



ENERGY-INTELLIGENT™ TECHNOLOGY
HEATING AND COOLING SYSTEMS



01.16

Intelligent Touch Manager

INTELLIGENT TOUCH MANAGER
ONE FOR ALL
ADVANCED MULTI-ZONE CONTROLLER V2



Intelligent Touch Manager V2

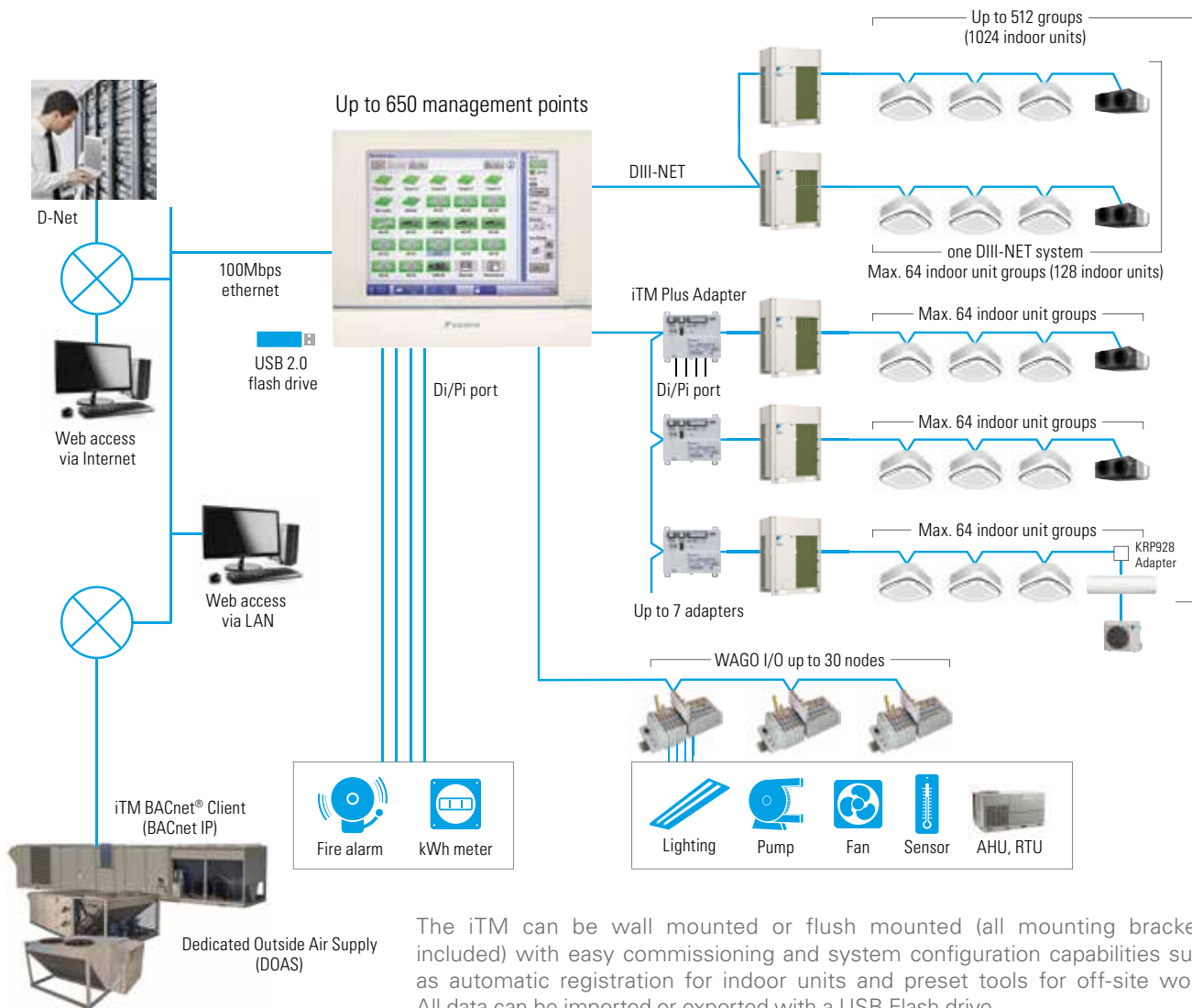


The intelligent Touch Manager (iTM) is an advanced multi-zone controller that provides a cost-effective way to control and monitor the Daikin VRV system.

