in the figure above, a group consists of several indoor units wired to the same remote control. For units without remote control, each unit is treated as a group.
- 2 Several groups are registered as a zone with the centralised remote control. By pushing 1 button of the centralised remote control, all groups within the same zone can be turned on or off simultaneously.

Building management 1 system controls and monitors air-conditioning equipment by the block. A block consists of 1 or more groups (max. 16), and can be set without regard for the zones mentioned above. You must, how-ever, take the following things into consideration:

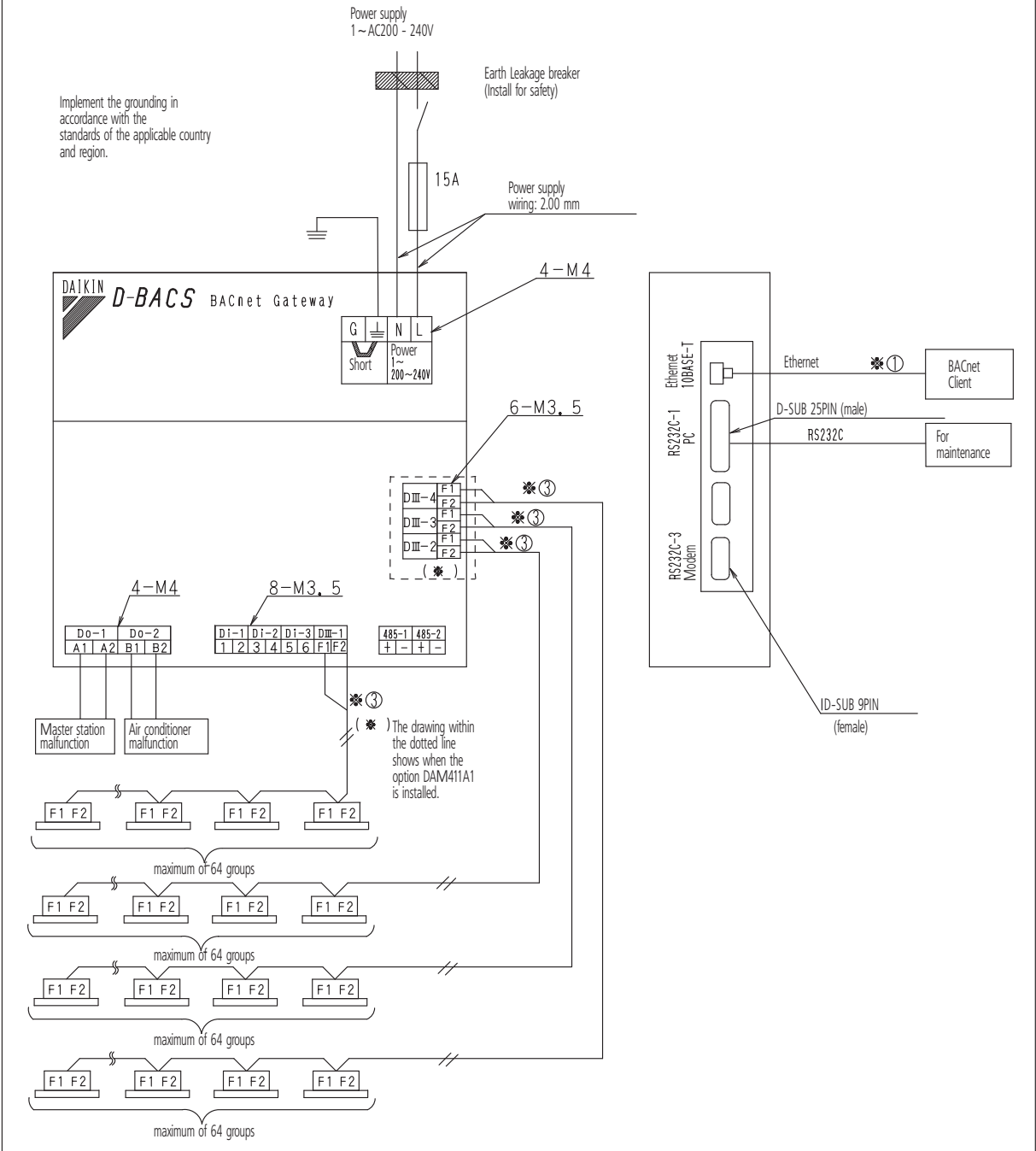
- 3 If the air-conditioning mode is switched, as a premise, permission for cool/heat selection for indoor units (by remote controller or central remote controller) must be designated within the program.
- 4 Program status is basically monitored by observing the data of a representative unit. The contents which can be monitored are therefore restricted if the representative unit is designated as an adaptor, etc.

