



INTELLIGENT
TOUCH MANAGER™
ONE FOR ALL
ADVANCED MULTI-ZONE CONTROLLER



intelligent Touch Manager™ 2+

The intelligent Touch Manager (*iTM*) is an advanced multi-zone controller that controls and monitors the Daikin VRV system. The *iTM* can also provide a cost-effective mini Building Management System (BMS) solution to integrate

and control third-party devices through optional software and hardware. If a BMS already exists, the *iTM* can be used as a BACnet® gateway interface for BMS integration with *iTM* BACnet Server Gateway Option.

Easy Operation and Configuration

- » Intuitive user interface with 10.4" LCD touch screen
- » Flexible screen views includes the icon view, list view and layout view for system configurations
- » Easy engineering with use of the Preset Tool and USB port

Advanced Control Logic

- » Independent Cool and Heat setpoints or Single setpoint in the occupied period
- » Independent Setback setpoints in the unoccupied period
- » Weekly Schedule with Optimum Start and Timed Override
- » Auto Changeover with configurable methods

Facility Management and Billing

- » Remote Web access
- » Automatic Error and Alert emails
- » Tenant Billing with the *iTM* PPD option

Mini BMS Solution with Software and Hardware Options

- » Interlock and Emergency Stop for facility management
- » DI, DO, AI, AO points integrated via the WAGO® I/O System

- » BACnet points (AI, AO, AV, BI, BO, BV, MSI, MSO, MSV) integrated with the *iTM* BACnet Client Option
- » DI and DO points integration via DIII-Net connected DI and DIO units

BACnet Server Gateway Option

- » Direct connection to the VRV system using the *iTM* as a gateway
- » Individual device ID assigned to each indoor unit group and outdoor unit
- » Seamless control logic integration between the *iTM* and BMS
- » Greatly reduces the need for BMS integrator programming

Built-in Service Tool with Remote Access

- » Operation data are stored in the *iTM* for the last 5 days:
 - Indoor unit and outdoor unit operation data
 - BACnet Client objects
 - WAGO I/O system data
- » Operation data can be exported through a USB drive or through the *iTM* web browser remotely
- » BMS can monitor the BACnet objects of indoor unit and outdoor unit operation data with the BACnet Server Gateway Option activated



EASY OPERATION AND CONFIGURATION

The easy to understand icon and intuitive menu will enable even a novice user to be proficient in managing the VRV system.



List



[List view] Designed for simplicity, List View provides a quick view of overall status and essential information in a list format. Using the sorting function, the indoor units operating under the same conditions and status are identified for comparison and assessment.



ON



Filter sign



OFF



Error

[Icon view]



Area / Unit Detailed Settings



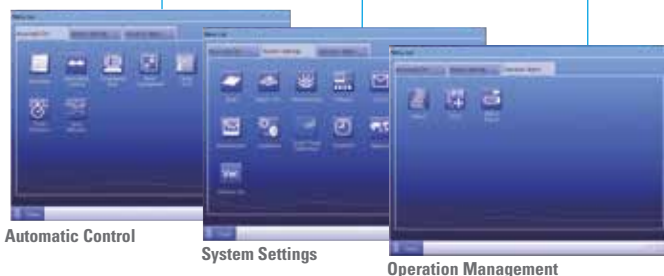
Layout View



[Layout view] A special feature utilizes building floor plans to provide a visual representation of system equipment.

The users can visually locate any installed equipment on the floor plan without having to memorize equipment names.

Icon menus for configurations



Automatic Control

System Settings

Operation Management

Easy Engineering

The system configuration can be done through the Preset Tool off-site then imported to the *iTM* via the USB port at the site. This feature makes engineering easier and more manageable.



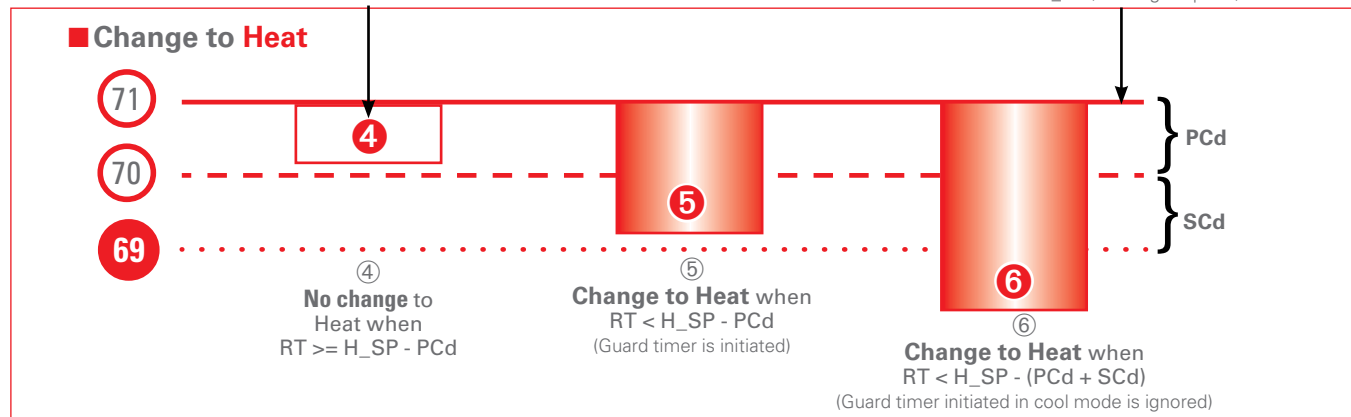
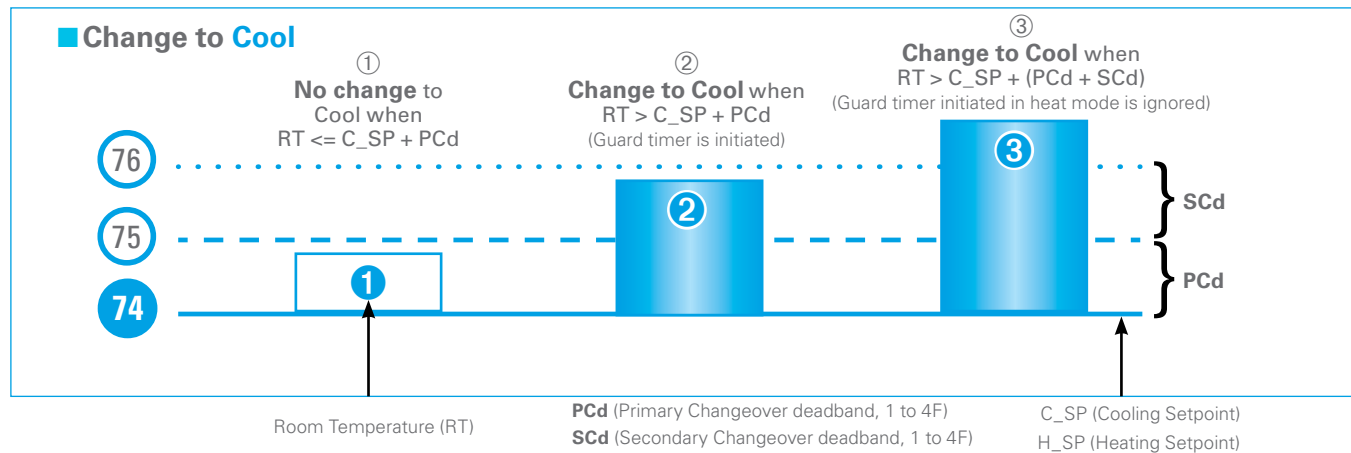
AUTO CHANGEOVER

