MITSUBISHI ELECTRIC

Changes for the Better

Quality in Motion®

PASSENGER ELEVATOR MODERNIZATION

ELEMOTION™

Poorly operating elevators reduce the value of your building.

Component failure of aging equipment can significantly add to operating costs and lead to increased equipment failure – ultimately affecting your tenants. It may be time to invest in your elevator equipment if you are experiencing any of these signs.

Issue 1
Safety & quality

Deterioration over a long period of use leads to increased vibration and reduced safety.

Issue 2
Running costs

Older equipment can lead to higher repair costs and an increase in power consumption. Mounting operating costs can greatly affect building's budget.

Issue 3
Longer downtimes

Deteriorating equipment means more frequent breakdowns. Subsequent repair work could also mean disruption of service resulting in prolonged downtime.

Even regular maintenance cannot prevent the deterioration of elevators.

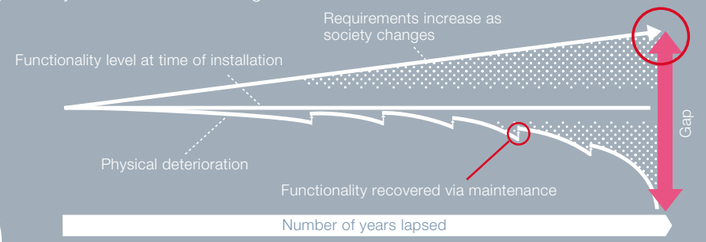
Elevators have limited lifecycles.

Just like other building equipment, elevators also require updating.
They are designed for a service life of approximately 20 to 25 years.*

*As of October 2017. Reference number of years based on in-house research.

Machinery deteriorates despite continuous maintenance.

Even periodical maintenance work cannot prevent progressive deterioration of core components such as traction machines and control equipment. Furthermore, updating to meet societal requirements is also necessary, including responding to newly introduced laws and regulations.



Now...

is the time for modernization!

ELEMOTION resolves these issues!

Reduce the burden on the building and update to a safer and more comfortable elevator. Instead of replacing the entire system, only replace the equipment that requires updating. That's the modernization offered by Mitsubishi Electric ELEMOTION.

Effect 1
Improved sense of security

Devices and components that have degraded over time are updated. Safety and ride comfort will also be improved.

Effect 2
Improved ecology and environment

Latest devices offer greater energy efficiency and parts that last longer are retained and reused.

Effect 3
Reduced frustration

By replacing with state-of-the-art equipment, failure rate and repair time will be significantly reduced - maximizing uptime.

Mitsubishi Electric modernization offers significant upgrades compatible with existing major components.

Reliability & Safety

Maximum effects achieved at minimum cost by replacing only those parts necessary

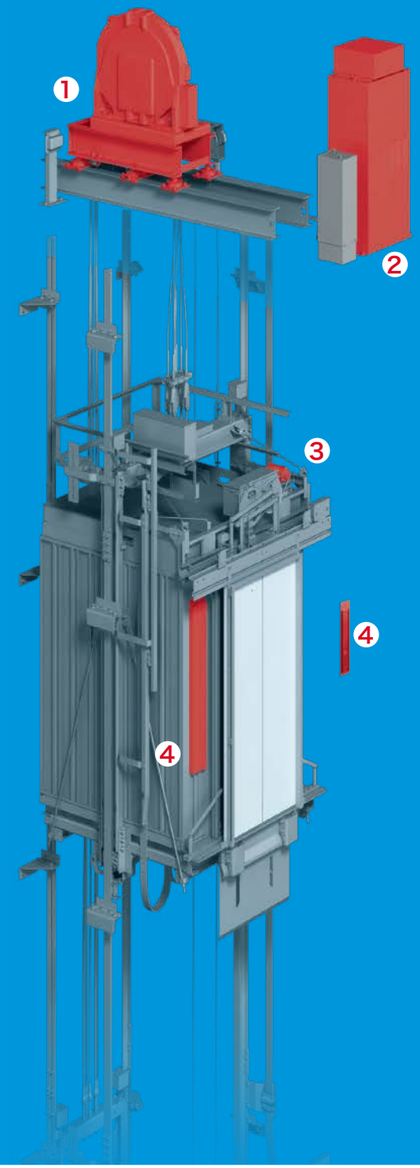
Instead of replacing the entire elevator, replacing only essential components / equipment helps to maintain renewal expenses at a reasonable level. In addition, by reducing the influence on building operations as much as possible, a shorter installation period can be achieved.

