

The Renewable Solutions Provider

# Making a World of Difference

Controls



Air Conditioning | Heating  
Ventilation | Controls

It's time to  
take control



# There has never been a better time to think about the controls in your building

Energy efficiency is firmly on the business agenda with a number of regulations and incentives now impacting on building owners and managers.

Controls offer a cost-effective solution for managing, monitoring and reporting on the performance of all building services systems. Control technology is now widely available for buildings of all sizes, so it is possible to access the benefits whatever the scale or scope of your project.

## Mitsubishi Electric technology

Mitsubishi Electric has been dedicated to producing energy efficient technology for over ninety years. Controls are an essential part of that.

Mitsubishi Electric has a long heritage in factory automation where the company leads the field in providing controls that enhance productivity, efficiency and energy use.

We have taken this extensive knowledge and experience and transferred it to the heart of our building services equipment.

We were also one of the first manufacturers to open our protocols to other companies to make integration easier for our customers.

Recently, Mitsubishi Electric has developed Internet-based building controls that put information on building performance wherever users need it most and wireless technology that makes retro-fitting into existing buildings so much easier.

From a simple hand-held controller to a centralised building energy management system (BEMS), Mitsubishi Electric puts its customers in control.



Mitsubishi Electric is a member of the UK **Building Controls Industry Association (BCIA)** which represents the leading manufacturers and installers in the sector. This ensures we are at the forefront of the industry, helping to set and retain high standards for the manufacture and installation of controls.





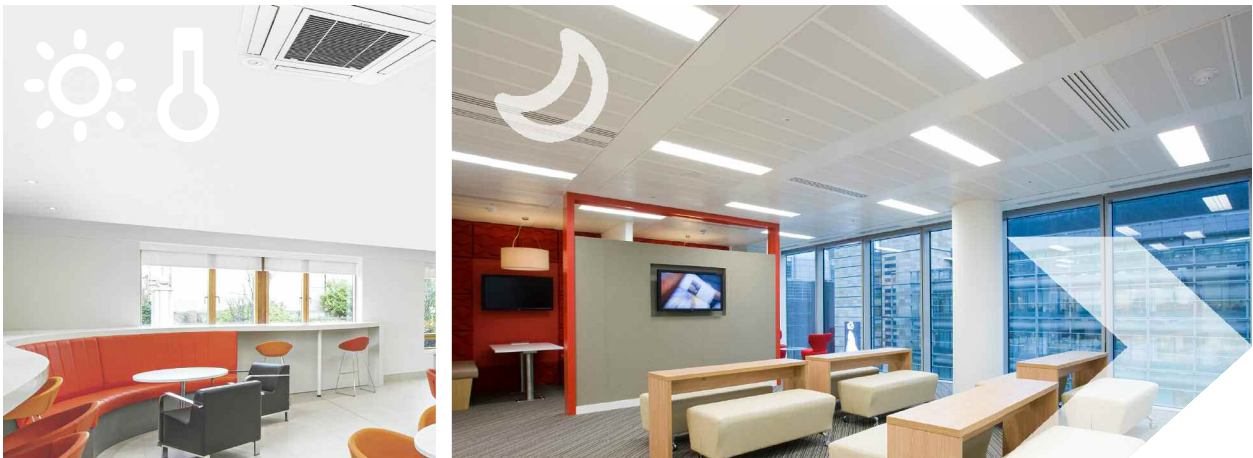
# ➤ Control - performance at the next level

Controls take building performance to the next level. With them, building systems become more responsive, easier to automate and maintain and less costly to operate in the long-term.

If air conditioning, ventilation or heating systems operate when not required, they waste energy and money. Unnecessary operation also reduces the lifetime of fans and other moving parts, adding to maintenance and repair costs. Controls ensure that equipment operates only when it is needed, and that building services equipment is performing at an optimum level at all times.

No matter how energy efficient your heating, cooling or ventilation system, without good control it will not deliver the best performance.

For example, air conditioning systems need to be able to respond to different building requirements. These include room size; occupancy levels; and heat loads from equipment such as lighting and computers.



**The range of controls now available means that projects of all sizes can benefit from this advanced technology.**

For smaller premises, a simple control system with a remote controller and on/off scheduling will be sufficient to achieve the correct balance between comfort and energy efficiency.

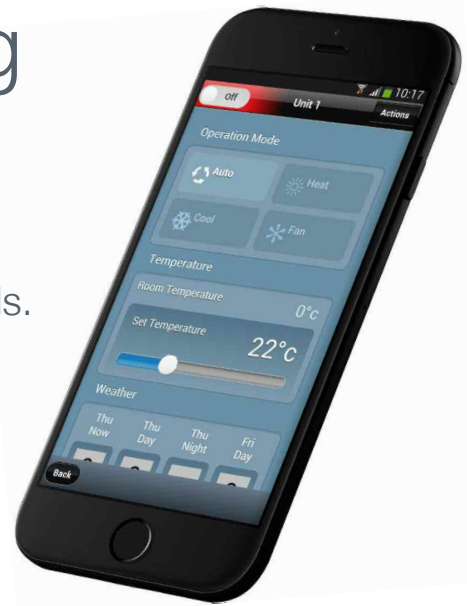
For larger and more complex buildings such as hotels, a more sophisticated approach may be appropriate. For example, the Melcotel2 control system can link with room cards and also coordinate a large number of air conditioning units, all dealing with different room requirements and changing heat loads.