The 10.4" LCD touch screen is easy to use with different screen views to include the floor plan layout view and icon menus for system configurations. It is also easy to use with standardized remote Web access from your PC. It can manage a total of 650 management points consisting of up to 512 Daikin indoor unit groups (up to 1024 indoor units) along with general equipment control/monitoring with Digital Inputs/Output (Di/Do), Analog Input/Output (Ai/Ao) and Pulse Input (Pi) optional devices. The iTM can also provide building control as a mini BMS controller using the BACnet® IP Client Function.

The new V2 software meets all of your control requirements such as

- Independent Cool and Heat setpoints or Single setpoint in the occupied period (when the unit is On)
- Independent Setback setpoints in the unoccupied period (when the unit is Off)
- Weekly Schedule with Optimum Start and Timed Override
- Auto Changeover with four configurable methods and a tighter changeover deadband (min 2°F)
- Fully accessible through Web; provides Alert and Error emails
- 0.1°F room temperature display and storage of up to 500,000 history items
- Interlock and Emergency stop for facility management



The iTM can be wall mounted or flush mounted (all mounting brackets included) with easy commissioning and system configuration capabilities such as automatic registration for indoor units and preset tools for off-site work. All data can be imported or exported with a USB Flash drive.

You will find this truly a ONE for ALL...Advanced Multi-Zone Controller

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.

[Icon view]



ON



Filter sign



OFF



Error



Area / Unit Detailed Settings



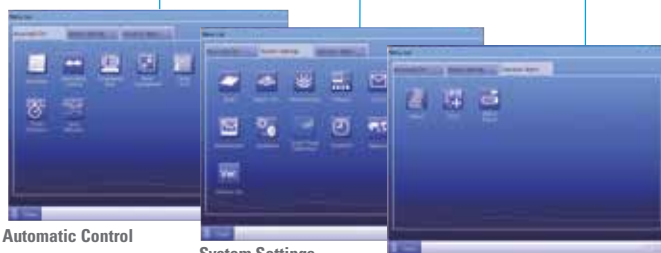
Layout View



[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 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

