MITSUBISHI ELECTRIC

BMS UPGRADES
AND REPLACEMENT

Realising Step Change

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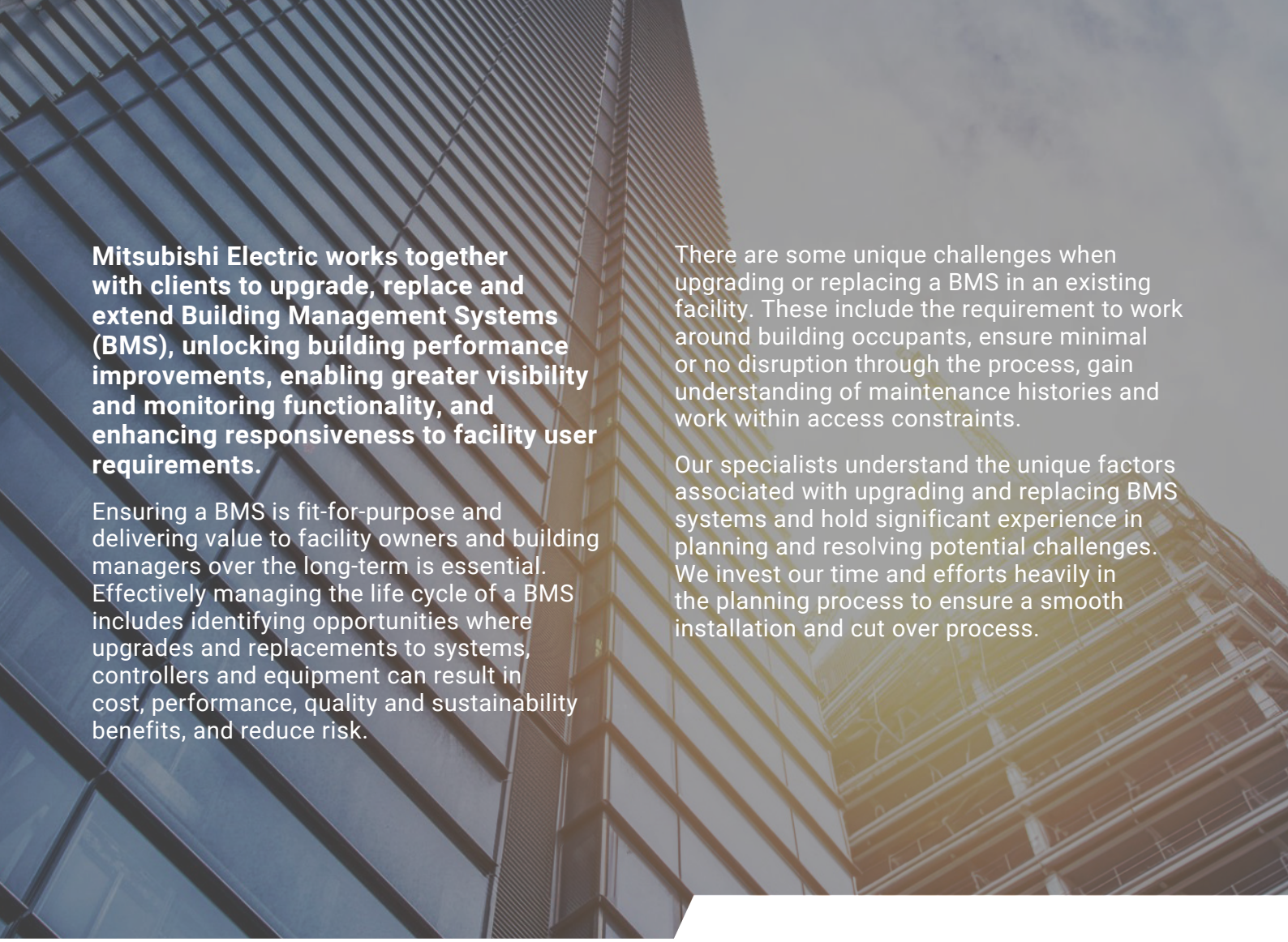


Mitsubishi Electric works together with clients to upgrade, replace and extend Building Management Systems (BMS), unlocking building performance improvements, enabling greater visibility and monitoring functionality, and enhancing responsiveness to facility user requirements.

Ensuring a BMS is fit-for-purpose and delivering value to facility owners and building managers over the long-term is essential. Effectively managing the life cycle of a BMS includes identifying opportunities where upgrades and replacements to systems, controllers and equipment can result in cost, performance, quality and sustainability benefits, and reduce risk.

There are some unique challenges when upgrading or replacing a BMS in an existing facility. These include the requirement to work around building occupants, ensure minimal or no disruption through the process, gain understanding of maintenance histories and work within access constraints.