Based on predictive algorithms, interventions can be made automatically to ensure optimum performance is maintained at all times. It is possible to control the whole system from a central point, giving facilities and energy managers a single view of how the entire building is performing. This also means that set points and temperature ranges can be controlled strategically, for advanced energy efficiency.

## ➤ Active energy saving

Once a pioneer of machine-to-machine (M2M) messaging, Mitsubishi Electric has now developed cloud-based technology to harness the power of the Internet for controls.

This cloud-based technology is available for domestic and commercial applications, allowing for remote monitoring and control of air conditioning and heating systems via PC, tablet or smartphone (Apple / Android / Windows / Blackberry).



Remote Monitoring Interface (RMI) allows remote management of air conditioning and heating systems in commercial properties such as offices, retail and hotels.

**RMI allows users to monitor the performance of their devices, set their functions, control consumption and view the operating status of their system.**

### Key Features

- PC / tablet / smartphone
- Connection via 3G cellular network, LAN connection to broadband router or network
- Control of up to 254 centralised controllers (12,700 indoor units)
- Temperature and airflow setpoint
- Hot and cold water management
- 7 day weekly scheduling



MELCloud collects information on the performance of cooling or heating systems, using a Wi-Fi interface to deliver information on energy use or alarms to a range of portable devices. It will also incorporate localised information such as weather feeds and customer support contact details.

**MELCloud puts the information wherever users need it most, supporting proactive and continuous optimisation of building services systems.**

MELCloud is freely downloadable as an app and even allows the installer to monitor faults remotely, saving on call-out costs.

To find out more please visit [www.melcloud.com](http://www.melcloud.com)

### Key Features

- PC / tablet / smartphone
- Wireless connection using WPS
- Frost protection, holiday mode, 7 day weekly scheduling
- Error reports
- Live weather feed

# ➤ Better retail building performance with MelcoRETAIL

Controls can also be part of a planned maintenance programme, capturing data on work carried out and comparing performance across time periods to spot potential issues before breakdowns occur.

Data collected from the control system is a valuable asset that captures information on actual building performance. Variables such as user habits, energy consumption patterns and outside temperature can be used to inform system management practices.

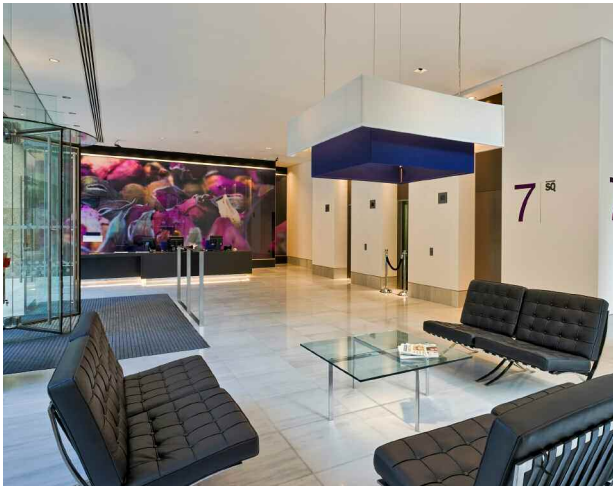
Active energy saving can also help to avoid the significant cost increases of energy during three peak periods during the year, usually between November and February. These are known as TRIADS, and during these times customers with energy-only half-hourly contracts will see the price of their electricity rise steeply due to the extra transmission network costs applied by The National Grid. A similar system known as DUoS (Distributed Use of System) applies higher charges for electricity users at certain peak times of the day.

Increases in prices such as these can have a major impact on commercial energy users, with the kilowatt hour price rising to hundreds of pounds at some points in the day or year. With active energy saving in place, energy loads can be shed or moved to minimise the impact of these peak-time charges.

Far from being ‘fit and forget’, controls are an investment in active energy management that will pay dividends in long-term **lower energy use** and **better building performance**.

For more information on MelcoRETAIL please see pages 16 & 23.





## ➤ | The financial case for controls

Controls for air conditioning, heating or ventilation systems are an investment that will pay dividends for many years. Lower energy use and longer equipment lifetime are just two of the key benefits of controls.

Businesses need to carefully weigh up the implications of investment in technology. Fortunately, for controls there is The British and European Standard BS EN 15232 (2012) - *Energy Performance of Buildings: Impact of Building Automation, Controls and Building Management*.

Anyone looking to calculate payback on investment in controls can use this document to see how much electricity or heat energy can be saved by various levels of control. The Standard was developed to support European legislation on energy efficiency in buildings. **It clearly demonstrates that controls are one of the most cost-effective energy saving measures available today.**

Investments in renewable technology can also be monitored by controls. Energy savings can be recorded, making it easy to determine return on investment. Many companies use energy savings from one project to invest in further efficiency strategies - this is only possible by using controls for accurate recording.

For more information on these legislations please visit our Document Library: [library.mitsubishielectric.co.uk](http://library.mitsubishielectric.co.uk)





## ➤ Comfort and efficiency

Studies have shown that occupants have a significant impact on building energy efficiency.

Leaving on heating with the windows open; forgetting to turn off the air conditioning when exiting a meeting room; switching to manual override without returning the system to automatic mode - all of these can happen easily in all sorts of buildings from offices to schools or hotels. The result is wasted energy and indoor environments that will quickly become uncomfortable.