Block registration is accomplished through signal transmission from the building control system to the cooler-conditioning system. Because configuration can be changed while receiving power even after operating, maintenance from the maker of the air-conditioning equipment is not required when changing the configuration.

3 System Configuration

BACnet Gateway (DMS502A51) system wiring diagram

Implement the grounding in accordance with the standards of the applicable country and region.



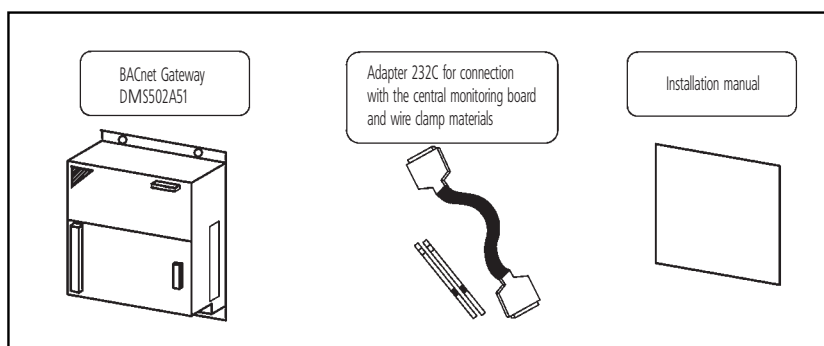
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4 Specifications

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°C
	Ambient Humidity	0 ~ 98° (Sweating is not acceptable)
	Preservation Temperature	-20 ~ +60°C
Performance	Insulation Resistance	50MΩ or more by DC500 megohmmeter
Mass		4.0 kg
Colour of the Unit	Unit	PANTONE 533C
	Letter	PANTONE 656C
	Lines	PANTONE 656C