The *iTM* extends the Auto Changeover capabilities based on cooling or heating demand.

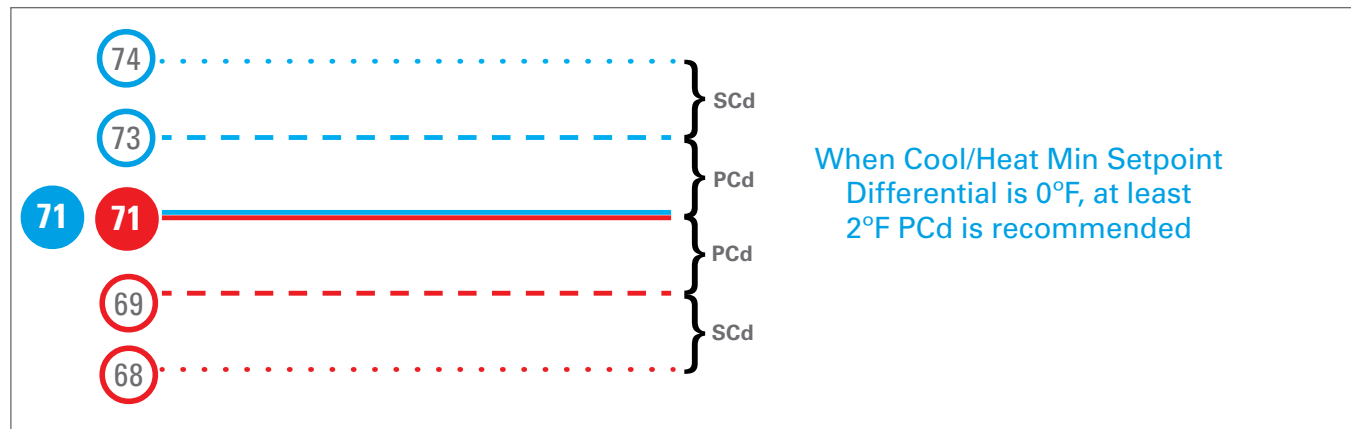
The changeover is evaluated by how much the room temperature has deviated from the cooling or heating setpoint. For example, when the room temperature

exceeds the primary changeover deadband from the cooling setpoint, *iTM* initiates a change from the heating mode to the cooling mode.

The changeover deadbands can be configured to the minimum of 1°F or to a maximum of 4°F.



- » The guard timer prevents another changeover for 15, 30 or 60 minutes (configurable).
- » When the setpoint is changed manually or by the schedule, the guard timer is not active.

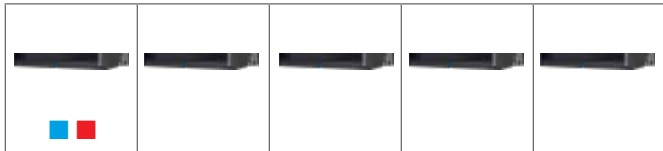


AUTO CHANGEOVER (CONT.)

Auto Changeover is applicable to both VRV Heat Pump and Heat Recovery system.

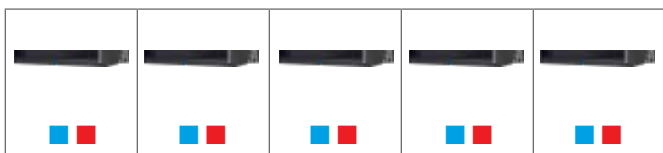
The *iTM* provides four changeover methods to meet a variety of expectations in your project. Fixed, Individual, Average or Vote methods can be specified in the changeover group with targeted indoor units as well as Primary / Secondary Changeover deadbands.

Fixed method



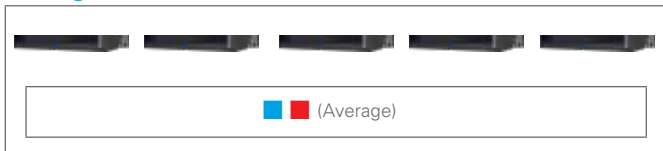
- » Changeover is evaluated with the representative indoor unit.
- » Changeover affects all indoor units.
- » Good for prioritizing the representative indoor unit for the Heat Pump system (or multiple units on the same port of the BS Box in Heat Recovery system).

Individual method



- » Changeover is evaluated with, and affects each indoor unit individually.
- » Good for Hotel / Nursing home application with the Heat Recovery system.