Control systems can help people interact better with the building. Even simple, but effective control products such as Mitsubishi Electric's Melcotel, which is a control system designed for the hotel market.

It works with key card or non-key card systems to prevent air conditioning working when rooms are empty, or when guests open a window without switching off the heating or cooling. Melcotel also supports comfort by monitoring the temperature of unoccupied rooms, ensuring that they are a comfortable temperature when guests arrive.

Good controls support indoor comfort because spaces do not overheat or become too cold. For example, when a hotel room is unoccupied, Melcotel continues to monitor temperature in the room. If it becomes too low or high, Melcotel will restart the heating or cooling.

Controls help to balance the comfort of people in buildings with energy efficiency. For example, Melcotel allows central control of temperature in hotel rooms so that it stays within a set range to conserve energy, but still allows a hotel guest to change the temperature in their rooms within that range.



# ➤ Scalable and flexible

One of the key characteristics of control technology is that it is a scalable solution.

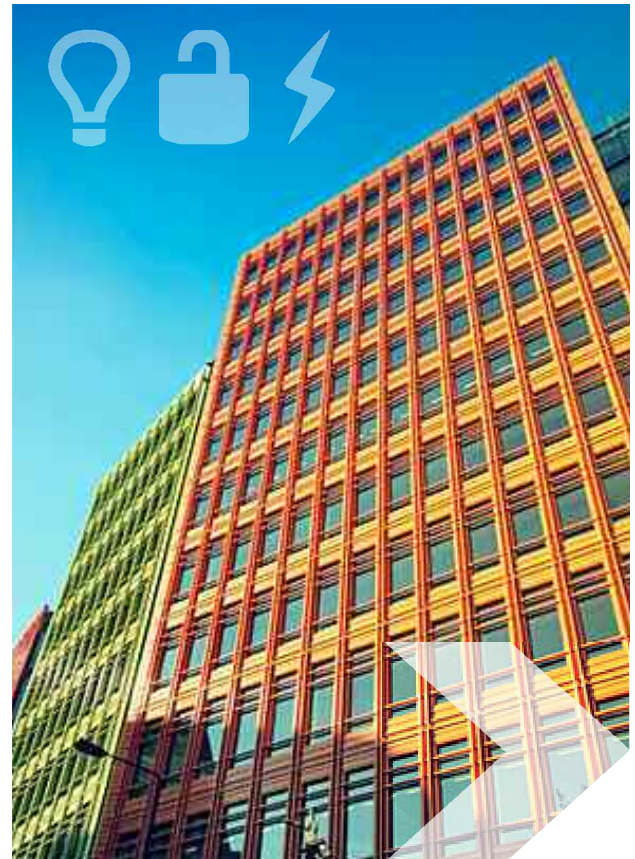
Whether you are looking for better control for the cooling and heating of a number of meeting rooms; or want to take a whole-building approach with a more sophisticated control strategy - there is a solution available to suit your project and budget.

Mitsubishi Electric is renowned for its investment in research and development. The result is a range of controls that stretch from simple hand-held controllers to advanced Internet-based systems that can monitor, analyse and run entire estates across the globe.

Recent developments in controls technology mean that our controls are compatible with widely-used open protocols such as BACnet, Modbus and LonWorks and our controllers are now available with on-board BACnet over IP capability. This means that it is possible to connect from any of the centralised controllers to the Internet without the additional costs of third party technology.

Air conditioning, ventilation and heating units are not the only systems in a building and open protocols ensure that our controls work effectively with other important areas such as lighting, security and power.

This also makes our products ideal if you are refurbishing or retrofitting controls because they can work alongside your existing system. Upgrades can be carried out gradually to help with budgeting and to reduce disruption to building occupants.



# ➤ At home with controls

Consumers have come to expect controls that are as easy to use as their tablet or smartphone.

Mitsubishi Electric has applied its expertise in controls for commercial buildings to those used in homes. The Mitsubishi Electric Ecodan heat pump system can be connected to MELCloud so that homeowners can set up and remotely operate their Ecodan heating system via a PC, Mac, tablet or smartphone over the Internet.

Ecodan owners can go online to view and control their heating and hot water from anywhere in the world; set up a seven-day weekly schedule; or put the system into 'holiday' mode. The MELCloud control system also shows homeowners how much energy has been consumed and how much heat their Ecodan air source heat pump has produced.

For homeowners and social landlords who opt for a **Metering and Monitoring Service Package (MMSP)** with their Mitsubishi Electric Ecodan system, MELCloud is part of the package. It will also help to provide all the information required under the Domestic Renewable Heat Incentive (RHI) so that homeowners and housing associations can benefit from extra payments for voluntary metering.

Mitsubishi Electric's controls for a domestic environment put homeowners in charge of their heating, and give them clear and easily accessible information on how their system is operating.







