DAIKIN

Daikin also has various other control devices to suit the specific sizes and conditions of A/C systems.

intelligent Manager III

The A/C management system that offers powerful functions, yet still gives simple navigation for any user.

DAM602B51·B52

intelligent touch Controller

Communication capabilities via a Web browser further expand air conditioning control possibilities.

DCS601C51

* RoHS Directive
The RoHS (Restriction of Hazardous Substances (in electrical and electronic equipment)) Directive is an environmental directive enacted to regulate the use of designated chemical substances (lead, cadmium, hexavalent chromium, mercury, polybrominated biphenyls and polybrominated diphenylether) in electrical equipment. All household products subject to this Directive and sold in Europe from July 1, 2006 are legally bound to comply with the RoHS Directive.

⚠ WARNING Using interface

1. Once a month, adjust the clock of the interface.

2. Daikin's unique P.P.D. system estimates the power consumption of each individual indoor unit based on data communicated from indoor units and compared to the power consumption of an air conditioning installation with a standard setup. Note that P.P.D. is not a "gauge" adapted to the methods of measuring power consumption in each country. All countries differ in the ways tenant billing systems are implemented depending on their respective legal systems. Data obtained by P.P.D. is for reference only and should not be used for official financial transactions.

● DAIKIN is the first manufacturer (Vendor ID53: Nov 15, 1999) whose VRV System has been officially approved as BACnet® compatible equipment.
● Catalog information is as of November 2006.
● BACnet® is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).
● LONWORKS®, LON® and LonTalk® are registered tradmarks of Echelon corporation.
● Ethernet is a registered trademark of Xerox corporation.

About ISO9001
ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.

About ISO 14001
ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

ISO 9001 JMI-0107
ISO 9001 JQA-1452
EC99J2044
ISO 14001 JQA-E-90108

Dealer

●Specifications, designs and other content appearing in this brochure are current as of November 2006 but subject to change without notice.   Printed on 100% recycled paper with soy ink.
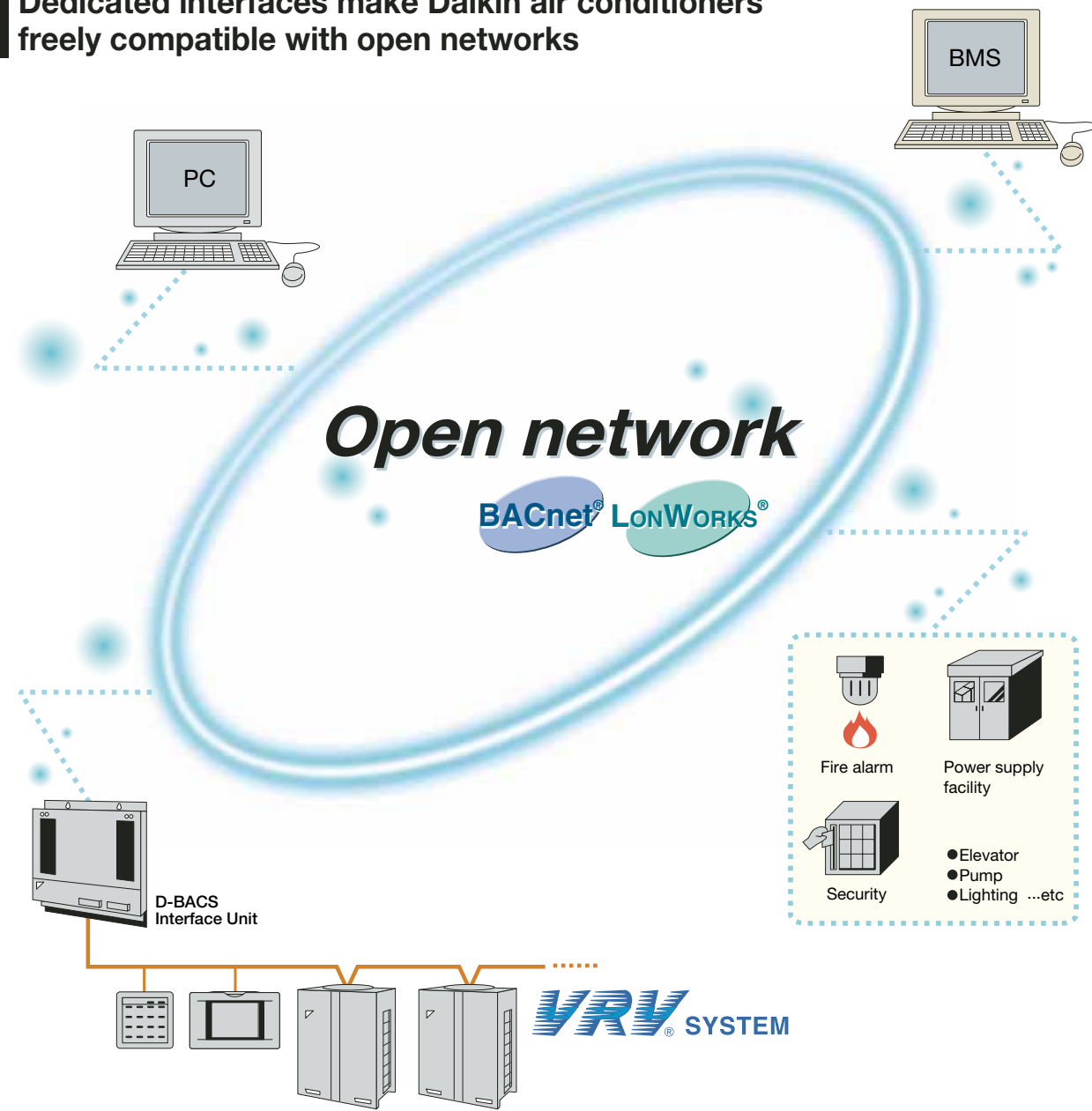
R100 PRINTED WITH SOYINK