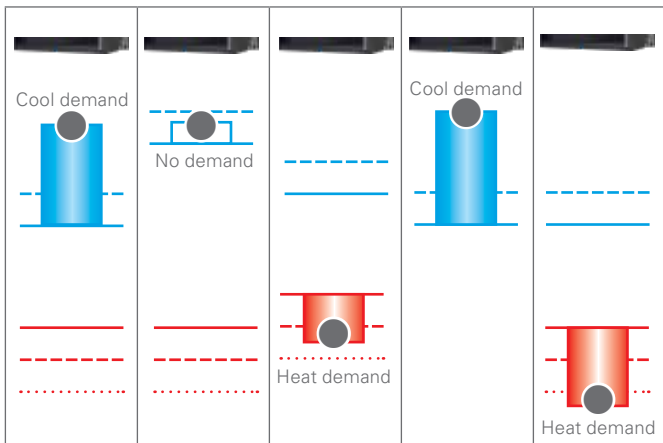
Average method (Weight 0 to 3 on each indoor unit is multiplied in averaging)



■ = Cool Mode ■ = Heat Mode

- » Changeover is evaluated with the average of room temperature and setpoints.
- » Changeover affects all indoor units.
- » Good for Open office application with Heat Pump system (or multiple units on the same port of the BS Box in Heat Recovery system).

Vote method (Weight 0 to 3 on each indoor unit is multiplied for the demand)



- » Option available for heating override if there is an indoor unit which the heating demand exceeds $(H_SP - (PCd + SCd))$

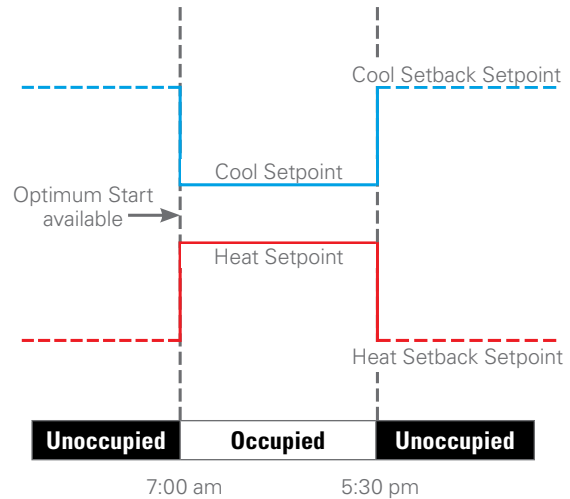
- » Changeover is evaluated based upon total cooling demand and total heating demand. If the total cooling demand is greater than the total heating demand (like the figure left), the *iTM* changes the indoor units in the changeover group to cooling mode.
- » When the changeover group is in cooling mode the total cooling demand will be decreased, at that point the total heating demand may become greater than the cooling demand and change the mode to heating (a guard timer applies).
- » The setpoints can be different in each indoor unit within the changeover group. The demand is calculated based on the setpoints in comparison to room temperature for each indoor unit. The demand within the Primary Changeover deadband (PCd) is considered as no demand.
- » Good for the Heat Pump system (or multiple units on the same port of the BS Box in Heat Recovery system) as pseudo simultaneous cooling and heating operation.
- » A weight (0-3) can be added to each indoor units demand in the changeover group. The default is 1.

SCHEDULE

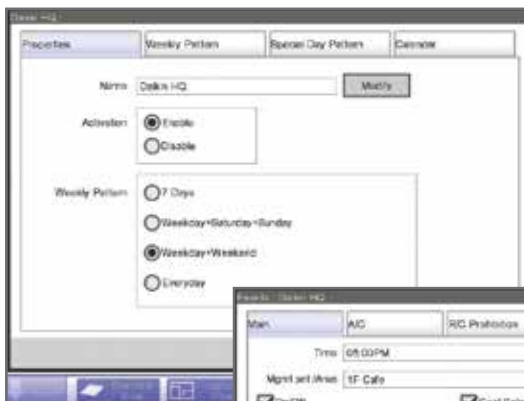
Weekly Schedule with dual setpoints for the occupied period and Setback setpoints for the unoccupied period provides year round schedule programming.

- » Up to 100 schedule programs can be created with up to 20 events per day.
- » 7 day, 5+2 (Weekday + Weekend), 5+1+1 (Weekday + Saturday + Sunday), 1 (Everyday) weekly patterns are available with Annual scheduling that provides 5 special day programs for holiday scheduling or events outside the weekly schedule.
- » Special day programming can be specified on calendar as a specific day (like Jan 1st) or a floating day (like 1st Monday in September).
- » Timer Extension offers 30 to 180 minutes (configurable) Override in the unoccupied period.
- » Optimum Start insures the room temperature achieves setpoint at the scheduled event time.
- » Daylight Savings Time (DST) setting automatically adjust the *ITM* clock to insure schedule times are met.