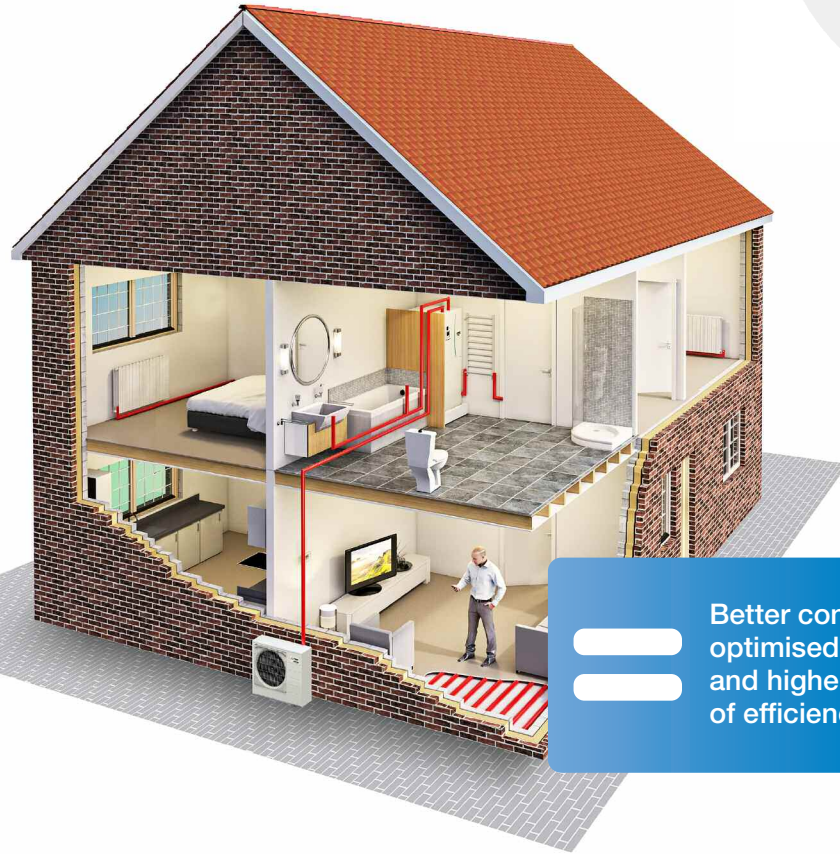
MELCloud controls are the perfect partner to our highly energy efficient **Ecodan heat pump technology**



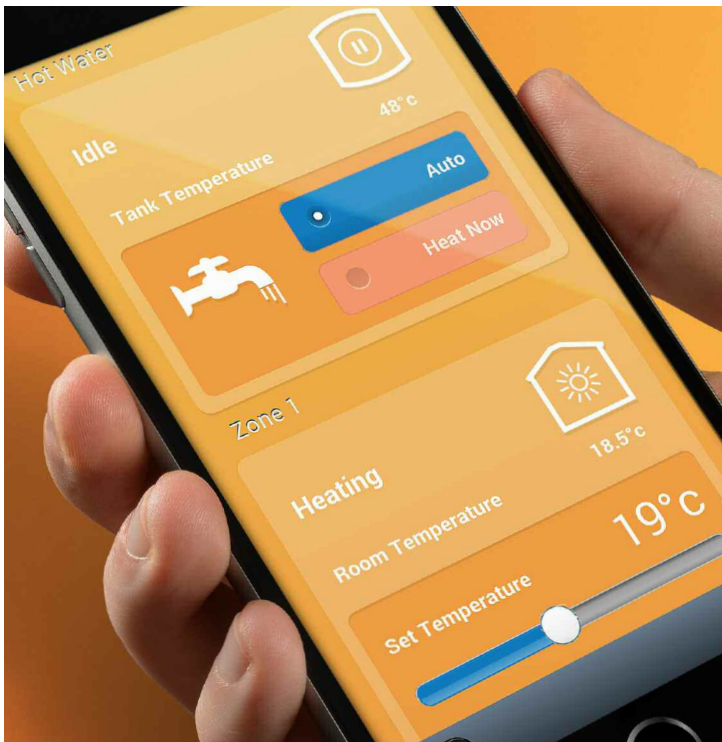
Energy Monitoring and Reporting



Ecodan air source heat pump



Better controllability, optimised comfort and higher levels of efficiency





## ➤ Looking to legislation

**Controls are a cost-effective solution to the challenges of operating a building efficiently while balancing the need for occupant comfort. They are also increasingly required under a growing body of legislation.**

Part L of the Building Regulations requires that 'fixed building services shall have effective controls'. Overall, the legislation requires minimum levels of control, with a view to reducing carbon emissions resulting from building energy needs - a major goal of the UK Government.

There are other reasons to consider how services such as air conditioning, ventilation and heating are controlled in buildings. The Energy Savings Opportunity Scheme (ESOS) affects businesses with a certain turnover and number of employees. The Scheme requires tracking of all energy use, including in buildings. The ability for controls to measure, track and record energy data is invaluable for these increasing requirements.



Perhaps most importantly is the new legislation on Minimum Energy Efficiency Standards (MEES). From 1st April 2018, it will be illegal to let any property which has an Energy Performance Certificate (EPC) rating of less than a band 'E'. This applies to new leases - from 2023, all leases will fall under these rules.

What's more, MEES will not stop at band E properties. Going forward the overall aim of the UK Government is to see as many buildings as possible raised to EPC band E by 2020. After that an improvement to band D is targeted for 2025. By 2030, the minimum EPC rating for buildings to be let will be C. In the UK today, around 18% of commercial lettable buildings have an EPC rating that would not meet the requirements of MEES in 2018.