Major components replaced

- ❶ Traction machine
- ❷ Control panel
- ❸ Door motor
- ❹ Various signal fixtures

State-of-the-art technologies boost reliability and safety.

Replaceable equipment include all of the latest models, which boast cutting-edge technologies and comply with all the relevant laws and regulations. Additionally, elevator reliability and safety will be enhanced as a result of replacement with latest machinery.



Comfortable & Energy Efficient

More user-friendly, comfortable and with higher energy efficiency

State-of-the-art technologies transform aging elevators into a more comfortable, user-friendly moving space. Modernization also achieves substantial energy savings compared to previous systems.

So...

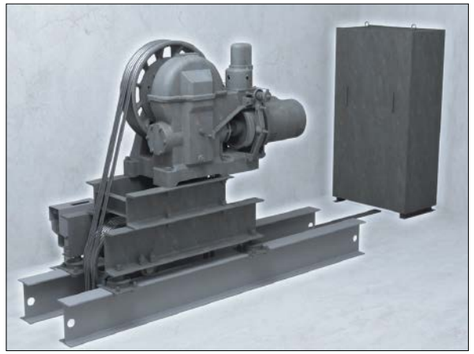
we recommend ELEMOTION!

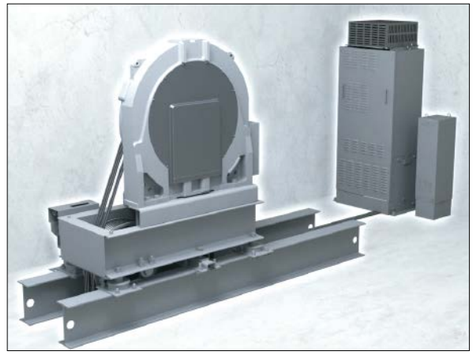
Reliability & Safety

Designs optimized for interchangeability increase reliability and safety tremendously.

Higher reliability

By replacing existing equipment with current innovations, basic functionality and durability are enhanced.
As a result, problems will be minimized and elevators can be used with a greater sense of security.





Advanced maintenance engineering

State-of-the-art maintenance with computers enables problems to be addressed quickly and reduces restoration downtime. Through replacement with the newest equipment, a continuous supply of replacement parts is ensured.

Distinctive gearless traction machine with state-of-the-art PM motor

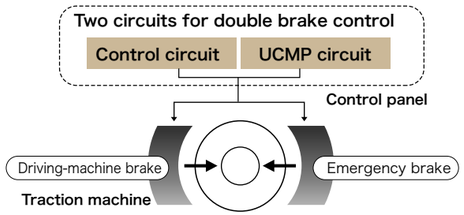
(PM: permanent magnet)

The traction machine is the most important component of an elevator. Mitsubishi Electric manufactures high-precision motors by making use of our unique motor and wire winding technologies. Moreover, the traction machine comes with double brakes as standard, which boosts braking performance significantly.

Protection against accidental car movement

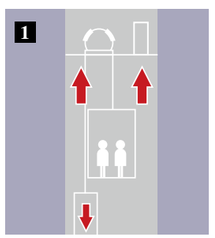
•Unintended Car Movement Protection [UCMP] (Optional*1,*2)

Equipped with double brakes, the car is stopped securely in the rare case of a malfunction where the car starts to move with the doors open.

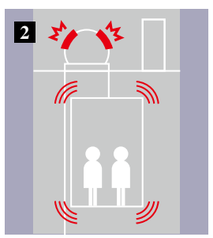


•Ascending Car Overspeed Protection [ACOP] (Optional*1,*2)

If for some reason the car begins to ascend at an abnormally high speed, the overspeeding car stops automatically to prevent it from striking the hoistway ceiling.



1 The car ascends at high speed.



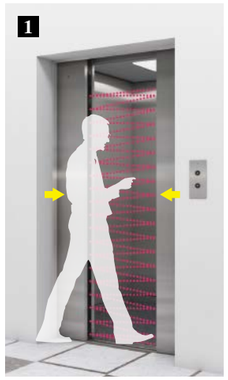
2 Traction machine brakes safely stop the car.

Safe door operation ensured by refined features

Door-related features, renowned for their safety and reliability, have been even further improved.

•Multi-beam Door Sensor (Optional*2)

If the sensor detects a person or object between closing doors, the doors immediately reverse to open to prevent anyone or anything from being caught.