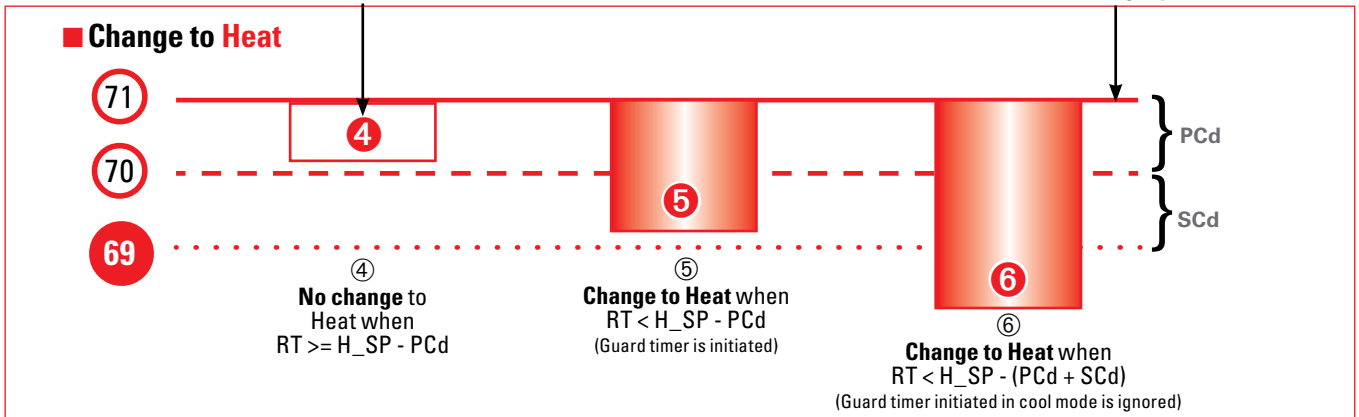
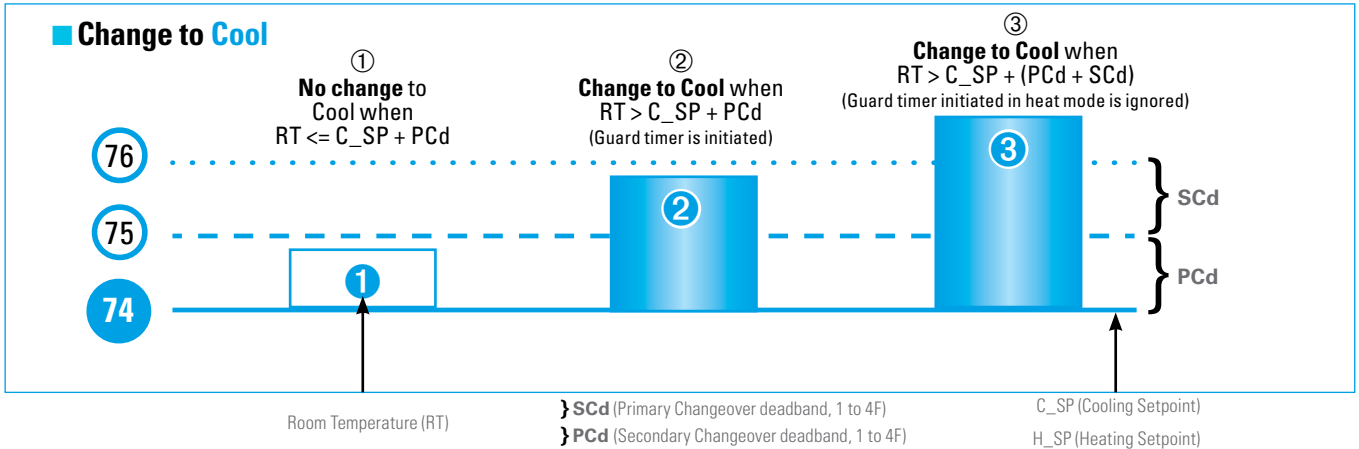


The iTM V2 extends the Auto Changeover capabilities based on cooling or heating demand.

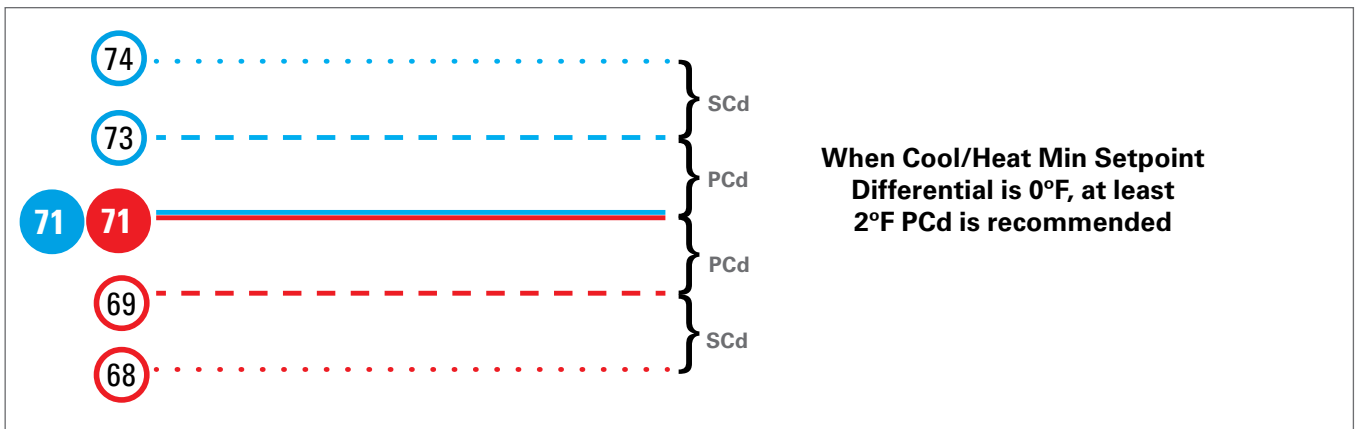
primary changeover deadband from the cooling setpoint, iTM V2 initiates a change from the heating mode to the cooling mode.