Typical Weekday Office Schedule



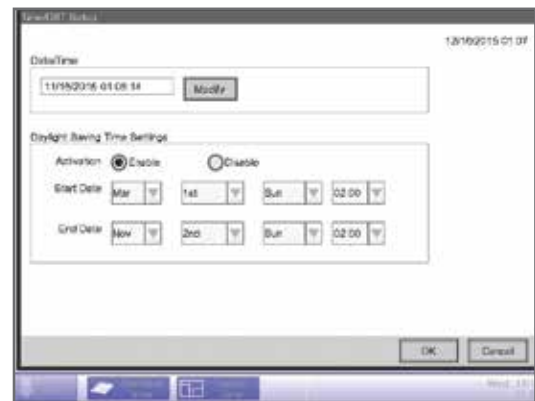
Weekly Patterns



Schedule Event



Daylight Savings Time



Special Day

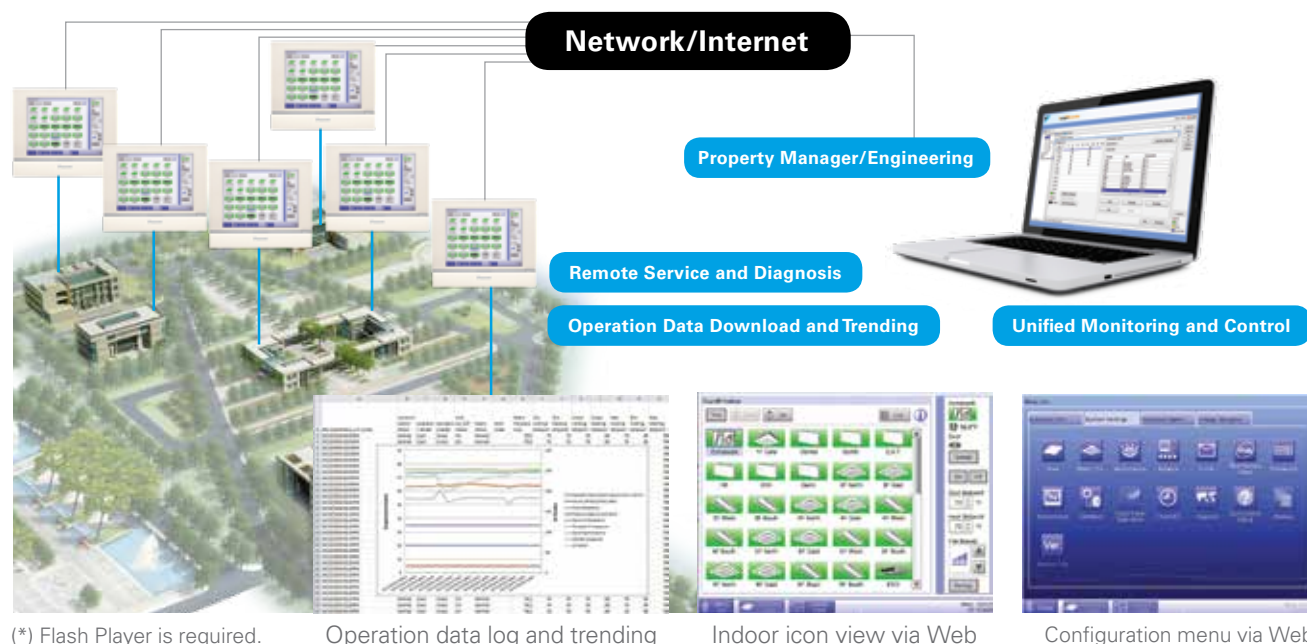


REMOTE MONITORING/DIAGNOSIS

- » The Web function enables remote management for the Daikin VRV system with other general equipment integrated into the *iTM* so they can be accessed from your PC.
 - Up to 4 administrators and 60 general users can be registered.
 - Screens and operation accessible to general users can be restricted.
- » *iTM* 2+ is now a powerful remote service tool. Operation data stored in the *iTM* for the last 5 days can be downloaded through Web function. Trend graphs of the system operation can be created based on the downloaded data log. Service technicians can analyze

and diagnosis system before go to the job site. This feature will provide the Service Technician a view into the VRV system operation and performance prior to a maintenance issue occurrence.

- » Automatic Alert/Error e-mail enables prompt response by service personnel based on timely and precise knowledge of what happened in the system at the remote site.
 - Up to 10 e-mail addresses can be set.
 - The SMTP server authentication method is selectable from no authentication, POP before SMTP, and SMTP-AUTH.



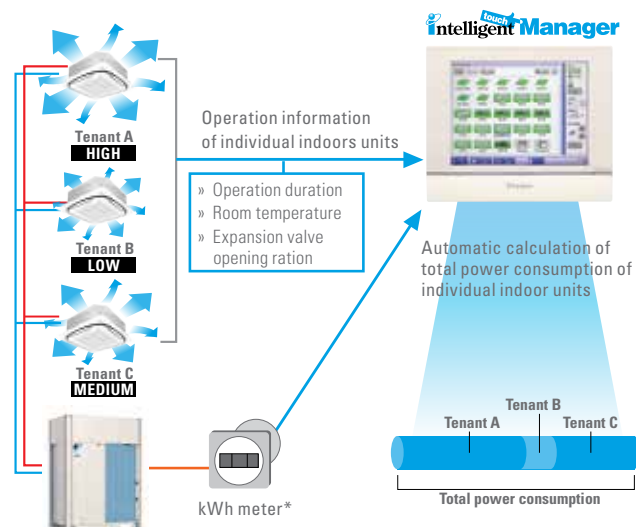
Tenant Billing (PPD Option)

The *iTM* PPD (Power Proportional Distribution) option records all the operation duration, room temperature, electronic expansion valve opening ratio data, etc. Based on the recorded data, the energy consumption of the VRV system is proportionally calculated for each indoor unit. The calculated data can be used for tenant billing.

Easy to output PPD data

PPD data can be downloaded in CSV format to a PC or USB flash drive.