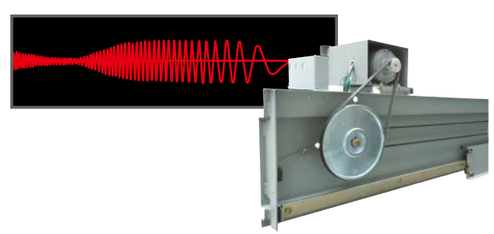
1 A person or object is detected.

2 The closing doors reverse to open.

Advanced door controls

VVVF* inverter control has been adopted to ensure smoother and quieter door operations, thereby enhancing passenger safety and product reliability. Our innovative door operation system employs a highly efficient "one-chip RISC microcomputer" which detects the constant variations on each floor in the door load, the strength of the wind, and even sediment in the sill grooves. The learning-capable door load detector immediately reverses the doors when abnormal load is detected on the doors. In some door operators, the auto tuning function adjusts the door close speed, as well as the door motor torque as needed for each floor. Additionally, our robust door operators are structurally isolated from the cab to allow for smooth, quiet operation.

*VVVF: Variable Voltage Variable Frequency.



Notes:
*1: Replacement of the entire traction machine is required for compatibility with this safety system.
*2: This safety system is an optional feature, but may be required in accordance with relevant laws, regulations or other requirements.

Comfort & Energy Conservation

Offers great comfort for passengers while also achieving higher levels of energy conservation.

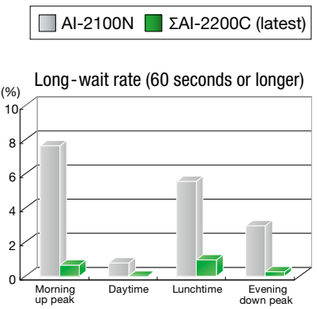
Intuitive & comfortable

Incorporating the latest advancements in fuzzy-logic, our group control system utilizes intuitive control to provide reliable dispatching and a stress-free ride. The moment a hall call button is pressed, the optimal car to respond to the call is selected based on factors such as waiting time, travel time, current car occupancy and energy consumption.

∑AI-22 and ∑AI-2200C control multiple elevators optimally according to the building size.

Group control systems	Suitable building size	Number of cars in a group
ΣAI-22 system	Small to medium	3 to 4
ΣAI-2200C system	Large (especially buildings with dynamic traffic conditions)	3 to 8

Performance



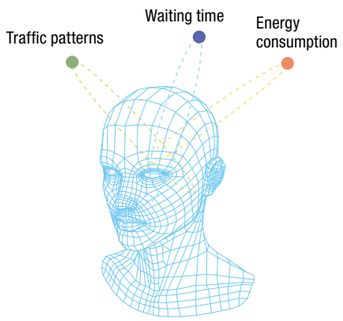
•Forecasting a near-future hall call to reduce long waits

When a hall call is registered, the artificial intelligence predicts a near-future call that could require long waits. Through evaluation of the registered hall call and the forecasted call, the best car is assigned. All cars work cooperatively for optimum operation.

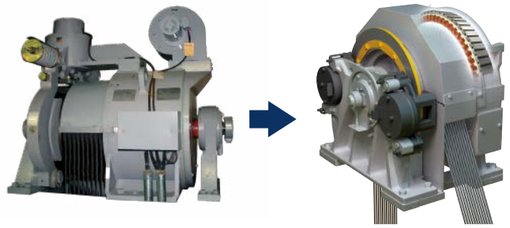
•Selects optimum car allocation through "rule-set" simulation

The neural network technology has enabled the system to continually and accurately predict the passenger traffic within intervals of several minutes. A high-speed RISC runs real-time simulations using multiple rule-sets and the predicted passenger traffic to select the rule-set which optimizes transport efficiency.

AI arranges cars most effectively, taking various factors into account.



Energy-efficient PM gearless traction machine



Our unique motor stator core technology, Joint-Lapped Core, has dramatically reduced not only the size of traction machines but also energy consumption.

Energy saving of up to 20%

Smooth control using high-speed CPU

The introduction of high-density, integrated LSI digital control circuitry resulted in a significant increase in computer processing speed, enabling precise control of the traction motor for acceleration and deceleration. This innovation delivers a quality ride with minimal noise and vibration.

Increase usability

A large variety of convenient features makes our elevators truly easy to use for everyone.

•Car Call Erase [FCC-P] * (High speed: Standard, Low speed: Optional)

If a passenger has pressed a wrong button in the car, it can be cancelled by double-pressing the button.

Double-press wrong button pressed — Cancelled

•Car Arrival Chime [AECC for car/AECH for hall] * (Optional)

Electric chimes on the top and bottom of the car or in each hall sound to indicate that a car will soon arrive.