Our specialists understand the unique factors associated with upgrading and replacing BMS systems and hold significant experience in planning and resolving potential challenges. We invest our time and efforts heavily in the planning process to ensure a smooth installation and cut over process.

THE MITSUBISHI ELECTRIC DIFFERENCE: TAILORED, BEST-FIT SOLUTIONS

We work with clients, building owners or mechanical contractors to identify efficiency, sustainability and performance opportunities for existing facilities – both where we have an existing connection with the building or on new projects.

Together, we design BMS upgrade and replacement solutions, ranging from simple controller replacements through to expansions and full system upgrades, and building strategy optimisation.

Our long-term, collaborative client relationships enable our teams to develop a deep understanding of individual system requirements, operational contexts, and building functions. We guide our clients in understanding equipment and software capabilities and opportunities to upgrade as new technology comes to market.

We combine the expertise and full-service offering of a large BMS organisation, coupled with the agility and flexibility of smaller providers. Backed by the broader Mitsubishi Electric business, we bring exceptional technical capability and expertise and an approach that ensures adaptability, scalability and a future proofed BMS investment for our clients.

OUR BMS UPGRADE AND EXPANSION CAPABILITY IMPROVES:

Performance
Optimise building performance, reduce energy consumption and adapt facility to meet dynamic use requirements

Occupancy
Greater control over the building conditions and enhanced adaptability and responsiveness to occupant use and comfort

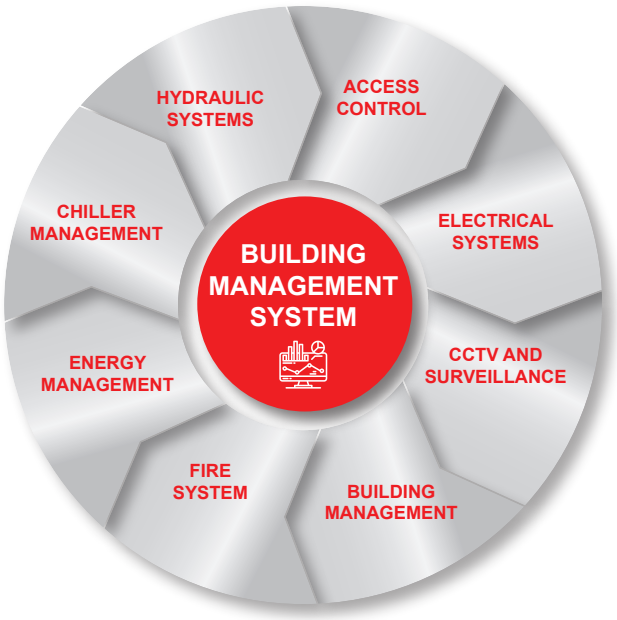
Visibility
Enhanced visibility, in-depth reporting and analytics, trend mapping and greater forecasting capabilities

Technology
Access benefits of market leading BMS equipment and new technologies, including extended BMS monitoring and management capabilities and tools

Value
Create space efficiencies, reducing old bulky switchboards, controllers and equipment, and implement BMS upgrades in line with broader facility replacement programs for greater value

Sustainability
Ensure improved and ongoing achievement of sustainable building standards, energy efficiency and comprehensive usage reporting

Compliance
Ensure ongoing Australian Standards compliance, and critical controlled environmental requirements such as laboratories and operating theatres

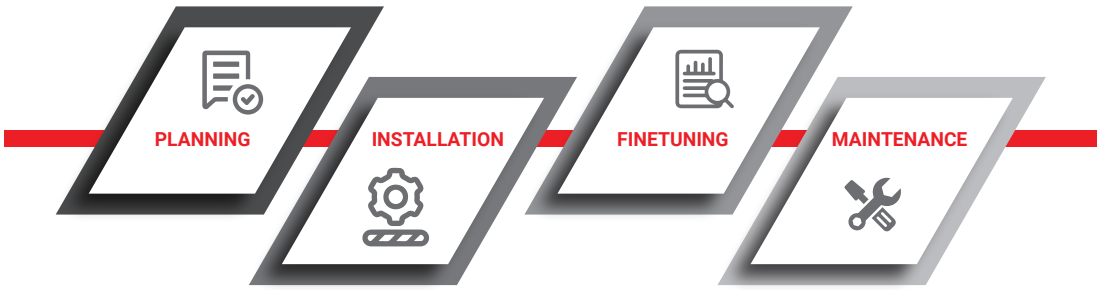


OUR BMS SOLUTION

Mitsubishi Electric BMS solutions provide intelligent monitoring of climatic conditions and technical system functionality across a single building or a suite of networked facilities.

Our customised solution enables visibility, insight and control into each of the areas identified in the figure.