- » Output data can be customized using the PPD Calculation Tool



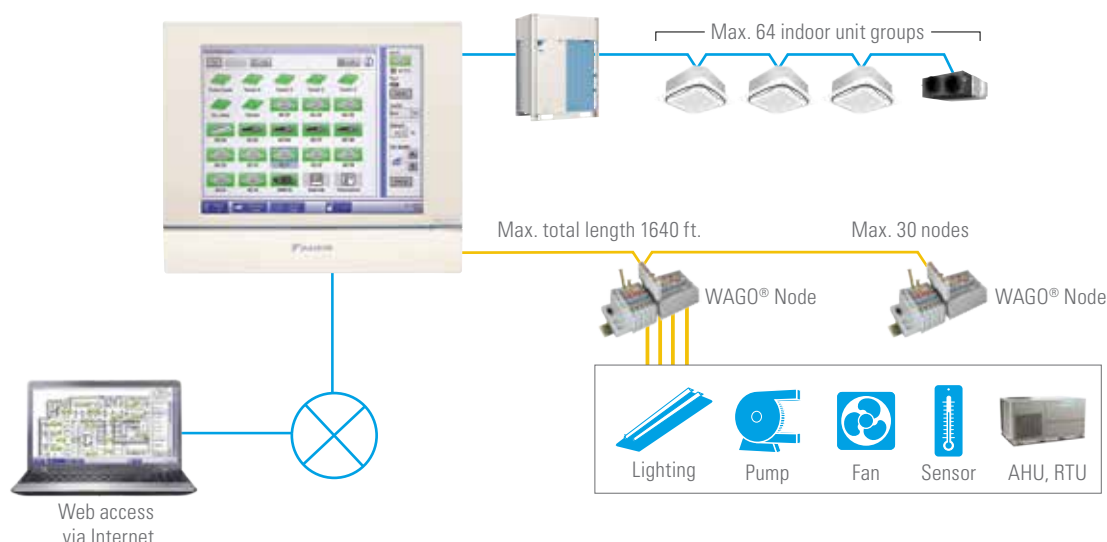
* Pulse power meter that provides an output of 1 pulse per 1 kw and has a width of 40-400 milliseconds.

INTEGRATION OF GENERAL EQUIPMENT

General equipment can be integrated with the *iTM* by using the *WAGO* I/O modules. The general equipment can be monitored and controlled via interlock/stand alone, manual operation, schedule and Web function. The *WAGO* I/O Modules provide Digital Inputs (Di) for monitoring equipment status and alarms, Digital Outputs (Do) for On/Off control, Analog Outputs (Ao) for step control of

fan speeds and damper opening and Analog Inputs (Ai) for temperature, humidity and CO₂ monitoring.

- » ON/OFF operation and status monitoring
- » Get Alert/Error e-mail upon malfunction
- » Manage with remote accessibility



Interlock Variety

The *iTM* offers monitoring and control that extends beyond simply starting and stopping connected units. It also enables the *iTM* to control the HVAC and ancillary equipment through interlock control such as occupancy control and demand response ventilation.

HVAC interlock based upon room occupancy status

Key control systems and occupancy sensors are employed to detect room occupancy status and automatically perform setback or stop operations for unoccupied rooms depending on settings.



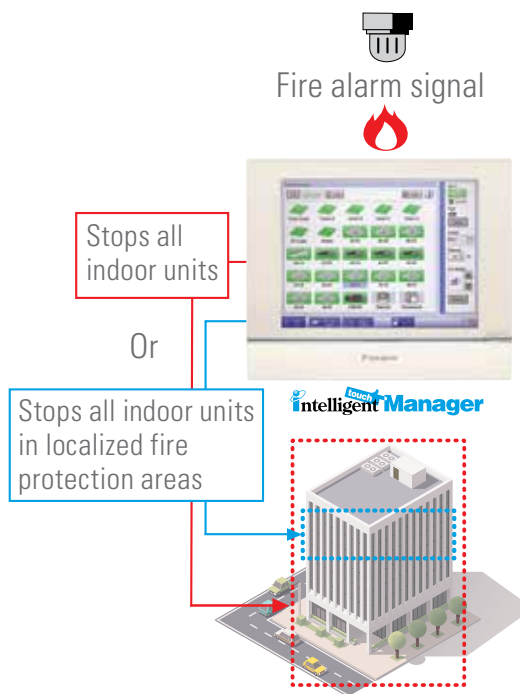
Ventilation control

Ventilation equipment is controlled depending on the indoor CO₂ levels. Air conditioning losses attributed to unnecessary ventilation are reduced while maintaining appropriate indoor air quality and enabling energy savings.



Emergency stop for localized fire protection areas

The *iTM* offers options to select areas or the whole system to interlock with the fire alarm system and to perform an emergency stop.