•Reopen with Hall Button [ROHB] * (Standard)

Closing doors can be reopened by pressing the hall button corresponding to the traveling direction of the car.

Energy conservation through LED indicators

Choosing a signal fixture with LED indicator to replace an incandescent light indicator is one way to reduce energy consumption.

In Car

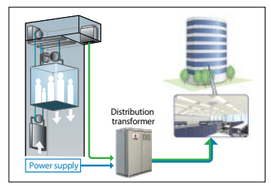
Conserve energy

•Car Fan Shut Off — Automatic [CFO-A] * (Standard)
•Car Light Shut Off — Automatic [CLO-A] * (Standard)

The car ventilation fan or lighting is automatically turned off if there are no calls for a specified period.

•Regenerative Converter [PCNV] (High speed: Standard, Low speed: Optional)

The Regenerative Converter transmits the power regenerated by the traction machine via the distribution transformer to the electrical network for use in lights, air conditioners and other building facilities.



Note:
* The feature may be installed in the elevator which is currently in use. Please refer to pages 17 to 20 for other features.

New Design

Replacement of Signal Fixtures

Car operating panel in front return panel

CBF-US111
Plastic round-type
micro stroke click button

CBV-US111
Stainless steel round-type
micro stroke click button

Car lanterns*2

CLV-US110
Frosted clear
acrylic lens

When lit

Yellow orange (UP)
Red (DOWN)

Lighting color selections

Yellow orange
(UP & DOWN)

White
(UP & DOWN)

Design and lighting color selections

Full-face Illumination

Yellow orange

White
(California code compliant)

Halo Illumination

Yellow orange

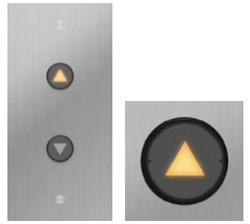
White

Notes
*1: This design is for California and other states and regions where compliant with a previous version of ASME code is required.
*2: Car lanterns are not applicable to elevators equipped with ΣAI-2200C group control system.

New Design

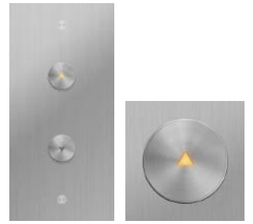
Replacement of Signal Fixtures

Hall buttons



HBF-US110

Plastic round-type
micro stroke click button



HBV-US110

Stainless steel round-type
micro stroke click button

With etched pictograph

HBF-US210

Plastic round-type
micro stroke click button

HBV-US210

Stainless steel round-type
micro stroke click button

Hall lanterns

HLV-US220

Frosted clear
acrylic lens
Orange
(UP & DOWN)

HLV-US120

Frosted clear
acrylic lens
Orange
(UP & DOWN)

HLVD-US20

Milky white
acrylic lens
without faceplate*1

Yellow orange (UP)
Red (DOWN)

Lighting color selections

Yellow*2
orange
(UP & DOWN)

White*2
(UP & DOWN)

Design selection

Vandal
resistant

Green (UP)
Red (DOWN)

Design and lighting color selections

Full-face Illumination

Yellow orange

White
(California code compliant)

Halo Illumination

Yellow orange

White

Notes
*1: Wall finish is not included in elevator contract.
*2: The custom colors are applicable to hall lanterns regardless of their shape.

Innovative Technology

Introducing sophisticated operation systems that enhance comfort, mobility and building security.

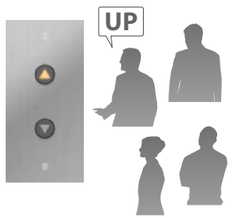
More Efficient, More Comfort

•Destination Oriented Allocation System [DOAS™] (Optional)

Passengers register their destination floor using a hall operating panel before entering the elevator, eliminating the need to press the button inside the car. Furthermore, dispersing passengers by destination prevents congestion in cars and minimizes waiting and travel time.

■ Evaluating travel time

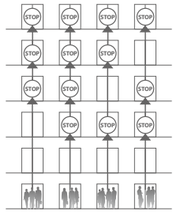
Without DOAS
Since not all passengers press an up or down button at the hall, the system cannot evaluate their waiting time and travel time.



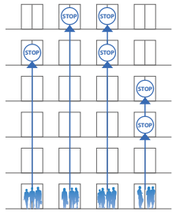
With DOAS
Since all passengers register the destination floor on the hall operating panel, the system can evaluate travel time of each passenger and allocate the optimum car for the passenger.