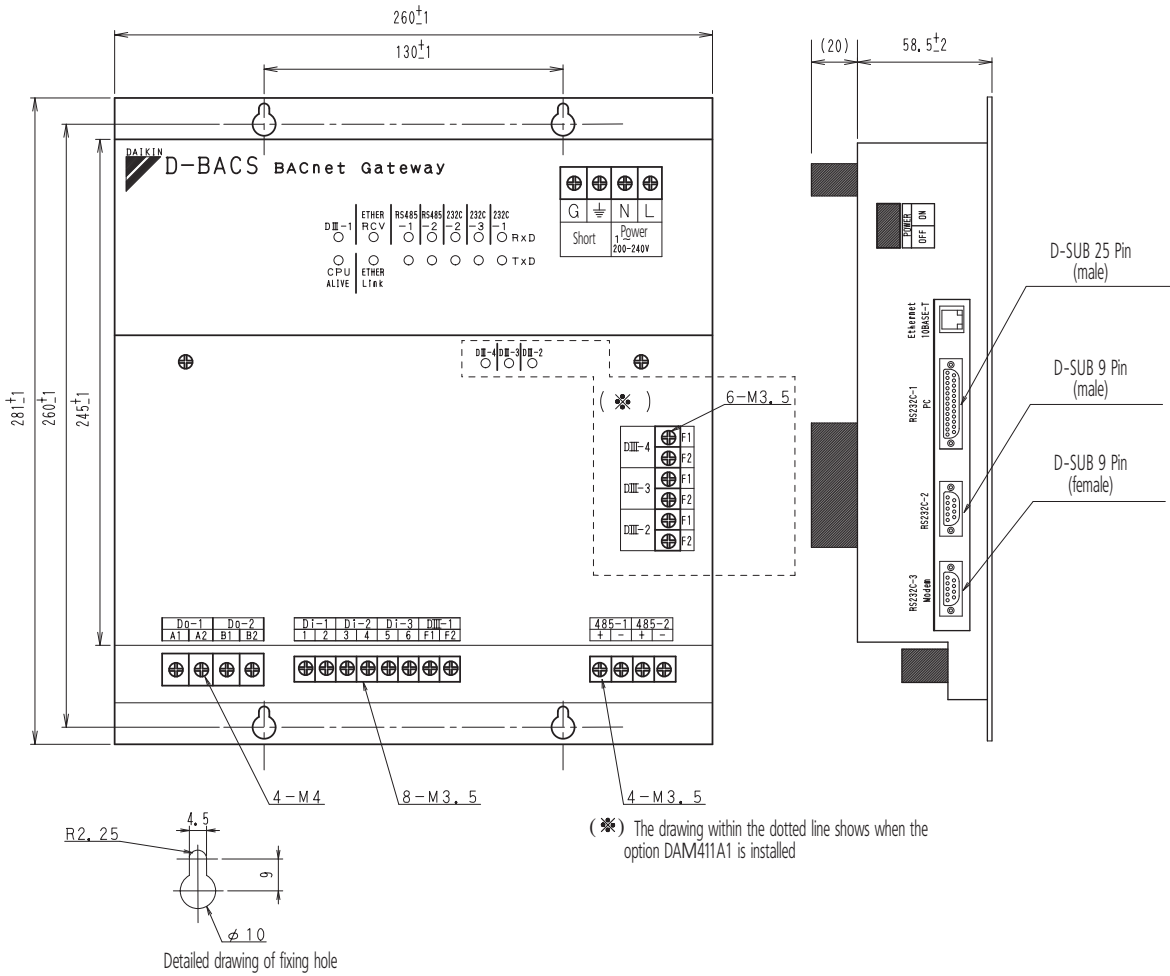
Components

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



5 Dimensions

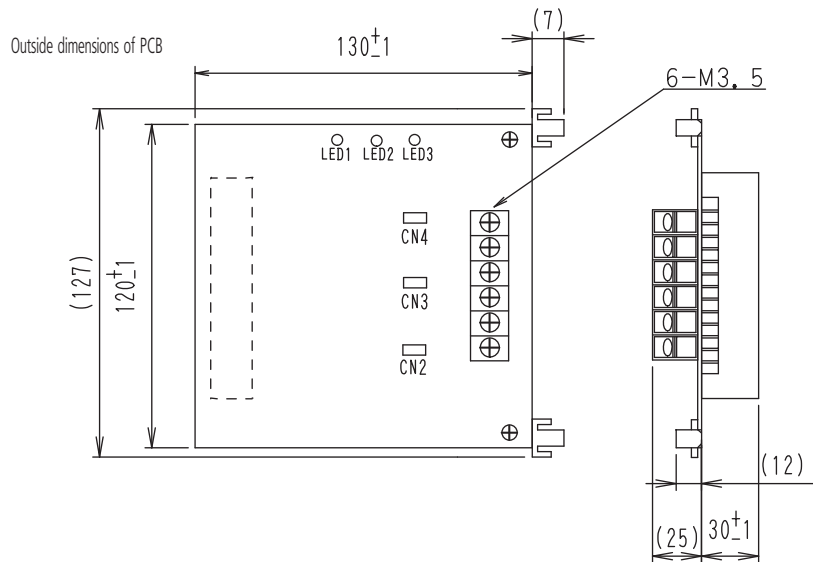
5-1 BACnet Gateway (DMS502A51)