VRV® SYSTEM Network Solution

The interface for connecting VRV to BACnet® or LONWORKS® protocols

DAIKIN INDUSTRIES, LTD.

Connect VRV to your BMS via BACnet® or LONWORKS® — using Daikin's integrated control system solutions.

Compatible with BACnet® and LONWORKS®, the two leading open network comunication protocols, Daikin offers interfaces that provide a seamless connection between VRV and your BMS.

Dedicated interfaces make Daikin air conditioners freely compatible with open networks

BMS

PC

Open network

BACnet® LONWORKS®

Fire alarm

Power supply facility

Security

● Elevator
● Pump
● Lighting ...etc

D-BACS Interface Unit

VRV® SYSTEM

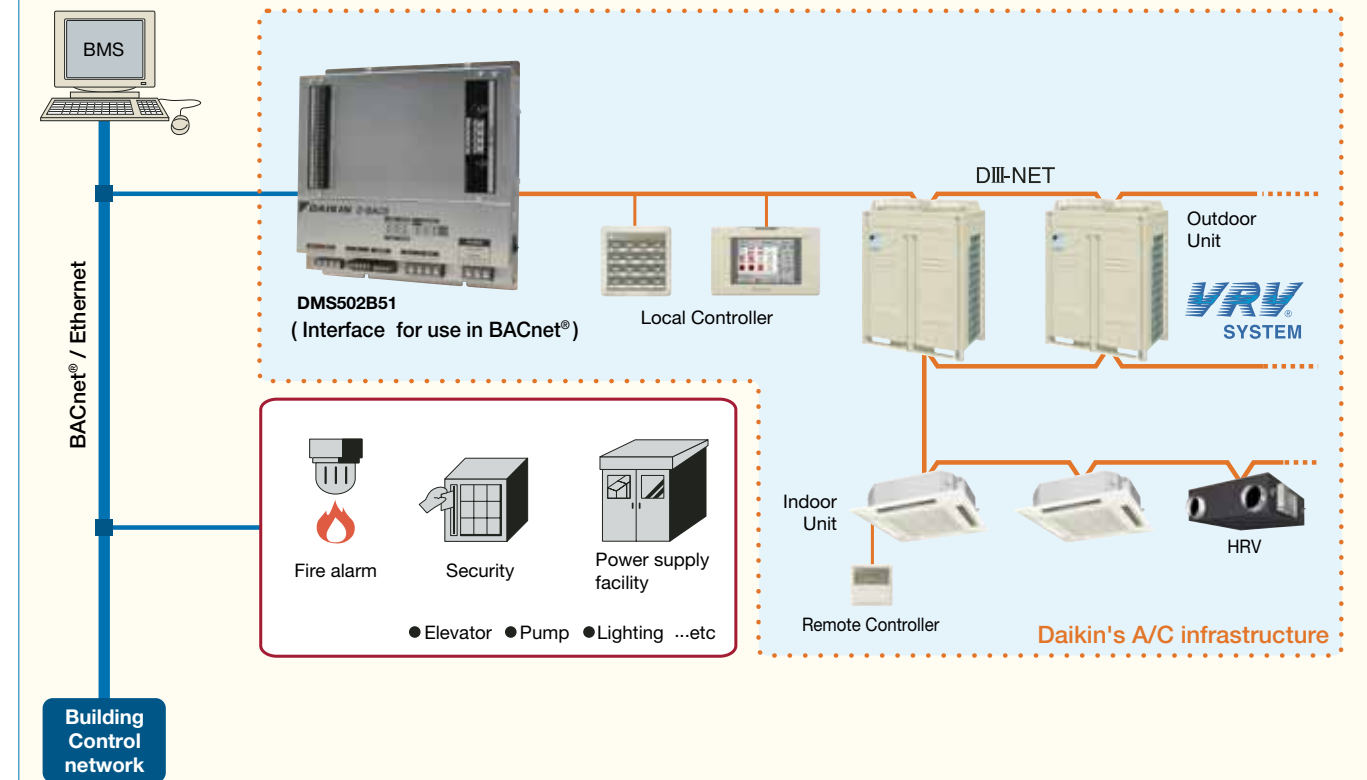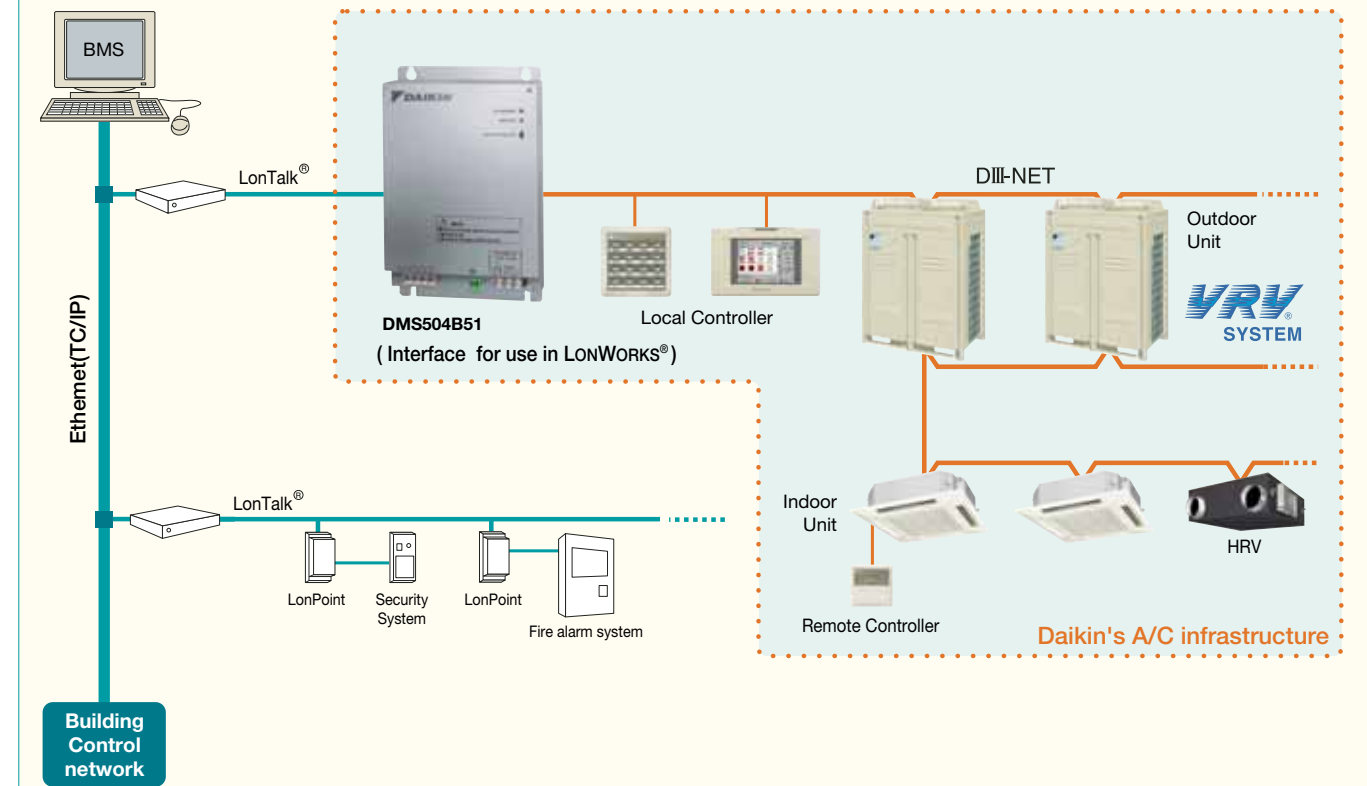| Air conditioning control systems can be realized with little equipment and lower costs. | Providing flexible control and monitoring capability that features linked operation with other systems. |
| Simple, direct connections make setup quick and easy. | Units can be added freely and easily to expand the number of control points. |
| Dedicated interfaces enhance VRV control. | Other systems such as those for fire and crime prevention can be easily interlocked with Daikin's unit. |