■ Reducing travel time

Without DOAS
Cars make stops at every selected floor because destination floor is not considered for car allocation.



With DOAS
The individualized car allocation based on the destination floors leads to shorter travel time and fewer intermediate stops.



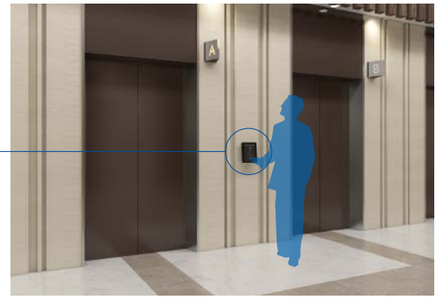
■ How to use hall operating panel

1. Pass a card over the card reader.

Card reader

2. Enter a destination floor.

3. Check the number and direction of the assigned elevator on the display and proceed to the elevator.



More Security

•DOAS Integrated with Security Gate (Optional)

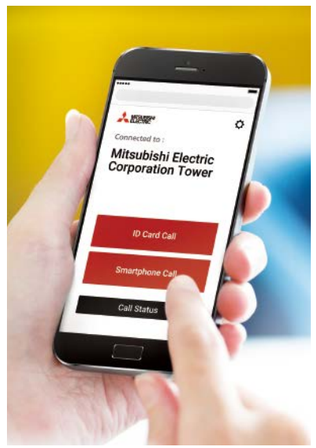
Extended feature for more security

The destination floor can be registered automatically after passing a card over a card reader at the security gate entrance. DOAS integrated with security gates provides a seamless journey and enhances security in the building.

More Closely Connected

•Elevator Call System with Smartphone (Optional)

This smartphone application is designed for users to easily access an elevator equipped with the DOAS Integrated with Security System. Using a smartphone equipped with the application, users can change the call setting for their elevator and check the status of the elevator assigned to them. Once inside the secure area, users can call an elevator remotely from anywhere. The increased convenience and mobility bring more value to the building.



Convenient & Intuitive

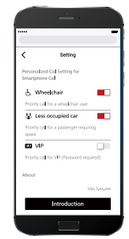
This smartphone application delivers quicker and easier elevator use through convenient features, including ID Card Call and Smartphone Call for use before and after the security point in the building. The intuitive display design provides users with maximum support.

Before the building security point

In the building

Enhanced Comfort & User Friendly

The smartphone displays the elevator assigned and its current status and alerts the passenger as the elevator car approaches to assist smooth boarding. Additionally, this application allows users to set a call mode for Smartphone Call, for example, to request a wheelchair accessible elevator.



Signal Fixtures for DOAS

•Hall operating panels

Touchscreens

Surface mounted type

HSP-A27B

10.1-inch touchscreen
with card reader*
(California code compliant)

Embedded type

HSP-C13

10.4-inch touchscreen

HSP-C18

10.4-inch touchscreen
with card reader*

Custom keypads

Embedded type

5.7-inch LCD display
& vertical face button

For California
(California code compliant)
5.7-inch LCD display & slant face button

•Hall lanterns

Triangle flag

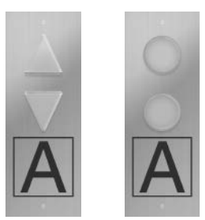
HLF-A10B / HLF-A11B (with chime)

Lighting: Yellow orange when lit

Custom rectangle flag

Lighting: Yellow orange when lit

Elevator number appended



Elevator number: - Stainless steel #4
- Black etched letter in frame
Lighting color: See Hall Lanterns on page 12

Elevator number illuminated

Faceplate: - Stainless steel #4
Lighting: White when lit

Note:
* Card reader is to be supplied by customer. Contact a Mitsubishi Electric representative for more details.

Other Major Features

In addition to features already described, a wide variety of convenient features is available.

For improving operational efficiency

•Strategic Overall Spotting [SOHS]*1 (Standard)
Cars that have finished service are dispersed to stand by at floors where they can respond to predicted future hall calls as quickly as possible so as not to keep passengers waiting for long.

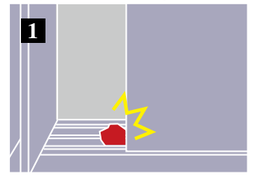
•Main Floor Parking [MFP]*1 (Optional)
One of the available cars in a group stands by for a hall call at the lobby (main) floor.