MINI BMS SOLUTION WITH THE BACNET® CLIENT OPTION

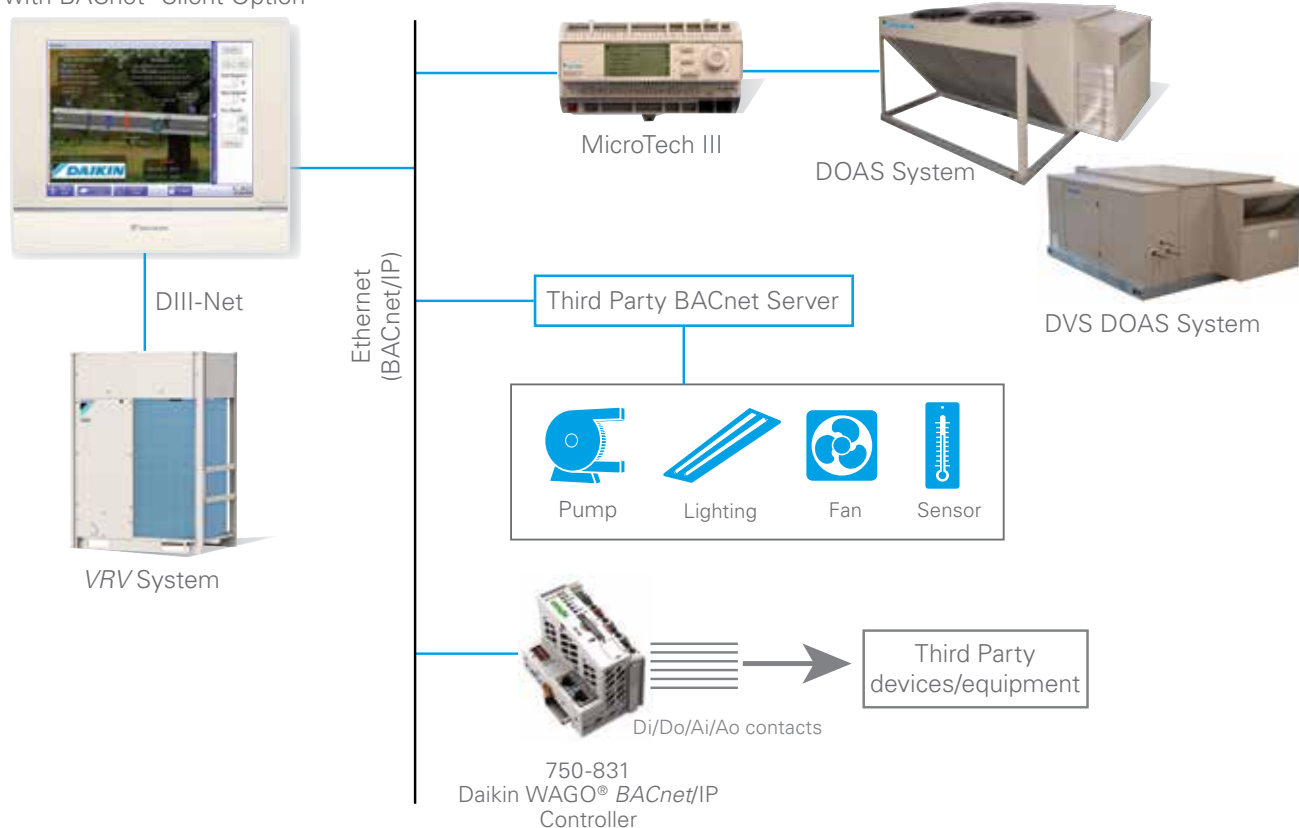
DCM009A51 - BACnet® Client Option

The *iTM* offers an advanced and cost-effective solution for Building Management Systems (BMS) applications. The *iTM* BACnet Client Option (DCM009A51) provides more flexibility to enhance the *iTM*'s function as a mini BMS. With this option, the *iTM* is able to manage DOAS systems and other third party equipment through the BACnet/IP protocol. By registering equipment connected to a BACnet server as management points in the *iTM*, you can now monitor and control the equipment via the *iTM*.

Features and Benefits:

- » Cost-effective BMS solution
- » Direct connection on *iTM* using the BACnet/IP Protocol
- » Integrated control on Daikin VRV system and Daikin Applied System
- » Monitors and controls third party equipment
- » Easy commissioning with pre-engineering Preset Tool
- » Easy monitoring with preconfigured GUI

intelligent Manager
with BACnet® Client Option



Object Types

- » Analog Input, Analog Output, Analog Value
- » Binary Input, Binary Output, Binary Value
- » Multi-State Input, Multi-State Output, Multi-State Value

Applications

- » Simple I/O: Sensor, Pump, Light, Fan
- » Multi-State Objects: AHU, Alarm, Elevator
- » The *iTM* can integrate with the WAGO BACnet/IP Controller (750-831) using the BACnet Client Server Option