Since air conditioning and heating systems account for a large proportion of energy used in buildings, they have a significant influence on EPC ratings. Building owners looking to the long-term value of their properties need to consider how they are controlling, monitoring and reporting the energy use of these systems.

Mitsubishi Electric has a number of CPD Guides available that explain aspects of legislation, such as MEES, ESOS, Metering and Monitoring Service Packages (MMSPP) and technology in more depth. These are free to download from: [library.mitsubishielectric.co.uk](http://library.mitsubishielectric.co.uk)

Controls offer an **excellent and affordable** way to tackle these new requirements.

# Optimum Control

Whatever the Application





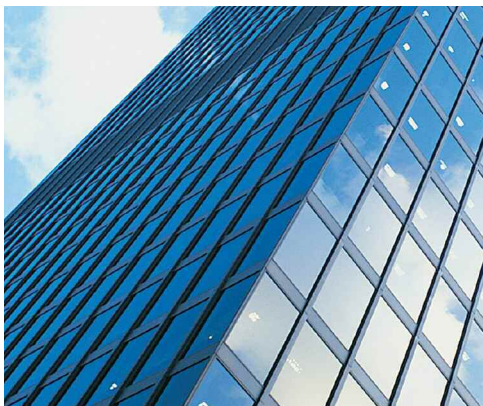


# Solutions for Large Offices

Large offices need systems that operate as efficiently as possible, incorporate easy to use controls that end users are comfortable with, and allow for fully programmable scheduling that accommodates flexible working patterns.

**A large office installation can typically consist of:**

- City Multi VRF air conditioning systems
- City Multi PWFY hot water production modules for efficient hot water production through heat recovery
- City Multi VRF air curtain at reception and entrances to ensure comfort by providing heat from heat recovery
- Lossnay Mechanical Ventilation with Heat Recovery (MVHR) units for efficient modular fresh air supply per zone or larger / multi-zone fresh air supply by Air Handling Units (AHU).
- PFD close control units in computer rooms
- E-Series Modular Chiller Range for cooling and heating of fresh air supply



## Mitsubishi Electric Controls Solution ➤

### ➤ AE-200E centralised controller

AE-200E centralised controller with 10.4" touch screen for easy intuitive operation with energy saving features, energy monitoring and apportioning per indoor unit. The AE-200E provides complete control over City Multi VRF indoor units, City Multi VRF air curtains, PWFY hot water modules, Lossnay ventilation units, PFD computer room units and the E-Series Modular Chiller Range to form a single point of control.

The AE-200E centralised controller can simply be expanded by use of EW-50E expansion controllers to form a network with control of over 200 indoor units and can then be scaled up to 2000 indoor units with relative ease.

HTML5 web browsing allows up to 1000 smartphone / tablet users to connect to the AE-200E and its associated network with individual access to the user's relevant equipment only.



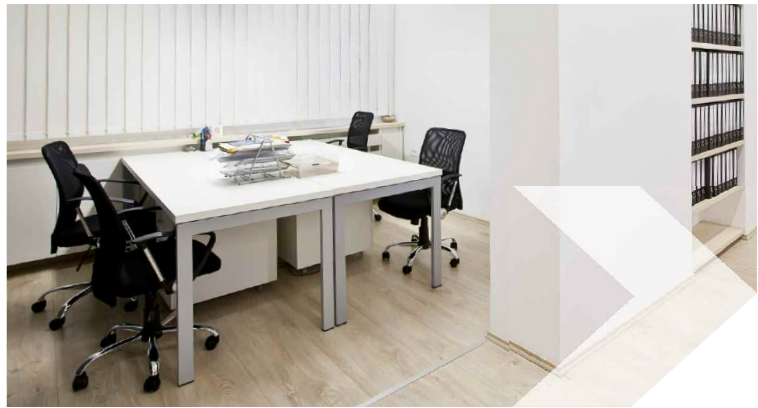
# ➤ Solutions for Small Offices

**Small offices require their systems to operate as efficiently as possible, as well as incorporate an easy to use interface that the end user is comfortable with.**

All services require time clock management and overrides are often required to cater for infrequent occupancy and work patterns.

**A small office installation can typically consist of:**

- City Multi VRF air conditioning
- Mr Slim split systems for cooling of computer server rooms
- Lossnay Mechanical Ventilation with Heat Recovery (MVHR) units



## Mitsubishi Electric Controls Solution ➤

- PAR-33MAA remote controllers
- PAR-U02MEDA remote controllers
- AE-200E centralised controller
- EW-50E expansion controller

The popular PAR-33MAA is a simple and easy to use remote controller, enabling localised control. The PAR-33MAA can also be locked or have its functionality limited as necessary according to management requirements.

The advanced PAR-U02MEDA is a remote controller with a touch screen for simple operation. It also includes a PIR Occupancy Sensor to allow the air conditioning to be switched on and off automatically when a room is occupied or unoccupied.

The AE-200E is an advanced centralised controller with 10.4" touch screen and energy management, control and energy monitoring capabilities. 50 indoor units can be connected as standard and expandable up to 200 indoor units by use of EW-50E expansion controllers. Control over City Multi VRF, Mr Slim and Lossnay MVHR units is all possible. HTML5 web browsing is also possible by PC or Smartphone / Tablet to allow whole building or individual user control per area.