For safer door operation

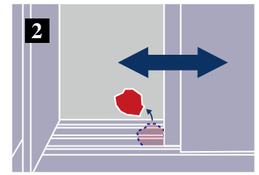
•Door Load Detector [DLD]*1 (Standard)
If an obstacle has been caught between the doors and an abnormal door load is detected when opening or closing, the doors immediately reverse to prevent an accident or malfunction.

•Repeated Door-close [RDC]*1 (Standard)
If an obstacle has become lodged in a sill groove and prevents the doors from closing completely, the doors will repeatedly open and close until the obstacle is removed from the doorway.

Repeated Door-close image



An obstacle is lodged in the sill groove.



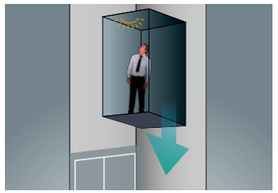
The closing doors reverse to open and repeat closing and opening until the obstacle is removed.

For safety in case of emergency

•Mitsubishi Emergency Landing Device [MELD]*1 (Optional)
Upon power failure, a car equipped with this function automatically moves and stops at the nearest floor using a rechargeable battery, and the doors open to facilitate the safe evacuation of passengers.

•Earthquake Emergency Operation [EER-DS]*1 (Standard)
Upon activation of a seismic sensor, all cars stop at the nearest floor, and park there with the doors open to facilitate the safe evacuation of passengers.

•Mitsubishi Elevators & Escalators Monitoring and Control System – MelEye [WP-W] (Optional)
Each elevator's status and operation can be monitored and controlled using an advanced Web-based technology which provides an interface through personal computers. Special optional features such as preparation of traffic statistics and analysis are also available.



MELD image

MelEye image

For further convenience

•Overload Holding Stop [OLH] (Standard) & Overload Holding Stop Light – Car [OLHL]*1 (Optional)
A buzzer sounds to alert the passengers that the car is overloaded. The doors remain open and the car will not leave the floor until enough passengers exit the car. [OLH] The indicator, when incorporated in the car operating panel, illuminates to show that the car is overloaded. [OLHL]

•Non-service Temporary Release for Car Call – Card Reader Type [NSCR-C] (Optional)
Non-service to Specific Floors can be temporarily released by swiping a card through the car operating panel.

OLHL image

NSCR-C image

Note:
*1: The feature may be installed in the elevator which is currently in use. Please refer to pages 17 to 20 for other features.

Standard Features

Feature	Abbreviation	Description	For low speed			For high speed		
			1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
EMERGENCY OPERATIONS AND FEATURES								
Earthquake Emergency Operation	EER-DS	In case of earthquake detection, the elevator stops at the nearest available floor and shuts down with the door open. (Detailed operation conforms to the local code.)	√	√	√	√	√	√
Firefighters' Emergency Operation	FE	In case of fire, the elevator performs firefighters' emergency operation (Phase I and Phase II) conforming to the local code.	√	√	√	√	√	√
DOOR OPERATION FEATURES								
Automatic Door-open Time Adjustment	DOT	The amount of time that doors are open will automatically be adjusted depending on whether the stop was called from the hall or the car, to allow smooth boarding of passengers or loading of baggage.	—	—	√	—	—	√
Automatic Door Speed Control	DSAC	Door load on each floor, which can depend on the type of hall doors, is monitored to adjust the door speed, thereby making the door speed consistent throughout all floors. (Cannot be used with some doors.)	√	√	√	√	√	√
Door Load Detector	DLD	When excessive door load has been detected while opening or closing, the doors immediately reverse.	√	√	√	√	√	√
Door Nudging Feature — With Buzzer	NDG	The doors slowly close when they have remained open for longer than the preset period with alarm sound.	√	√	√	√	√	√
Door Sensor Self-diagnosis	DODA	Failure of non-contact door sensors is checked automatically, and if a problem is diagnosed, the door-close timing is delayed and the closing speed is reduced to maintain elevator service and ensure passenger safety.	√	√	√	√	√	√
Reopen with Hall Button	ROHB	Closing doors can be reopened by pressing the hall button corresponding to the traveling direction of the car.	√	√	√	√	√	√
Repeated Door-close	RDC	Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is cleared from the doorway.	√	√	√	√	√	√
Safety Door Edge	SDE	The sensitive door edge detects passengers or objects during door closing.	√	√	√	√	√	√
OPERATIONAL AND SERVICE FEATURES								
Automatic Bypass	ABP	A fully loaded car bypasses hall calls in order to maintain maximum operational efficiency.	√	√	√	√#1	√	√
Automatic Hall Call Registration	FSAT	If one car cannot carry all waiting passengers because it is full, another car will automatically be assigned for the remaining passengers.	√	√	√	√	√	√
Backup Operation for Group Control Microprocessor	GCBK	An operation by car controllers which automatically maintains elevator operation in the event that a microprocessor or transmission line in the group controller has failed.	√†	√	√	√†	√	√
Car Call Canceling	CCC	When a car has responded to the final car call in one direction, the system regards remaining calls in the other direction as mistakes and clears them from the memory.	√	√	√	√	√	√
Car Fan Shut Off — Automatic	CFO-A	If there are no calls for a specified period, the car ventilation fan will automatically turn off to conserve energy.	√	√	√	√	√	√
Car Light Shut Off — Automatic	CLO-A	If there are no calls for a specified period, the car lighting will automatically turn off to conserve energy.	√	√	√	√	√	√
Continuity of Service	COS	A car which is experiencing trouble is automatically withdrawn from group control operation to maintain overall group performance.	√†	√	√	√	√	√
False Call Canceling — Automatic	FCC-A	If the number of registered car calls does not correspond to the car load, the car calls are canceled to avoid unnecessary stops.	√	√	√	√	√	√
Car Call Erase	FCC-P	If a wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.	—	—	—	√	√	√
High Accuracy Landing Feature	HARL	The car landing level is adjusted to a high level of precision in order to ensure a landing accuracy of ±5mm under any conditions.	—	—	—	√	√	√
Independent Service	IND	Exclusive operation where a car is withdrawn from group control operation for independent use, such as maintenance or repair, and responds only to car calls.	√	√	√	√	√	√
Landing Open	LO	Doors start opening right before the car has completely stopped at a floor.	—	—	—	√	√	√
Next Landing	NXL	If the elevator doors do not open completely at a destination floor, the doors close, and the car automatically moves to the next or nearest floor where the doors open.	√	√	√	√	√	√