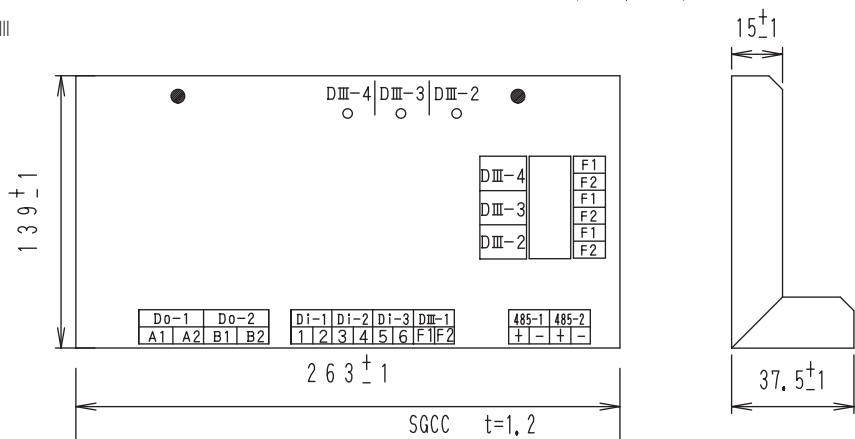
5 Dimensions

5-2 Option DIII board (DAM411A1)

This kit is for adding 3 ports to the DIII-NET communication port by installing it on the BACnet Gateway DMS502A51. The kit can not be solely used.



Panel for DIII



6 Communications Check Sheet

6-1 BAC net object list

No.	Name	Object name (XXX: Air Con Logical Group Number)	Object type	Unit				
				Inactive		Active		
				Text-1	Text-2	Text-3	Text-4	Text-5
1	Start/stop (control)	Start stop command_XXX	BO	Stop	Start			
2	Start/stop (monitoring)	Start stop status_XXX	BI	Stop	Run			
3	Trip	Alarm_XXX	BI	Normal	Abnormal			
4	Malfunction code	Malfunction code_XXX	MI	Reference DAIKIN original Error Code				
5	Air conditioner mode (Setting)	Air con mode command_XXX	MO	Cool	Heat	Fan	Auto	
6	Air conditioner mode (Monitoring)	Air con mode status_XXX	MI	Cool	Heat	Fan		
7	Air flow rate set (Setting)	Air flow rate command_XXX	AV	No_units				
8	Air flow rate (Monitoring)	Air flow rate status_XXX	AI	No_units				
9	Room temperature indicator	Room temp_XXX	AI	°C				
10	Temperature adjust	Temp adjust_XXX	AV	°C				
11	Filter sign	Filter sign_XXX	BI	OFF	ON			
12	Filter sign reset	Filter sign reset_XXX	BV	Reset (Off)	Void (On)			
13	R/C Mode setting (Start/Stop)	Remote control start_XXX	BV	Permit	Prohibit			
14	R/C Mode setting (Air Conditioner Mode)	Remote control air con mode set_XXX	BV	Permit	Prohibit			
15	Reserved							
16	R/C Mode setting (Temperature adjust)	Remote control temp adjust_XXX	BV	Permit	Prohibit			
(*)17	Central/local equipment operation rejection	CL_rejection_XXX	BV	Permit	Prohibit			
18	Reserved							
19	Reserved							
20	Reserved							
(*)21	System forced off	System forced off_XXX	BV	Released	Effective			
22	Air direction (Setting)	Air direction command_XXX	AV	No_units				
23	Air direction (Monitoring)	Air direction status_XXX	AI	No_units				
24	Forced thermo OFF (Setting)	Forced thermo OFF command_XXX	BO	Released	Effective			
25	Forced thermo OFF (Monitoring)	Forced thermo OFF status_XXX	BI	Released	Effective			
26	Energy efficiency (Setting)	Energy efficiency command_XXX	BO	Released	Effective			
27	Energy efficiency (Monitoring)	Energy efficiency status_XXX	BI	Released	Effective			
28	Thermo operation status	Thermo status_XXX	BI	OFF	ON			
29	Compressor operation status	Compressor status_XXX	BI	Stop	Run			
30	Indoor fan operation status	Indoor fan status_XXX	BI	Stop	Run			
31	Heater operation status	Heater status_XXX	BI	Stop	Run			