# ➤ Solutions for Large Retail

**Large retail outlets require systems that operate as efficiently as possible, providing customer comfort while maximising energy efficiency and cost saving potential.**

Retailers with multiple sites also need to be able to monitor building services from either one central location or remotely, to maintain efficiency and control. Requirements for energy usage and control over lighting, external signage and other third party services is another vital consideration to retailers.

**A large retail installation can typically consist of:**

- City Multi VRF air conditioning
- City Multi VRF air curtains (heat recovery from space cooling)



## Mitsubishi Electric Controls Solution ➤

### ➤ MelcoRETAIL control interface

One of the ways for a large retail chain to save energy is to remotely take control of all of their sites.

- The MelcoRETAIL interface allows this and is not only a remote device for air conditioning, but also for pre-set preconfigured third party lighting, signage and other services
- The MelcoRETAIL interface can be used to monitor and log temperatures, energy use and intruder alarms
- The MelcoRETAIL interface can also be used to control other services; for instance:
  - Store lighting 2 stage control (allows occupancy and time clock trading lighting level)
  - External signage time clock control
  - Third Party service on / off time clock switched control (example DE stratification fan control)

The MelcoRETAIL can also monitor other site conditions of:

- Room temperature via an in-built temperature sensor
- External temperature via cloud server weather feed (no need for external sensor)
- Occupancy by input measure 'last man out' switch or intruder alarm disarmed
- Plant extend input to extend trading day time clock setting
- Measurement of energy meter kWh values
- For multi-site energy management - the MelcoRETAIL interface has half hourly energy tariff DUoS & TRIAD ready functionality when a whole estate is connected with MelcoRETAIL interface and a single energy utility supplier.

The MelcoREMOTE web portal allows the end user or the facilities manager to monitor all retail sites within the chain via the Internet on PC or via smartphone / tablet.

# ➤ Solutions for Small Retail

Small retail outlets require systems that operate as efficiently as possible, providing customer comfort that maximises energy efficiency and cost saving potential.

**A small retail installation can typically consist of:**

- Mr Slim split system air conditioning
- Mr Slim split system air curtains



## Mitsubishi Electric Controls Solution ➤

### ➤ IO Interface

For a small store (typically 1 or 2 indoor units up to a maximum of 16 indoor units), the IO Interface will configure the air conditioning to operate as efficiently as possible.

Two energy saving functions are available with the IO Interface. One is to increase the deadband so that, for instance, heating will only be activated when the temperature is below 19°C and cooling when the temperature is above 23°C. In between the indoor unit will continue to circulate air (fan only mode), but the compressor will be switched off which is the best way to save energy.

The second option is to only run the air conditioning for a set period of time, for instance two hours, and then run in fan only mode thereafter. This is perfect for a retail application where a high percentage of the daily turnover is made in the first 3 hours of trading, i.e. a coffee shop.

If temperature extremes do occur however, staff are still able to push an override button to reactivate the IO Interface timer and therefore the air conditioning for a further period of time.

This IO Interface solution is perfect for small shops as only one interface is required for a group of split systems, therefore minimising the capital cost.



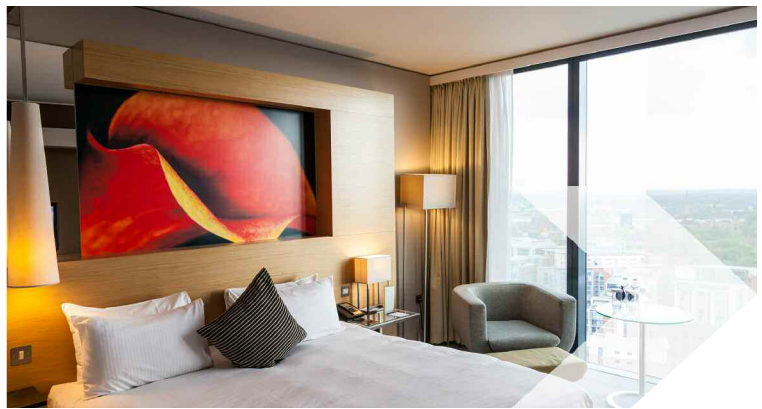
# ➤ Solutions for Large Hotels

**It is essential that large hotels have highly efficient systems which optimise energy efficiency and customer comfort.**

An integrated air conditioning system with key card or window sensors is often a requirement. Simple to use room controllers are a necessity and help to maximise efficiency and reduce running costs. Stylish room controllers may well also be required to fit in with the décor of the room.

**A large hotel installation can typically consist of:**

- City Multi VRF air conditioning
- City Multi Hybrid VRF air conditioning



## Mitsubishi Electric Controls Solution ➤

- Melcotel solutions interface
- AE-200E centralised controller
- EW-50E expansion controller
- PAC-YT52CRA simplified remote controller

The Melcotel interface allows a hotel to have more accurate control over its air conditioning and can be used to control and monitor up to 200 bedrooms.

Two different options are available when using Melcotel:

1. Using a key card system: When the room is occupied, i.e. when the key card is "in", Melcotel will switch on the unit and reset the air conditioning to predetermined settings (for instance AUTO, 21°C). When the room is unoccupied, Melcotel will activate night setback.
2. No key card system used: When the unit has been switched on by a user, the room is deemed as occupied and Melcotel resets the air conditioning to predetermined settings (for instance AUTO, 21°C). At a pre-set time, Melcotel will switch off the unit automatically to save energy. When the room is unoccupied, Melcotel will activate night setback.