■ Typical BACnet® application

BMS

BACnet® / Ethernet

DIII-NET

DMS502B51
(Interface for use in BACnet®)

Local Controller

Outdoor Unit

VRV SYSTEM

Fire alarm   Security   Power supply facility

● Elevator ● Pump ● Lighting ...etc

Indoor Unit

HRV

Remote Controller

Daikin's A/C infrastructure

Building Control network

Daikin air conditioning and control systems help you set up an open network.

■ Typical LONWORKS® application

BMS

Ethernet(TC/IP)

LonTalk®

DIII-NET

DMS504B51
(Interface for use in LONWORKS®)

Local Controller

Outdoor Unit

VRV SYSTEM

LonTalk®

LonPoint   Security System   LonPoint   Fire alarm system

Indoor Unit

HRV

Remote Controller

Daikin's A/C infrastructure

Building Control network

Seamless connection between **VRV**® and BACnet® open network protocol.

Functions of operating system version 3.0
(Providing interface from BACnet® to VRV.)

COV-Change of value
With the new O.S. the change of an object can be automatically read by the BMS without having to constantly scan regularly for any change.

Property array index (Reading of objects)
This is used for objects such as Schedule Object that uses the Property Array included in the device object. The reason why this is sometimes required is so that registration of objects can be done automatically and manual input is not necessary. The "Object_List" of the device can be read automatically with this index therefore reducing engineering time of programming the indoor units into the BMS.

Segmented requests
Is the function, which transmits separately two or more packets, when number of data exceeds one packet size.
In the case where there are a large number of indoor units the response is in the "read property request" and the return data is segmented.

PPD data NEW
The transmission of VRV PPD (power proportional distribution) data is possible by BACnet communication for BMS system.
＊Optional Di board (DAM412B51) is required it for the PPD system.

ISO 16484-5 NEW
Support BACnet/IP in accordance with ISO16484-5(Building automation and control systems. Data communication protocol) for BACnet.
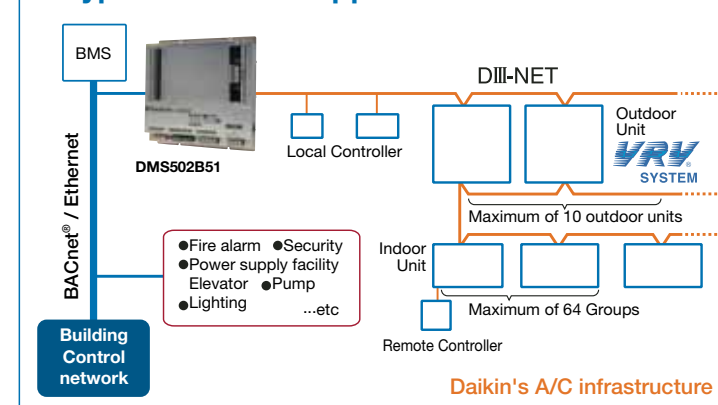Note:Does not support IEEE802.3 protocol for BACnet.