OUR PROCESS



Our BMS team works with you through each stage of the process. At project commencement, comprehensive preparation is key to a successful upgrade or replacement project. Our specialists source all existing documentation, determine current system components, examine maintenance histories and build an in-depth knowledge of occupants, building use and operational rhythms.

These learnings inform the development of the new or revised system solution. Every element is planned, from establishing cable type and location to logic pre-programming. Cabling is validated and assessed to ensure it is fit for purpose, and the cut over approach is also determined, for example, via a floor-by-floor process. This enables communication processes with tenants and occupants to commence.

Clear communication of process, potential impacts and early notification of shut down and changeover requirements are key strategies engaged by our team when working in occupied buildings, all of which support the ultimate priority of minimising or eliminating system downtime.

During installation and system integration we work quickly to implement all infrastructure in the allocated time frame. Once all controllers are in place and communicating, then further fine tuning (such as adjusting heating and cooling levels) and strategy adjustments are conducted. We minimise impact to occupants by working floor-by-floor, or zone-by-zone, and working after hours and weekends around building operations.

Following project completion, we can continue to provide ongoing service and maintenance as necessary and appropriate for the facility.

OUR TECHNOLOGY

Leveraging existing leading technologies, we ensure our BMS solutions are interoperable, easy-to-use and future proofed for upgrade, expansion and refurbishment works.

For both new buildings and BMS upgrades to existing facilities, we implement the industry leading Niagara Framework®, a software technology designed to integrate diverse building systems and devices into one seamless system. The Niagara Framework® is an open-source platform that enables the effective integration of diverse technical systems, services and protocols. It provides a single point of visibility and control of the range of systems and data points that govern building functionality.

powered by niagara framework®

ASHRAE BACnet™

Modbus

OUR PROJECTS

We have delivered BMS upgrade and expansion projects across a broad spectrum of industries including healthcare, retail, commercial buildings, science, education, government, and transport.

We assist our clients to optimise performance of their assets and enable visibility and monitoring of key building performance metrics.

Recent upgrade, replacement and expansion projects include:

WESTMEAD PRIVATE HOSPITAL, NSW

Westmead Hospital is the principal referral hospital for Western Sydney. A new BMS system was required for a new medical facility and services building featuring two operating theatres, 13 consulting suites, 20 additional beds and the upgrade of two cardiac catheter laboratories.

Scope

Our project scope included:

- Replacement of existing BMS
- BMS fully integrated solution on all mechanical equipment
- Integration of critical main plant equipment into BMS
- Monitoring of Ventilation, Temperature, Fire Safety, Hydraulics and Elevators

Key metrics

A new Niagara based BMS allows for future incremental upgrades and modernisation of the entire facility.

The ability to mix and match legacy products and systems with new replacement controllers eliminated the need for two layers of legacy control and created numerous options for multi-vendor equipment and protocols.

GOVERNMENT SCIENCE FACILITY, NSW

Commissioned in 2016 to upgrade the Government Science Facility's existing Programmable Logic Controller (PLC) with a new Building Management System (BMS). A custom 'hybrid' solution that ensures critical accuracy of facility conditions and delivers a value-for-money solution.

Scope

Our project scope included:

- Controller replacement for chillers, boilers, cooling towers and main plant pumps, totalling 5.5MW capacity
- Controller replacement for Chilled water and Hot Water Air Handling Units in the existing SCADA system
- Implementing hybrid Niagara DDC system and Mitsubishi Electric PLC system
- Controlling temperature to +/- 0.1ºC for critical laboratories
- Controlling humidity to +/- 5% for critical laboratories

Key metrics

Work in one trial plant room was conducted before finalising the contract, with a three day turnover. From contract finalisation the team had 16 weeks to replace 96 air handling units in the facility. Minimisation of downtime and disruption to occupied laboratories was a key focus.

Temperature control was improved to +/- 0.05ºC and humidity conditions to +/- 5% for critical laboratories. Further, the condition of non-critical laboratories was also improved to +/- 0.2ºC or better (previously had been +/- 0.5ºC with existing SCADA system).

MELBOURNE AVIATION PRECINCT, VIC

Melbourne Jet Base is a private jet airport facility in Tullamarine, operating 24 hours with access to full length runways, two hangars, in house customs and immigration screening, pilot support areas, function spaces and high-end guest facilities.

Scope

Our project scope included installation of BMS fully integrated system for:

- Chilled water system with air-cooled chillers
- Heating water system with gas boilers
- Air Handling Units with CO2 control
- VAV boxes
- Carpark ventilation
- Electrical meter monitoring

Key metrics

The key metrics for this project included provision of a BMS that meets the needs of the mixed-use facility. Continuous comfort levels must be maintained for the 24 hour operation of the facility.

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