With both options, Melcotel also offers a temperature adjustment facility based on the outside temperature. The window sensor option also allows the air conditioning to be switched off and controlled centrally when a window is opened. All of these functions provide a higher level of control and therefore greater energy saving and a substantial reduction in running costs.

# ➤ Solutions for Small Domestic

Homeowners or tenants sometimes require simple control over their heating system from a remote location and via smartphone / tablet devices.

Measurement of energy and operational costs is a serious consideration for residential dwellings.

**Small residential heating can typically consist of:**

- Ecodan heating system



## Mitsubishi Electric Controls Solution ➤

➤ **Small domestic Ecodan heating control and monitoring is possible via MELCloud**

A simple Wi-Fi adapter is connected to the Ecodan cylinder or control interface (FTC4/5) and is then WPS paired to the residential Wi-Fi network.

MELCloud is downloadable as an app from the App Store or Google Play for use on a portable device (smartphone / tablet) for monitoring and control over the Ecodan heating system. MELCloud is also accessible via PC web portal.

Basic energy monitoring is possible on MELCloud with Display on-board FTC5 predicted energy and efficiency (indicative estimated information).

Advanced energy consumption is possible on an FTC5 Ecodan with an optional Energy Metering Package (EMP2) where input power energy is accurately measured and reported by a kWh meter connected and installed.

Advanced energy consumption and energy output is possible on Ecodan FTC5 with optional Energy Metering Package (EMP3) where input power energy and heat output energy is accurately measured and reported by kWh and heat meters connected and installed (kWh and heat meters included in EMP3).

Via the MELCloud Portal EMP3 also provides a detailed energy report and meets the requirements of the Residential Renewable Heat Incentive (RHI) Scheme and the additional Metering and Monitoring Service Package (MMSP) payments.

# ➤ Mitsubishi Electric Controls Range

## Remote Controllers ➤

**Our air conditioning systems are supported by a multitude of remote controllers.**

Each remote controller type, whilst being able to support the general control and monitoring functions for a group of indoor units, can also offer other unique operational features. These could be for instance; set point limitation and other functional control measures promoting energy saving, or night set back to maintain a maximum and minimum temperature at night, optimising efficiency and comfort the following working day.

### ➤ PAR-33MAA

The PAR-33MAA standard remote controller provides control over Mr Slim and City Multi indoor units.

It is also compatible with M Series indoor units via MAC-397IF and is our most popular controller due to its user friendly backlit screen.

- 0.5°C set point adjustment units
- Dual set point
- Night set back, scheduling, set point limitation
- Run/standby for Mr Slim
- Contact number under fault condition
- Backlight
- Daylight time saving function



### ➤ PAC-YT52CRA / PAC-YT52CRAS (Silver version)

The PAC-YT52CRA / PAC-YT52CRAS is a simple to use remote controller which provides control over Mr Slim and City Multi indoor units.

It is also compatible with M Series indoor units via MAC-397IF and is ideal for use in hotels and luxury apartments.

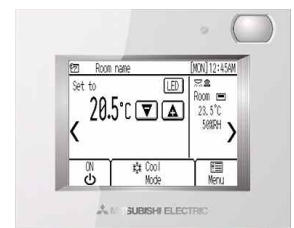
- Small and wall mounted
- 6 buttons only
- Backlight



### ➤ PAR-U02MEDA

The PAR-U02MEDA is an M-NET backlit touch screen remote controller. It includes a built in PIR sensor allowing the air conditioning to be switched on/off automatically when a room is occupied and can also set the air conditioning in night set back when the room is unoccupied.

- Touch screen M-NET controller
- Night set back, scheduling, set point limitation
- Built in occupancy/brightness sensor
- Backlight
- 0.5°C set point adjustment
- Dual set point
- Colour LED mode



For more information on this range, please visit our website: [airconditioning.mitsubishielectric.co.uk](http://airconditioning.mitsubishielectric.co.uk)



## Centralised Controllers >

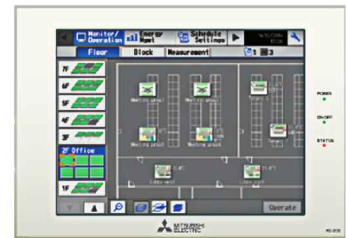
**Mitsubishi Electric has a control portfolio which is one of the strongest on the market.**

Included in this are some of the most sophisticated centralised controllers available, allowing complete control of multiple sites from one location.

### > AE-200E

The AE-200E is a large 10.4" touch screen centralised controller with simple intuitive operation and control over M-NET network.

- 10.4" touch screen
- Monitor and control of up to 50 indoor units (or up to 2000 indoor units using EW-50A in combination with EW-50E expansion adapters)
- Monitor and control general equipment
- Energy monitoring, load shedding
- Web based controller
- On-board 230v AC power supply is also included



### > EW-50E

The EW-50E gives control over M-NET network by providing either a web interface or by expanding an AE-200E centralised controller by acting as an expansion controller.

- Web based controller
- Monitor and control of up to 50 indoor units
- Monitor and control general equipment
- Energy monitoring, load shedding



### > AT-50B

The AT-50B is a 5" touch screen centralised controller with simple intuitive operation and control over M-NET network.