RoHS compliant NEW
We have been making efforts to facilitate the transition to using RoHS Directive-compliant.

*Refer to the back cover for details about the RoHS Directive.

■Typical BACnet® application

BMS

DⅢ-NET

DMS502B51

Local Controller

Outdoor Unit
VRV SYSTEM

Maximum of 10 outdoor units

BACnet® / Ethernet

●Fire alarm ●Security
●Power supply facility
 Elevator ●Pump
●Lighting   …etc

Indoor Unit

Maximum of 64 Groups

Remote Controller

Building Control network

Daikin's A/C infrastructure

Caution : *To realize a seamless connection between both the BMS and Daikin's BACnet interfaces, it is crucial that you contact us prior to any project consideration.
*For a detailed list of BMS and compatibility specifications please contact your local distributor.

● BACnet® is a registered trademark of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

DMS502B51

DMS502B51 Specification
Daikin's interface unit for BACnet® communicates with BACnet® clients via BACnet® over ethernet. This unit provides information for VRV through BACnet® services.
Comformance Class - 3   Data Link Layer Option - ISO 8802-3,10 Base T

Specifications of Communication
Objects
Analog Input   Analog Value   Binary Input   Binary Output
Binary Value   Multistate Input   Multistate Output

Functionality
Monitoring   Commanding   Alarming

Monitoring and controlling of A/C
The items to monitor and control air conditioners from BACnet® communication as well as descriptions of each item are listed below.

	Function	Description
Monitoring	ON/OFF Status	Monitors ON/OFF status of the respective air conditioners.
	Alarm Sign	Monitors whether air conditioners are operating normally and, if not, sends out an alarm sign.
	Error Code	Displays error code specified by the respective manufacturer if an abnormality occurs in the system.
	Operation Mode	Monitors status of cooling , heating and ventilation operation.
	Room Temperature	Monitors room temperature and displays the actual room temperature.
	Filter Limit	Checks the limit of filters in use and monitors if there is a necessity to replace the filters.
	Thermostat Status	Monitors whether the thermostat in the air conditioner is operating properly.
	Compressor Status	Monitors whether compressors in outdoor units that are connected to the indoor units are operating properly.
	Indoor Fan Status	Monitors whether fans in the air conditioners are operating properly.
	Heater Operation Status	Monitors whether heaters in the air conditioners are operating properly.
	PPD data	Electric total power (number of indoor unit) as an object of accumulator.
Operation, Setting and Monitoring	ON/OFF Operation	Starts and stops the respective air conditioners and monitors control results.
	Operation Mode Setting	Sets the operation mode (cooling, heating, ventilation or auto mode) and monitors the setting results.
	Room Temperature Setting	Sets room temperatures of the respective air conditioners and monitors the setting results.
	Filter Limit and Reset	Checks whether there is a use limit for the respective filters and then resets the sign as necessary.
	Remote Control Operation Rejection	Sets the permission/rejection function of remote controllers in order not to allow operation control, such as ON/OFF, operation mode and room temperature, from the remote controllers.
	Sub Group Address Control Operation Rejection	Sets the control permission/rejection function of centralized devices (i.e., air conditioners in a sub group address) connected on the D -NET.
	Airflow Rate Setting Operation	Sets the airflow rate and monitors the setting results.
	Air Direction Setting Operation	Sets the air direction and monitors the setting results.
	System Forced OFF Setting Rejection	Upon receiving a Forced OFF Command, checks whether it is a normal reset or forced OFF and then operates as necessary.
	Forced Thermostat OFF Setting	Upon receiving a Thermostat OFF command, checks whether it is a rest or set and then monitors setting results.
	Energy Efficiency Setting	

Series and components

Hardware model name	DMS502B51	DMS502B51+DAM411B51 (Optional DⅢ expansion kit)
Max number indoor units	128	256 Per Gateway
Max number outdoor units	20	40 Per Gateway
BMS		Local Procurement