Feature	Abbreviation	Description	For low speed			For high speed		
			1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
OPERATIONAL AND SERVICE FEATURES (Continued from the previous page.)								
Overload Holding Stop	OLH	A buzzer sounds to alert the passengers that the car is overloaded. The doors remain open and the car will not leave that floor until enough passengers exit the car. The indicator, when incorporated in the car operating panel, illuminates to show that the car is overloaded. [OLHL] (Optional)	√	√	√	√	√	√
Power On Releveling	PORL	In case the car stops in the door zone after stopping suddenly due to power failure, when power is re-supplied after recovering from the power failure, car floor releveling is activated to be located in the same level as landing floor to prevent passengers from tumbling.	√	√	√	√	√	√
Regenerative Converter	PCNV	For energy conservation, power regenerated by a traction machine can be used by other electrical systems in the building. (The Regenerative Converter is not applicable to some elevators. Please contact a Mitsubishi Electric representative for details.)	—	—	—	√	√	√
Rope Replacement Alarm	RRA	This self-diagnosis function gives an alert when rope replacement timing has approached.	—	—	—	√	√	√
Safe Landing	SFL	If a car has stopped between floors due to a equipment malfunction, the controller checks the cause, and if it is considered safe to move the car, the car will move to the nearest floor at a low speed and the doors will open.	√	√	√	√	√	√
GROUP CONTROL FEATURES								
Car Allocation Tuning	CAT	The number of cars allocated or parked on crowded floors is controlled not just according to the conditions on those crowded floors but also the operational status of each car and the traffic on each floor.	—	—	√	—	—	√
Car Travel Time Evaluation	—	Cars are allocated to hall calls by considering the number of car calls that will reduce passenger waiting time in each hall and the travel time of each car.	—	√	√	—	√	√
Cooperative Optimization Assignment	—	The system predicts a potential hall call which could cause longer waiting time. Car assignment is performed considering not only current and new calls but also near-future calls.	—	—	√	—	—	√
Distinction of Traffic Flow with Neural Networks	NN	Traffic flows in a building are constantly monitored using neural network technology, and the optimum operational pattern for the LTS, UPS feature, etc. is selected or canceled accordingly at the appropriate time.	—	—	√	—	—	√
Dynamic Rule-set Optimizer	DRO	Traffic flows in a building are constantly predicted using neural network technology, and an optimum rule-set for group control operations is selected through real-time simulations based on prediction results.	—	—	√	—	—	√
Energy-saving Operation — Allocation Control	ESO-W	The system selects the elevator that best balances operational efficiency and energy consumption according to each elevator's current location and passenger load as well as predicted congestion levels throughout the day.	—	—	√	—	—	√
Energy-saving Operation — Power Reduction during Off-peak	ESO-A	To save energy, some elevators are automatically put into sleep mode if there are no calls for a specified period.	—	—	—	—	—	√
Expert System and Fuzzy Logic	—	Artificial expert knowledge, which has been programmed using "expert system" and "fuzzy logic", is applied to select the ideal operational rule which maximizes the efficiency of group control operations.	—	√	√	—	√	√
Peak Traffic Control	PTC	A floor which temporarily has the heaviest traffic is served with higher priority over other floors, but not to the extent that it interferes with the service to other floors.	—	√	√	—	√	√
Psychological Waiting Time Evaluation	—	Cars are allocated according to the predicted psychological waiting time for each hall call. The rules evaluating psychological waiting time are automatically changed in a timely manner in response to actual service conditions.	—	√	√	—	√	√
Strategic Overall Spotting	SOHS	To reduce passenger waiting time, cars which have finished service are automatically directed to positions where they can respond to predicted hall calls as quickly as possible.	√†	√	√	√†	√	√
SIGNAL AND DISPLAY FEATURES								
Basic Announcement	AAN-B	A synthetic voice (and/or buzzer) alerts passengers inside a car that elevator operation has been temporarily interrupted by overloading or a similar cause. (Available only in English.)	√	√	√	√	√	√
Car Arrival Chime — Car	AECC	Electronic chimes sound to indicate that a car will soon arrive. (The chimes are mounted on the top and bottom of the car.)	√	√	—	√	√	—
Car Arrival Chime — Hall	AECH	Electronic chimes sound to indicate that a car will soon arrive. (The chimes are mounted in each hall.)	—	—	√	—	—	√
Car/Hall Click Type Call Buttons	—	Call buttons that click softly when touched are fitted as standard.	√	√	√	√	√	√
Flashing Hall Lantern	FHL	A hall lantern, which corresponds to a car's service direction, flashes to indicate that the car will soon arrive.	√	√	√	√	√	√
Intercommunication System	ITP	A system which allows communication between passengers inside a car and the building personnel.	√	√	√	√	√	√