(*)CL_Rejection_XXX and system forced Off_XXX have only 4 group numbers 000, 064, 128 & 192.

7 Function

7-1 Outline of functions

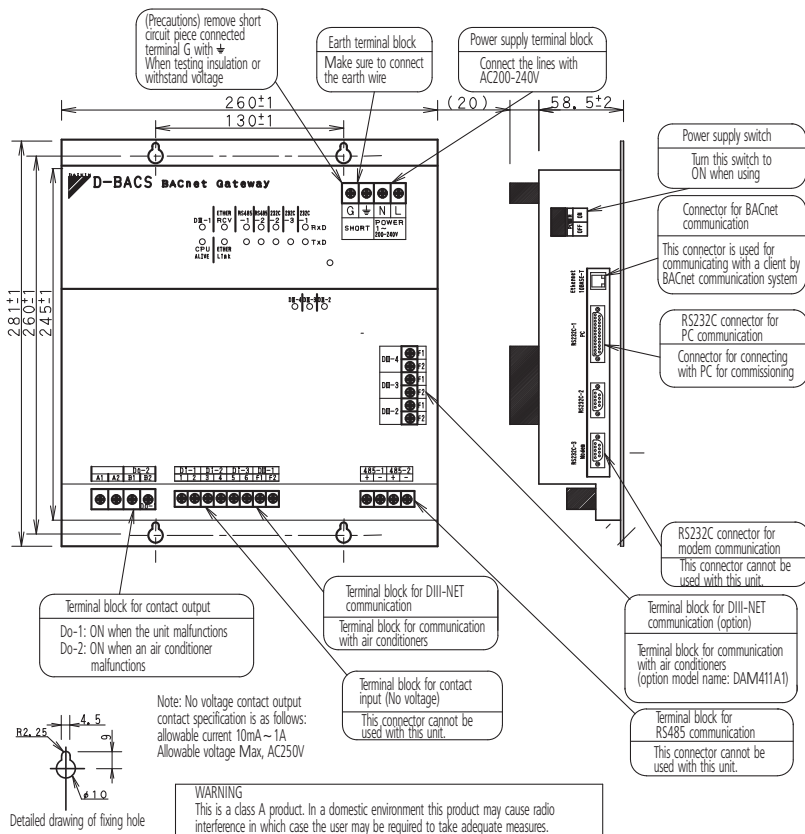
- This BACnet Gateway enables interfacing between the VRV system and central monitoring board.
- Data of up to 256 groups of air conditioner (when the option DIII board is used) are controllable by the BACnet Gateway.
- Air conditioners are operable and the state can be monitored from the central monitoring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

7-2 Main functions

The BACnet Gateway 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.

7-3 Names and functions of each part



LED display

CPU ALIVE	It flashes when the unit is in normal operation.	RS232C-1 (RxD)	It flashes when it receives data from PC
DIII-1	It flashes when it receives/transmits data from/to the equipment connected with DIII-1 such as air conditioners	RS232C-1 (TxD)	It flashes when it transmits data to PC
Ether RCV	It flashes when it receives/transmits data from/to BACnet client	RS232C-3 (RxD)	This LED display cannot be used with this unit
Ether link	It lights when the 10BASE-T cable is connected	RS232C-3 (TxD)	This LED display cannot be used with this unit
RS485-1 (RxD)	This LED display cannot be used with this unit	DIII-2	It flashes when it receives/transmits data from/to the equipment connected with DIII-2 such as air conditioners
RS485-1 (TxD)	This LED display cannot be used with this unit	DIII-3	It flashes when it receives/transmits data from/to the equipment connected with DIII-3 such as air conditioners
RS485-2 (RxD)	This LED display cannot be used with this unit	DIII-4	It flashes when it receives/transmits data from/to the equipment connected with DIII-4 such as air conditioners
RS485-2 (TxD)	This LED display cannot be used with this unit		