- Web based controller
- Monitor and control of up to 50 indoor units
- Monitor and control general equipment
- Energy monitoring, load shedding



For more information on this range, please visit our website: [airconditioning.mitsubishielectric.co.uk](http://airconditioning.mitsubishielectric.co.uk)



### Mitsubishi Electric offers a wide range of Building Energy Management Systems (BEMS) interfaces for both VRF and split air conditioning systems.

Further enhancing our complete open system network, these interfaces allow complete control and monitoring integration with our air conditioning systems.

#### ➤ BAC-HD/150

The BAC-HD/150 provides direct connection to an M-NET network to control over 50 indoor units via a BACnet TCP/IP to a third party BEMS.

- Monitor and control of up to 50 indoor units
- BACnet interface



#### ➤ MELCOBEMS

The MELCOBEMS provides M-NET centralised controller connections AE-200E/EW-50E to a third party BEMS via either RS485 or TCP/IP. It does this via a Modbus RTU or a BACnet interface.

- Monitor and control of up to 50 indoor units
- Modbus and BACnet interface
- Energy monitoring



#### ➤ MELCOBEMS MINI

The MELCOBEMS MINI provides individual indoor unit connections to a third party BEMS via RS485 by either Modbus RTU or BACnet from a common platform.

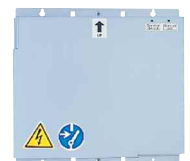
- Monitor and control 1 indoor unit
- LonWorks interface



#### ➤ LMAP

The LMAP provides control of over 50 indoor units via direct M-NET connection to a third party BEMS via Lonworks LON protocol.

- Monitor and control of up to 50 indoor units
- LonWorks interface



#### ➤ IQ4 XNC

The IQ4 XNC provides connection to M-NET centralised controllers AE-200E / EW-50E to control of over 50 indoor units via a direct connection to Trend BEMS Protocol.

- Monitor and control of up to 50 indoor units
- Trend interface



Available from **Synapsys Solutions Ltd**  
1 Woodlands Court, Albert Drive, Burgess Hill, West Sussex, RH15 9TN  
Telephone 0845 680 0303

For more information on this range, please visit our website: [airconditioning.mitsubishielectric.co.uk](http://airconditioning.mitsubishielectric.co.uk)

## Solution Interfaces >

Following the success of our dedicated solution interfaces, we have developed new sector specific products.

For information on MELCloud please see page 5.

### > PANEL\_RS\_SMS

- Monitor and control of up to 8 indoors
- Run/standby panel
- Fire alarm input



### > Melcotel2

The Melcotel2 provides connection of up to 200 City Multi indoor units to communicate via centralised controllers AE-200E and EW-50E. It is ideal for hotel energy save solution applications and is supplied with an intuitive display screen for use by reception / management.

- Monitor and control of up to 200 indoor units
- Dedicated hotel interface
- Key card and non key card integration
- Set point adjustment
- Occupied / unoccupied settings reset



### > MelcoRETAIL

MelcoRETAIL is a dedicated retail interface designed for energy efficient control of up to 8 M Series and Mr Slim indoor units, and 50 City Multi indoor units, including Lossnay.

It is preconfigured with standard inputs and outputs to suit the needs of any small to medium retail outlet.

- Monitor and control of up to 8 split indoor units
- Dedicated retail interface
- Control third party equipment
- Advanced energy saving and energy metering
- Ethernet remote connectivity to MelcoREMOTE Web PC,
- Smartphone / tablet (5 years web hosting included)
- SIM card version available with 5 year SIM included MelcoRETAIL2G



For more information on this range, please visit our website: [airconditioning.mitsubishielectric.co.uk](http://airconditioning.mitsubishielectric.co.uk)

## ➤ Summary

Mitsubishi Electric has a long heritage in controls. Using this know-how, we have developed a range of controls suitable for every type of building, from a home to a large office.

The products available are scalable, flexible and designed to be easy to operate. With a focus on measuring and controlling energy use, we have ensured that our controls are easy to install and maintain. By embracing cloud technology, our controls can send information on system performance exactly where it's needed. This enables homeowners to check on their heating while out and about; or gives facility managers early warning of issues so that maintenance can be proactive rather than reactive.

Building controls are now essential to the efficient operation of comfortable and productive environments, and Mitsubishi Electric has the products and the knowledge to help customers meet the energy efficiency challenge in a cost-effective way.

## ➤ Mitsubishi Electric means excellence

Founded in 1921, Mitsubishi Electric is now a global, market-leading environmental technologies manufacturer.

In the UK, the Living Environment Systems Division provides pioneering solutions that heat, cool, ventilate and control buildings in the most energy efficient ways possible. Our aim is to help individuals and businesses reduce the energy consumption of their buildings and their running costs.









Telephone: 01707 282880

MELSmart Technical Services: 0161 866 6089

Technical Help - option 1

Warranty - option 3

Training - option 6 followed by option 1

email: [air.conditioning@meuk.mee.com](mailto:air.conditioning@meuk.mee.com)

website: [airconditioning.mitsubishielectric.co.uk](http://airconditioning.mitsubishielectric.co.uk)

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**Note:** The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774) or R134a (GWP:1430). \*These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

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[www.greengateway.mitsubishielectric.co.uk](http://www.greengateway.mitsubishielectric.co.uk)

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to the environment



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Living Environmental Systems UK



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