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

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



- The guard timer prevents another changeover for 15, 30 or 60 minutes (configurable).
- When setpoint is changed manually or by 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 V2 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



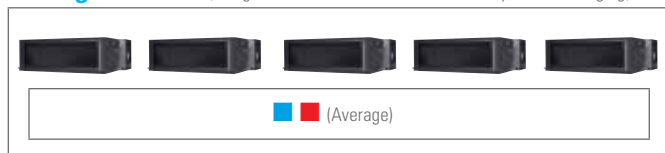
- Changeover is evaluated with the representative indoor unit.
- Changeover affects all indoor units.
- Good for prioritizing the representative indoor unit for the Heat Pump system (or multiple units on the same port of the BS Box in Heat Recovery system).

Individual method



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

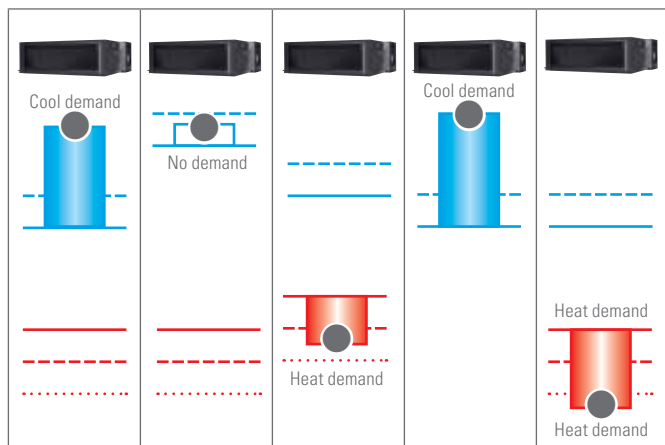
Average method (Weight 0 to 3 on each indoor unit is multiplied in averaging)



■ = 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)



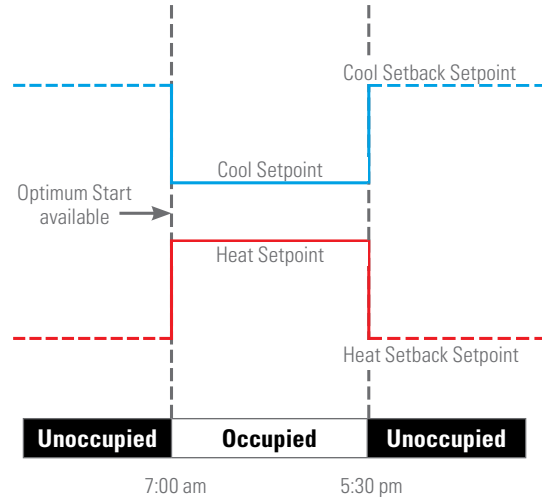
- Option available for heating override if there is an indoor unit which the heating demand exceeds $(H_SP - (PCd + SCd))$

- Changeover is evaluated based upon total cooling demand and total heating demand. If the total cooling demand is greater than the heating (like the figure left), the iTM V2 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.