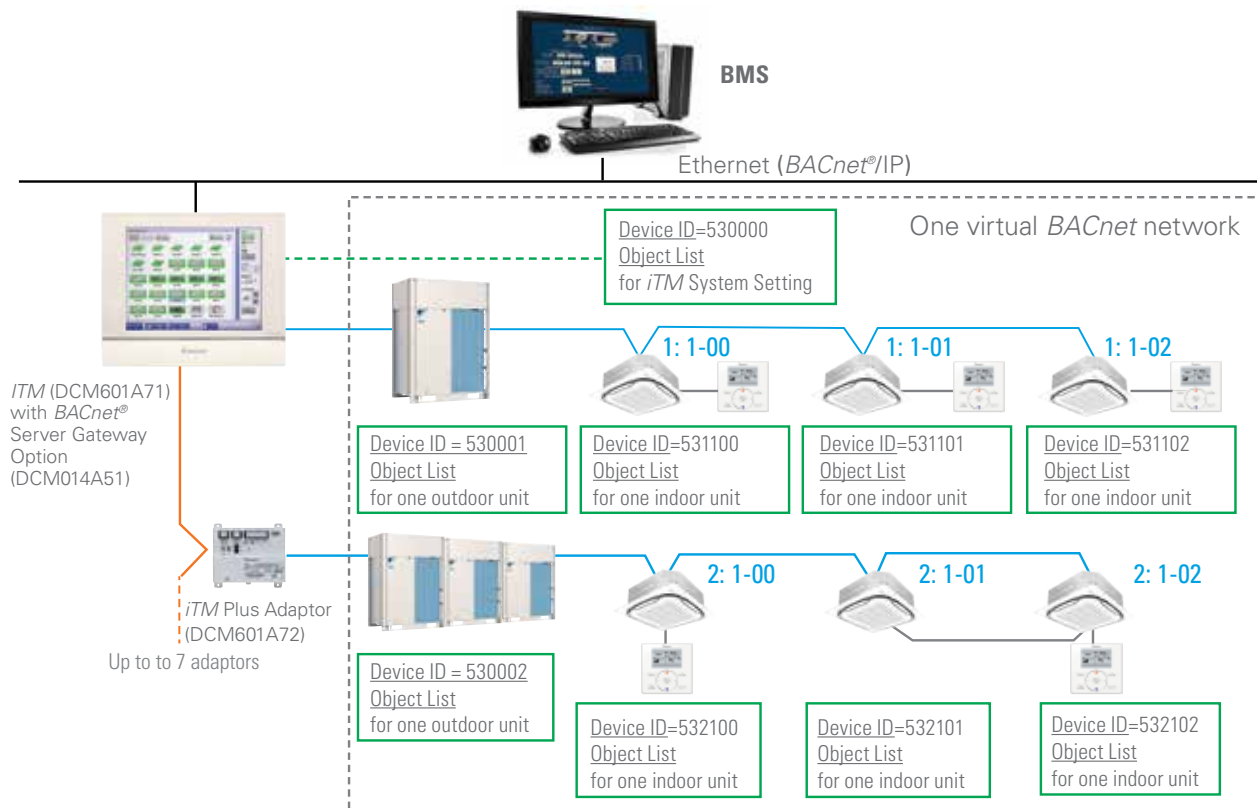
ADVANCED BMS INTEGRATION SOLUTION WITH THE BACNET® SERVER GATEWAY OPTION

DCM014A51 - iTM™ BACnet® Server Gateway Option

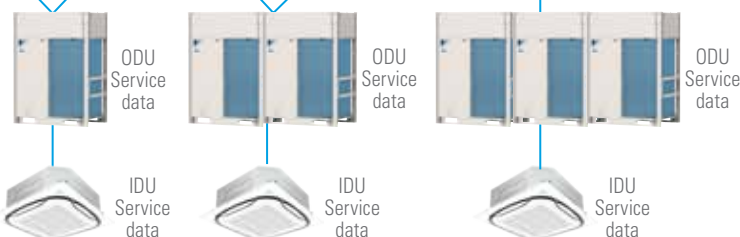
The intelligent Touch Manager™ is capable of serving as a *BACnet* interface for Building Management System (BMS) integration. With the *iTM* *BACnet* Server Gateway Option (DCM014A51), the *iTM* provides BMS integrators with the ability to monitor and/or control the VRV indoor and outdoor units, eliminating the need for an additional hardware interface. Moreover, with the latest software update to the *iTM* 2+ (v2.07), the *iTM* is able to serve as a service tool to access indoor and outdoor unit operation data. With the *iTM* *BACnet* Server Gateway Option, the operation data points for both the IDU (indoor unit) and ODU (outdoor unit) are also available to the BMS through *BACnet*.

Features

- » Additional service data points are now available*:
 - 6 new IDU service data points
 - 9 new common ODU service data points and 22 new service data points for each ODU module
- » Direct connection on *iTM* using the *BACnet*/IP Protocol
- » ***BACnet* virtual router** function implemented:
 - **Individual *BACnet* device ID** assigned to each indoor unit group address and each outdoor unit
 - Indoor unit group names created in the *iTM* are visible on the BMS
- » Easy commissioning using CSV file
 - Available objects can be configured for each indoor unit
- » Supports Change of Value (COV) notifications to the BMS
- » Configurable as a *BACnet* foreign device if a BBMD exist on a different subnet within a *BACnet* network
- » **Independent heating and cooling setpoints** for occupied and unoccupied periods
- » Individual min/max **Setpoint Range Limitation** for heat and cool modes
- » The *iTM*'s **auto changeover, setpoint range limitation, setback, dual setpoint** logic and **schedule** can be accessed by the BMS
- » Up to 128 Device IDs (including both indoor units and outdoor units) and up to 4000 *BACnet* objects can be monitored and controlled by BMS.
 - When the IDU/ODU operation data is enabled a total of 128 devices and 4000 *BACnet* points are available
- » Up to 7 *iTM* Plus Adaptors can be connected to an *iTM* for a total of 8 DIII-Net ports



Powerful Service Tool with Indoor and Outdoor Unit Operation Data Points



- » When a problem occurs, the BMS integrators and Service Technicians can start troubleshooting immediately before going to the site.
- » Indoor and outdoor operation data trending* by BMS can benefit the VRV service process.

*BMS programming needed

Enhanced BMS Integration Solution for Indoor Unit Operation



Individual Device instance number for each indoor unit (Configurable)

Device ID (1:1-00) = 531100 Device ID (1:1-01) = 531101

Object instance number repeated for every indoor unit point

Occupancy Mode = MO 1 (All indoor units)
Unit On Off Status = BI 2 (All indoor units)

Advanced *iTM* BACnet Server Gateway Points



BMS

iTM System Settings	Enable/disable iTM schedule operation		Schedule	iTM Control Logic
	Enable/disable iTM auto changeover operation		Auto Changeover	
	Timed override minutes		Timer Extension Minutes	
	System forced off		Emergency Stop	
Indoor Unit Operation and Monitoring	Occupancy mode (occ, unocc, standby)		On/Off	
	Occupied cooling and heating setpoint		Occupied Dual Setpoint	
	Unoccupied cooling and heating setpoint		Setback Setpoints	
	Maximum and minimum cooling setpoint			
	Maximum and minimum heating setpoint		Setpoint Range Limitation	
	Minimum cooling and heating setpoint differential		Min. Cool/Heat SP Differential	
	Cooling and heating setpoint tracking mode		Setpoint Tracking Mode	
	Remote control prohibit		Remote Controller Prohibit	
	Timed override operation		Timer Extension	
	Current unit operation (off, normal, override, setback)		And more basic functions...	
	Forced indoor unit thermo-off		Advanced Indoor Unit Operation	
	Indoor unit changeover option availability			
	Indoor fan status			
	and more basic operation and monitoring points...			

Specifications

		INTELLIGENT TOUCH MANAGER™ (iTM)	iTM PLUS ADAPTER
Model		DCM601A71	DCM601A72
Power supply		AC 24V 60Hz	AC 24V 60Hz
Power consumption		23W maximum	23W maximum
Operating conditions	Surrounding temperature	32 °F to 104 °F	14 °F to 122 °F
	Humidity	15% to 85% RH (non condensing)	15% to 85% RH (non condensing)
Dimensions	H x W x D (inch)	9.57 x 11.42 x 1.97	5.87 x 6.30 x 2.41
Capacity	Max. number of indoor unit	64 addressed indoor unit groups (maximum 128 indoor units)	64 addressed indoor unit groups (maximum 128 indoor units)
	Max. number of outdoor unit	10	10
Interface	F1F2 (Daikin DIII-NET communication)	1	1
	100Base-TX (Ethernet communication)	1 (RJ-45)	-
	USB port (for flash memory drive)	1 (2 to 32 GB)	-
	RS-485 (for iTM Plus Adapter connection)	1 (2-wire polarity sensitive)	1 (2-wire polarity sensitive)
Input terminals	Di (Digital input for forced shutdown)	1	-
	Di/Pi (Digital/Pulse input)*	3	4
EMC certification		FCC Part 15 Class B	FCC Part 15 Class B

* Pulse input from kWh meter requirements: 1 pulse to 1kWh or 10kWh. Pulse width must be between 40-400 msec. Non voltage, normally open semi-conductor type.