Specifications

Item	Description
Model name	DMS502B51(Interface for use in BACnet®)
Transmission	BACnet®/IP Conformance Class 3(ASHRAE135-1995) B-ASC(ASHRAE135-2001)
Rated power supply	Single phase AC 100 to 240 ±10% at 50/60Hz
Rated power consumption	Maximum 20W
Power supply fluctuation	±10% of the rated value
Operable temperature range	−10°C to 50°C
Storage temperature range	−15°C to 60°C
Operable ambient humidity	0 to 98%(No condensation)
Insulation resistance	50M or more by DC500 megohmmeter
Installation	Enclosed in electrical panel
Dimensions(W × H × D)	275 × 263 × 81.5(mm)
Weight	3.0kg

Optional DⅢ expansion kit

Item	Model name	DAM411B51
DⅢ Board	DⅢ Lines	2

Digital input port

Di (Forced off)	Imbedded in DMS502B51	4
Di (kwh meter connection for PPD)	Optional board (DAM412B51) is required.	12

Faciliting the network integration of VRV® and LONWORKS®

Open network integration

An all gateway for connection to LONWORKS® network equipment and building control system.

LONWORKS® networks are recognised worldwide as the de facto standard in the building control industry.

Systems are available for access control, energy management, fire/life, HVAC, lighting, and more.

Reduction in engineering and cost of wiring

The open protocol specification gives local system integrators complete design freedom.

Plus, the ability to combine individual items of equipment into a LONWORKS® network reduces the engineering time and costs required for wiring.
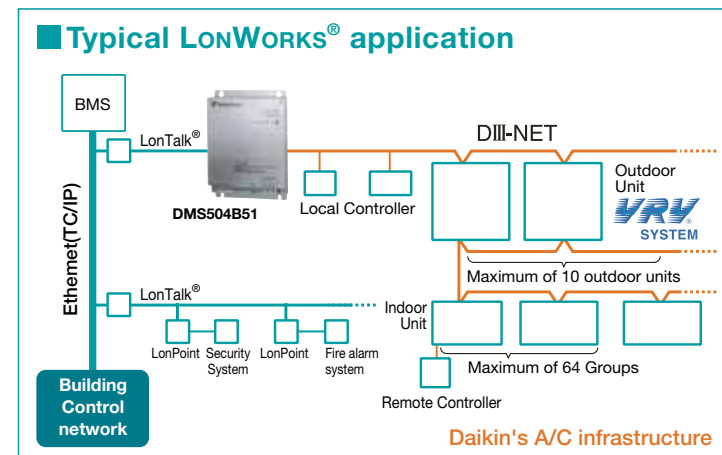
Connectable to up to 64 groups

This unit can be connected to up to 64 groups.
(This figure depends on the number of control and monitoring functions used.)
Please consult your Daikin representative for details.

A new hardware corresponding to RoHS compliance

We have been making efforts to facilitate the transition to using RoHS Directive-compliant.

*Refer to the back cover for details about the RoHS Directive.

■ Typical LONWORKS® application

Daikin's A/C infrastructure

● LONWORKS®, LON® and LonTalk® are registered tradmarks of Echelon corporation.

DMS504B51

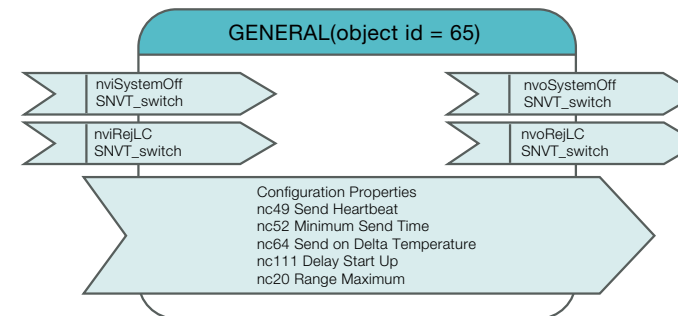---

Product description

▌DMS504B51 Specification

Protocol : LonTalk®
Transmission speed : 78 kbps
Topology : Free topology
Transmission medium : Twist pair

▌Network parameters

In parameter name, 'nn' refers to air-conditioning unit numbers 01 to 64. For 'NV' with 'nn' attached, a total of 64 NV have been prepared (one for each object).