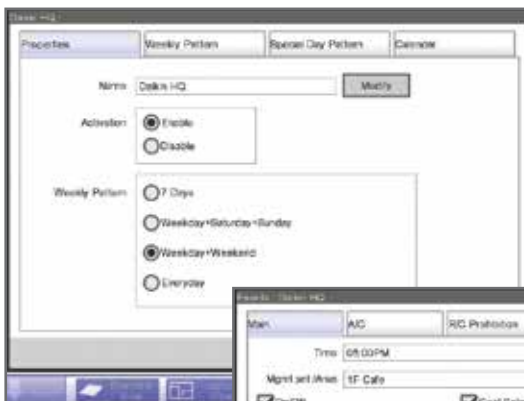
Weekly Schedule with dual setpoints for the occupied period and Setback setpoints for the unoccupied period provides year round schedule programming.

- 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



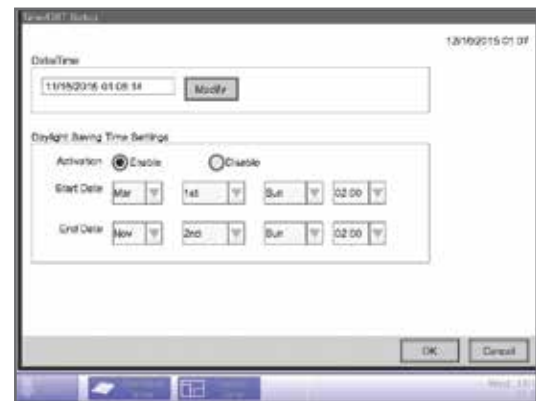
Weekly Patterns



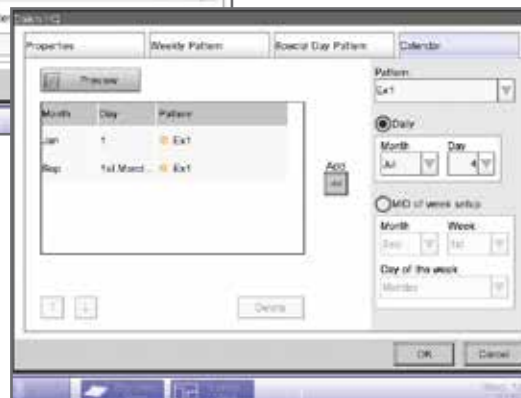