7 Function

7-4 Major functions of air-conditioner devices (incl. adaptors) to be connected Air-Conditioning Equipment and Possible Functions

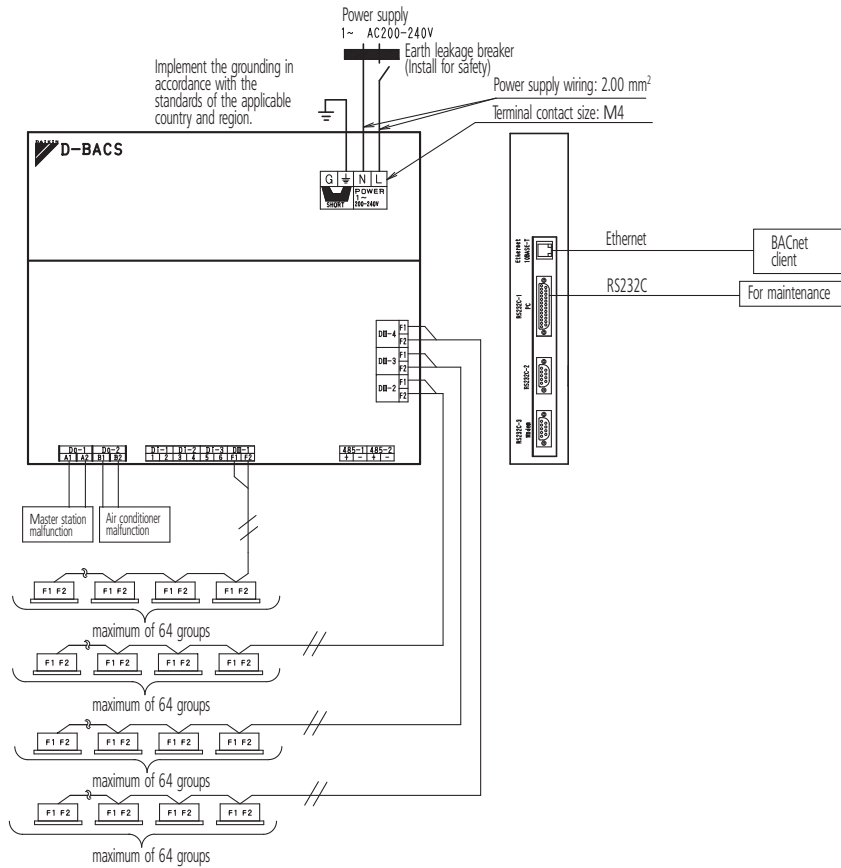
Function	Air-conditioning equipment				Remarks
	VRV Inverter series	Interface adapter for Sky Air series (SA Heat Pump)	HRV	Wiring adapter for other air-conditioners	
Start/stop control and monitoring	0	0	0	0	
Air-conditioner error notification	0	0	0	0	
Indoor air temperature monitoring	0	0	X	X	
Temperature 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, X are as follows
 0: Possible functions
 X: Impossible functions

8 Wiring and Setting Procedures

8-1 System Wiring



8-2 [DIII-NET master] setting

Make sure to connect the unit with [DIII-NET master].