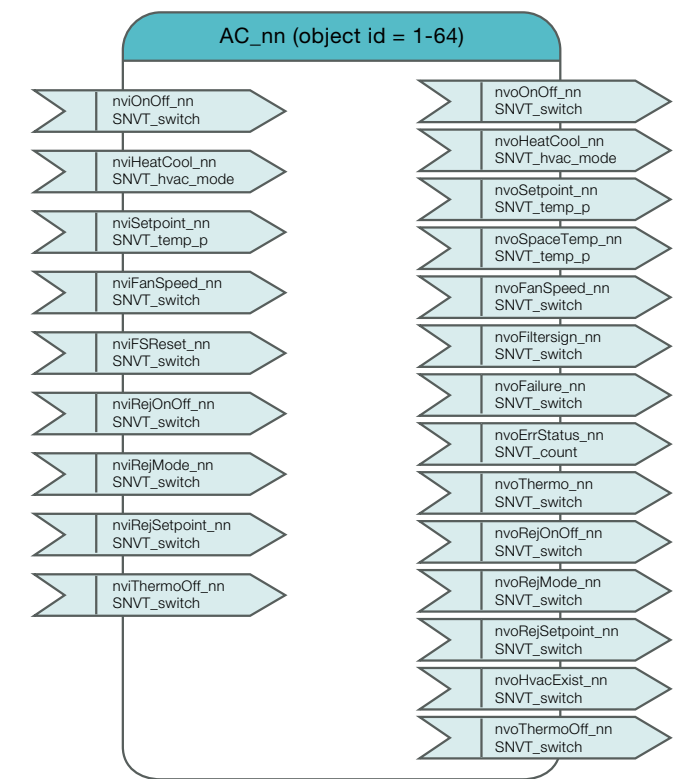### Network parameter chart
DIII-NET Common Objects

Air Conditioner Objects

It features objects for a group of 64 indoor units. As shown below, the object name and the last "nn" in the "nv Name" correspond with the DIII-NET location setting address.

Indoor Unit Location Setting Address	A/C Object	nv Name (Example)
1-00 - 1-15	AC_01 - AC_16	nviOnOff_01 - nviOnOff_16
2-00 - 2-15	AC_17 - AC_32	nviOnOff_17 - nviOnOff_32
3-00 - 3-15	AC_33 - AC_48	nviOnOff_33 - nviOnOff_48
4-00 - 4-15	AC_49 - AC_64	NviOnOff_49 - nviOnOff_64

▌Control and monitoring fanction

Controlling items	Monitoring items	
ON/OFF Command	ON/OFF Status Report	Remote Control Operation Mode Setting Rejection Report
Operation Mode Setting	Operation Mode Status Report	Remote Control Temperature Setting Operation Rejection Report
Temperature Setting	Temperature Setting Report	System Forced OFF Setting Report
Airflow Rate Setting	Room Temperature Report	Sub Group Address Control Operation Rejection Setting Report
Filter Sign Reset	Airflow Rate Setting Report	A/C Communication Status Report
Forced Thermostat OFF Setting	Filter Sign Report	
Remote ON/OFF Control Rejection	Error Status Report	Each item controlled or monitored by the control and monitoring function is subject to a variety of restrictions that are not described here due to space limitations. For details, contact your DAIKIN distributor.
Remote Operation Mode Control Rejection	Error Code Report	
Remote Temperature Setting Control Rejection	Thermostat Status Report	
System Forced OFF Setting	Forced Thermostat OFF Setting Status Report	
Sub Group Address Control Rejection Setting	Remote ON/OFF Operation Rejection Report	

▌Specifications

Item	Description
Model name	DMS504B51(Interface for use in LONWORKS®)
Transmission	LONWORKS® FT-X1 (Free topology 78kbps)
Rated power supply	Single phase AC 100 to 240V 50/60Hz
Rated power consumption	Maximum 5W
Contact input	Use no voltage contact (Forced off) minimum application load DC16V and 10mA
Operable temperature range	-10 to +50°C
Storage temperature range	-20 to +60°C
Operable ambient humidity	0 to 95% (No condensation)
Insulation resistance	50M or more by DC500 megohmmeter
Installation	Enclosed in electrical panel
Demensions(W × H × D)	168 × 260 × 50(mm)
Weight	1.5kg