Schedule Event



Daylight Savings Time



Special Day



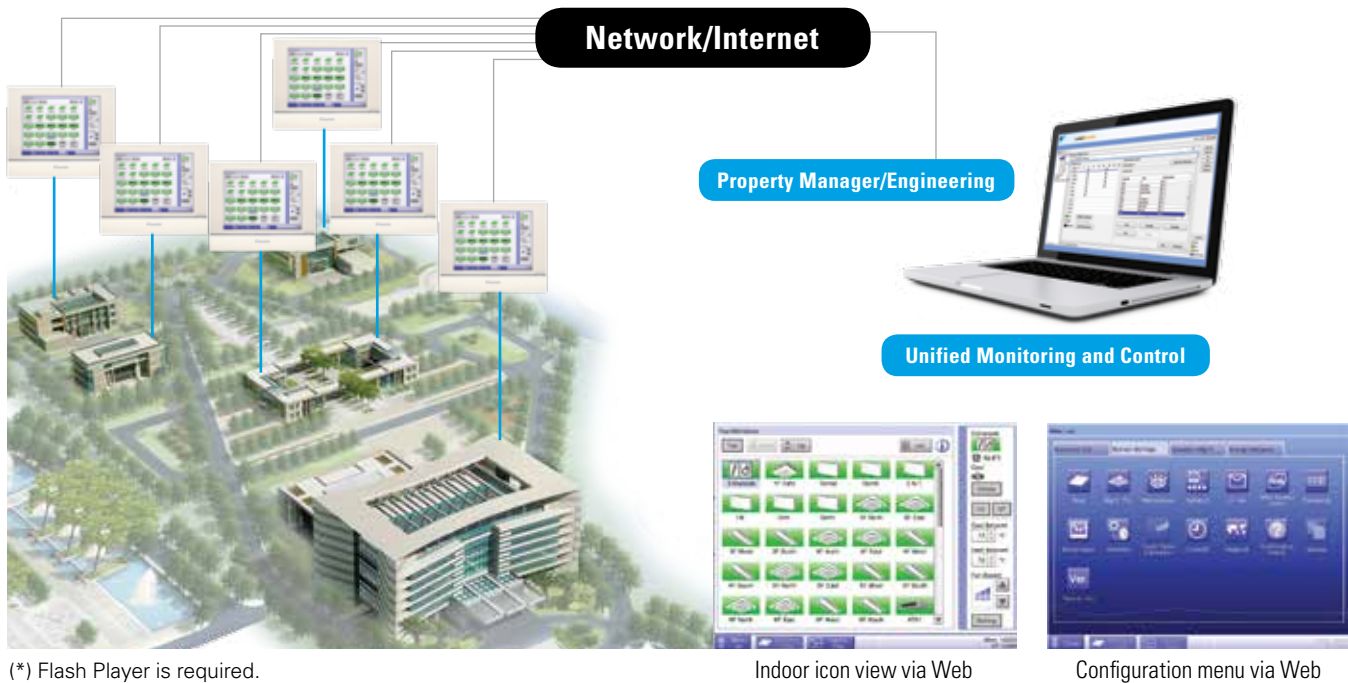
Remote Monitoring / Maintenance

■ 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.

■ 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.



(*). Flash Player is required.

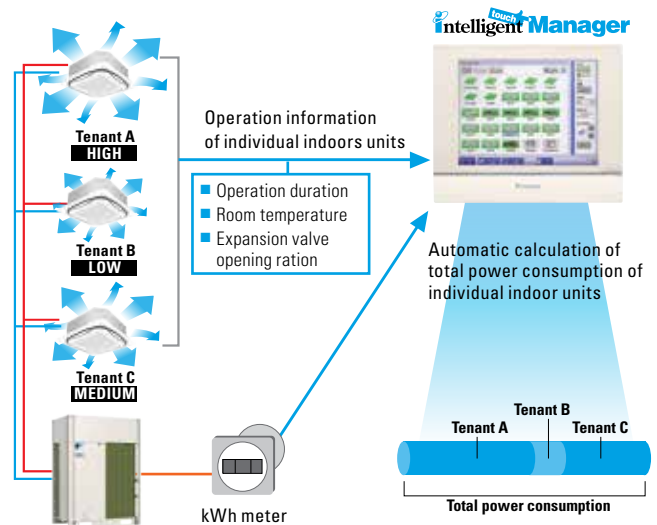
Tenant Billing (PPD Option)