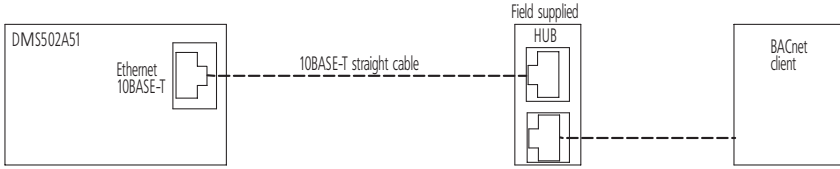
Remove the master central setting connectors of the centralised management controllers or ON/OFF controllers when using together with other centralised controllers such as centralised management controllers or ON/OFF controllers.

8 Wiring and Setting Procedures

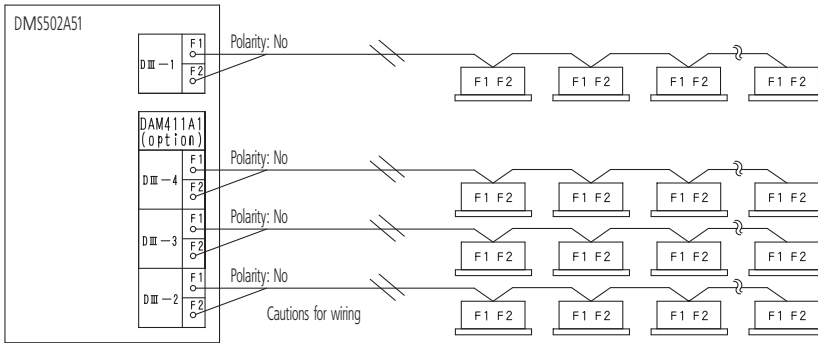
8-3 External wiring

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

8-3-1 Ethernet communication wiring



8-3-2 DIII-NET wiring



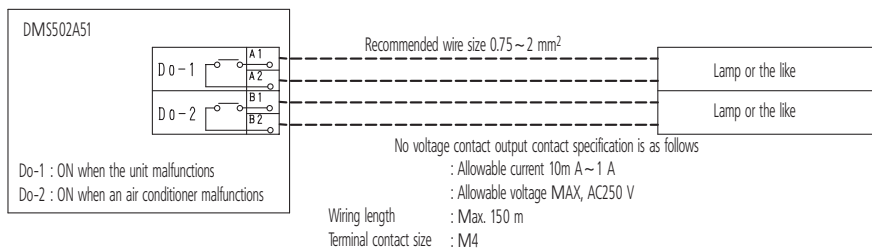
CAUTIONS

- 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.
- 6 Terminal contact size: M3.5

8 Wiring and Setting Procedures

8-3 External wiring

8-3-3 Do-1 and 2



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

Colors of the unit

Unit	Pantone 533C
Letters	Pantone 656C
Lines	Pantone 656C

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VRV™
Systems



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



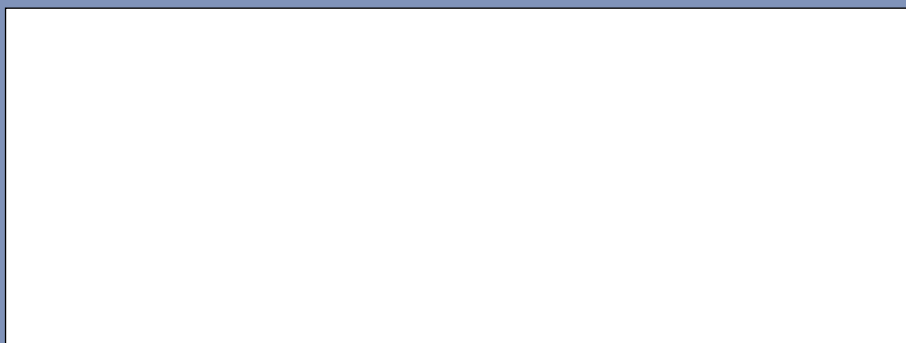
Daikin units comply with the European regulations that guarantee the safety of the product.



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

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

Specifications are subject to change without prior notice



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