Summary of Functions

CATEGORY	FUNCTION		REMARKS
Basic Functions	iTM Plus Adaptor		Maximum number of adaptors:7
	Management points		Maximum number of management points:650
			Maximum number of indoor unit management points:512
	Areas		Maximum number of areas:650
			Maximum area levels:10
	Language		English
	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	
Automatic Control	Schedule		Maximum number of programs:100 Up to 20 actions/day can be set
	Weekly Schedule		7 day, 5+2,5+1+1,and Everyday weekly patterns can be set
	Yearly Calendar		Special days can be specified by specific date or floating date Automatic DST adjustment
	Optimum Start		Ensure the room temperature is reached at scheduled start time
	Interlock		Maximum number of programs:500
	Emergency Stop		Maximum number of Programs:31
	Auto changeover		Maximum number of changeover groups: 512
	Temperature Range Limitation		Independent cooling and heating setpoint range limitation Set between 60-90 °F
	Timer Extension		Selectable from 36,60,90,120, and 180 minutes
	Setback		Independent heating and cooling setback setpoint Setback recovery temperature range:2-10°F
Data Control	History		Up to 500,000 events are recorded in history including malfunctions, operations, automatic control, and system information
	Operation data history		Operation data for every minute in the last 5 days are stored in iTM including indoor and outdoor operation data, BACnet Client management data points, and WAGO IO system data points
	Power proportional distribution		Up to 13 months of hourly power proportional distribution results are recorded CSV format data output are supported
Remote Access	Web access		Display the same type of screen as the iTM Up to 4 administrators and 60 general users can be registered Screens and operation accessible to general users can be restricted
	Operation data download		Operation data for every minute in the last 5 days can be downloaded from Web access
	Email Alert		Up to 10 email addresses can be set
System	Automatic Registration		Indoor units are automatically detected, and icons for respective models are automatically registered
	Security		Screen lock function are available Access restriction can be set for each general user
	Screen saver		Screen saver time can be set from 1-60 mins 3 patterns are available

Options for intelligent Touch Manager™

ITEM	MODEL	DESCRIPTION
Optional Software	DCM002A71	Power Proportional Distribution (PPD) ¹
	DCM009A51	BACnet® IP Client Option ²
	DCM014A51	BACnet Server Gateway Option ³
Interface Adapters	KRP928BB2S	For connection to Daikin Mini-Split system (connect to Indoor Unit)
Digital input (DI) unit	DEC101A51-US2	8 sets of operation status input and alarm input
Digital input/output (DIO) unit	DEC102A51-US2	4 sets of control output, operation status input and alarm input

¹ The power proportional distribution (PPD) feature supplies the user with a reasonably calculated apportionment of the total power consumption by the Daikin VRF system. Because input to the PPD includes measured pulses in the refrigerant system and because the VRF system includes a number of variables, including the operating temperatures and pressures, piping lengths, heat exchange rates, and so forth, no meter-type apportionment of individual user consumption can be made. However, the PPD feature provides an apportionment methodology that uses highly advanced technology and is applied to the many variables in the VRF system.

² BACnet IP Client Option can not be activated at the same time with BACnet Server Gateway Option.

³ iTM PPD option and iTM BACnet Client option are not compatible with the TM BACnet Server Gateway Option.

WAGO® I/O System

MODULE		PART NUMBER	DESCRIPTION
Basic Kit		60359653	Bus Coupler, Connector, 24 VDC Power Supply, and End Module
Digital Input	2 Channel DI	750-400	2 Channel Digital Input Module, 24 VDC
	4 Channel DI	750-432	4 Channel Digital Input Module, 24 VDC
	8 Channel DI	750-430	8 Channel Digital Input Module, 24 VDC
Digital Output	2 Channel DO	750-513/000-001	2 Channel Digital Output Module, without power jumper
	4 Channel DO	750-504	4 Channel Digital Output Module, 24 VDC
Analog Input	2 Channel AI	750-454	2 Channel Analog Input Module, 4-20 mA, Differential Inputs
		750-479	2 Channel Analog Input Module, ± 10 VDC, Differential Measurement Input
		750-461/020-000	2 Channel Analog Input Module, NTC 20k Ohm
	4 Channel AI	750-455	4 Channel Analog Input Module, 4-20 mA, single-ended
		750-459	4 Channel Analog Input Module, 0-10 VDC, single-ended
		750-464/020-000	4 Channel Analog Input Module, NTC 20k Ohm/ NTC 10k Ohm, configurable
Analog Output	2 Channel AO	750-554	2 Channel Analog Output Module, 4-20 mA
		750-550	2 Channel Analog Output Module, 0-10 VDC
	4 Channel AO	750-555	4 Channel Analog Output Module, 4-20 mA
		750-559	4 Channel Analog Output Module, 0-10 VDC
Internal System Power Supply		750-613	24 VDC Bus Power Supply Module, Required for use after every 32 contact points connected in a node
Passive Power Supply		750-602	24 VDC Power Supply Module, passive
Field Set Connection Module		750-603	Field Set Connection Module for 8 channel DI module

About Daikin:

DAIKIN

Daikin Industries, Ltd. (DIL) is a global Fortune 1000 company which celebrated its 90th anniversary in May 2014. The company is recognized as one of the largest HVAC (Heating, Ventilation, Air Conditioning) manufacturers in the world. DIL is primarily engaged in developing indoor comfort systems and refrigeration products for residential, commercial and industrial applications. Its consistent success is derived, in part, from a focus on innovative, energy-efficient and premium quality indoor climate and comfort management solutions.



ADDITIONAL INFORMATION

Before purchasing this appliance, read important information about its estimated annual energy consumption, yearly operating cost, or energy efficiency rating that is available from your retailer.

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DAIKIN

Our continuing commitment to quality products may mean a change in specifications without notice.

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