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



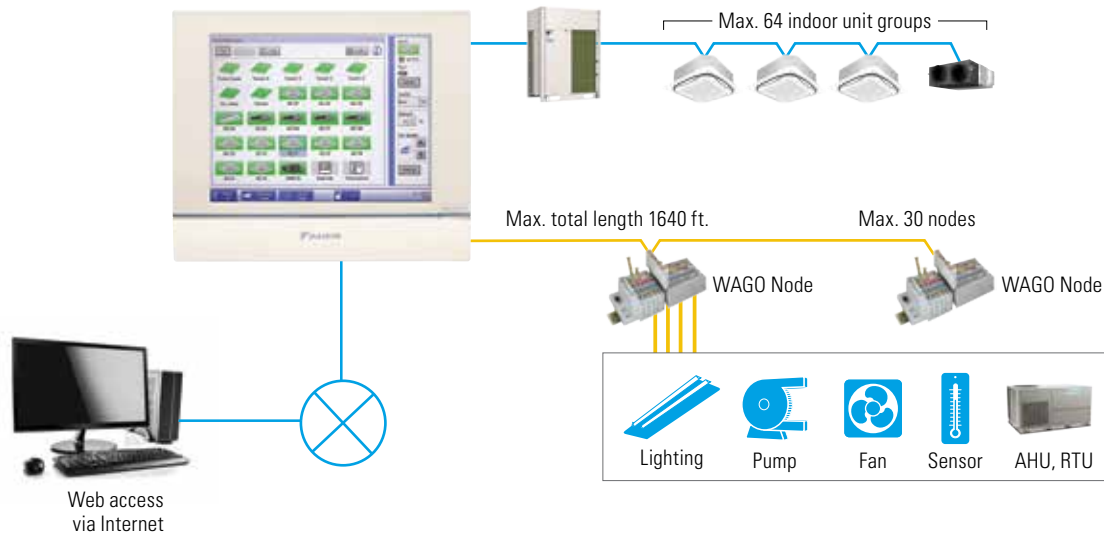
Integration of General Equipment



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 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.



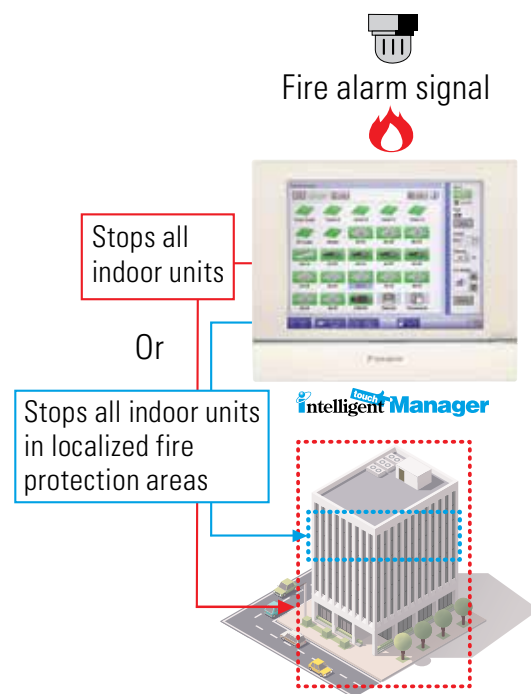
Ventilation control

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.



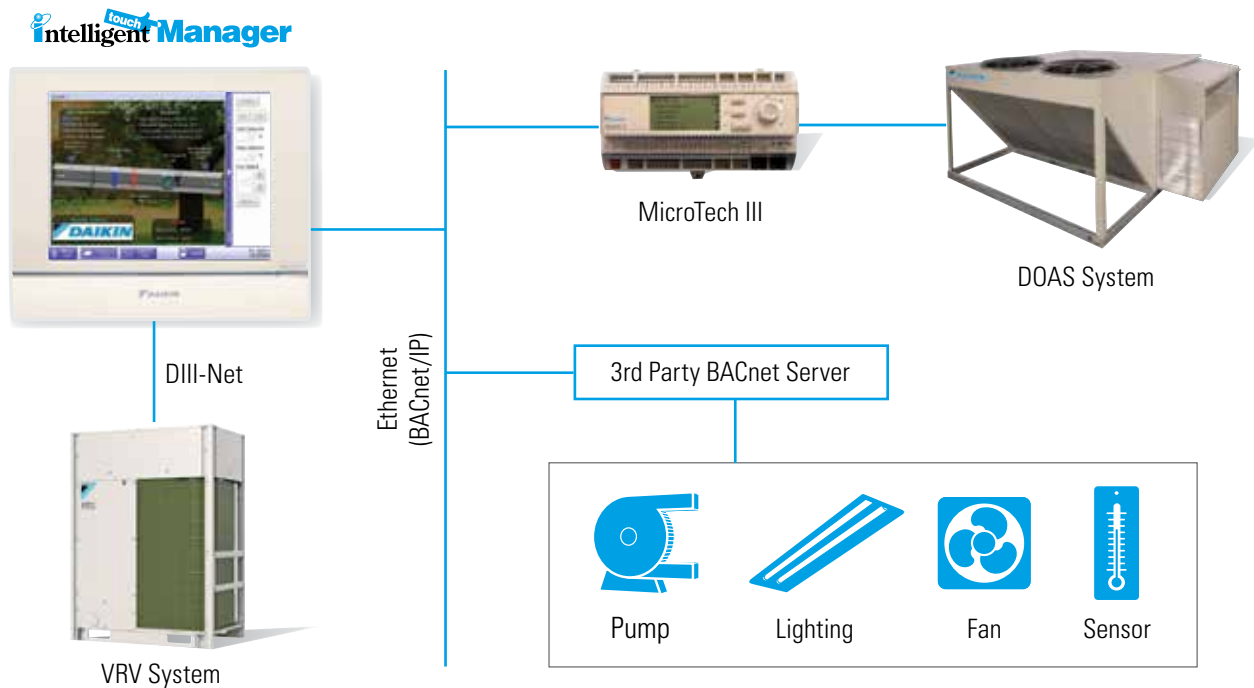
Intelligent Touch Manager - Mini Building Management System

Enhanced by DCM009A51 BACnet® Client Option

The iTM offers an advanced and cost-effective solution for building management system (BMS) applications. The iTM BACnet Client Option (DCM009A51) provides more flexibility to enhance the iTM's function as a mini BMS. With this new 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/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 Tool
- Easy monitoring with preconfigured GUI



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

How to acquire

The iTM BACnet Client Option is a software license that needs to be purchased. The software license key needs to be activated in iTM for this option to work.

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 |
| Airflow Rate (H/M/L) | 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 indoor unit | 10 | 10 |
| Interface | FfF2 (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.

Options for intelligent Touch Manager

| ITEM | MODEL | DESCRIPTION |
|---------------------------------|-----------------|--|
| Optional Software | DCM009A51 | BACnet IP Client Function |
| | DCM002A71 | Power Proportional Distribution (PPD) ** |
| 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 |
| WAGO Basic I/O Kit for ITM | 51291052 | Bus Coupler, Connector, 24 VDC Power Supply, End Module |
| WAGO 2 Channel Digital Input | 750-400 | 2 Channel, DC 24V, 3.0ms, high-side switching |
| WAGO 4 Channel Digital Input | 750-432 | 4 Channel, DC 24V, 3.0ms, low-side switching, w/(+) terminal |
| WAGO 2 Channel Digital Output | 750-513/000-001 | AC 230V, DC 30V, AC/DC 2A, isolated outputs |
| | 750-454 | 4 - 20 mA, Differential Inputs |
| | 750-479 | DC ± 10 V, Differential Measurement Input |
| WAGO 2 Channel Analog Input | 750-461/020-000 | NTC 20k Ohm Resistance Module |
| | 750-554 | 4-20mA |
| | 750-560 | 0-10 VDC, 10 Bit 10mA, 24V |
| WAGO 2 Channel Analog Output | 750-550 | 0-10 VDC |
| | 750-602 | 24 VDC Passive (Passive) (required for every 32 contact points used) |

** The power proportional distribution (PPD) feature supplies the user with a reasonably calculated apportionment of the total power consumption by the Daikin VRV system. Because input to the PPD includes measured pulses in the refrigerant system and because the VRV 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 VRV system.

Daikin: The Premium Brand industry leader

DAIKIN Daikin Industries, Ltd. (DIL) is a global Fortune 1000 company which celebrated its 90th anniversary in May 2014. The company is recognized as the largest HVAC (Heating, Ventilating, Air Conditioning) manufacturer in the world. DIL is primarily engaged in developing indoor comfort products, 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.



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