Notes: 1C-2BC (1-car selective collective) - Standard, 2C-2BC (2-car group control system) - Optional
ΣAI-22 (3- to 4-car group control system) - Optional, ΣAI-2200C (3- to 8-car group control system) - Optional
√ = Applicable † = Not applicable to 1C-2BC — = Not applicable
#1: Optional when the operation system is 1C-2BC.

Optional Features

Feature	Abbreviation	Description	For low speed			For high speed		
			1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
EMERGENCY OPERATIONS AND FEATURES								
Building Management System — Gateway	BMS-GW	Each elevator's status and operation can be monitored and controlled using a building management system which manages various facilities in the building via the interface for the elevator system.	√#1	√#1	√#1	√	√	√
MelEye Mitsubishi Elevators & Escalators Monitoring and Control System	WP-W	Each elevator's status and operation can be monitored and controlled using an advanced Web-based technology which provides an interface through personal computers. Special optional features such as preparation of traffic statistics and analysis are also available.	√	√	√	√	√	√
Mitsubishi Emergency Landing Device	MELD	In case of power failure, a car equipped with this function automatically moves and stops at the nearest floor using a rechargeable battery, and the doors open to ensure passenger safety. (Max. allowable floor-to-floor distance is 36'-1".)	√	√	√	—	—	—
Occupant Evacuation Operation	OEO	Elevators shuttle between the evacuation block and the discharge level for safe and quick evacuation of occupants from multi-floor buildings at the time of emergency, such as a fire.	√#1	√#1	√#1	√#1	√#1	√#1
Operation by Emergency Power Source — Automatic	OEPS-AU	In case of power failure, the elevator moves to the designated floor and opens the door to secure the safety of passengers. Then, the elevator will operate by emergency power until normal power recovery. (Detailed operation conforms to the local code.)	√†	√	√	√†	√	√
Supervisory Panel	WP	A panel installed in a building's supervisory room, which monitors and controls each elevator's status and operations by remotely using indicators and switches provided on request.	√	√	√	√	√	√
DOOR OPERATION FEATURES								
Electronic Doorman	EDM	Door open time is minimized using the SR or Multi-beam Door Sensor feature that detects passengers boarding or exiting.	√#1	√#1	√#1	√#1	√#1	√#1
Extended Door-open (Door Hold) Button	DKO-TB	A button located inside a car which keeps the doors open for a longer than usual period to allow loading and unloading of a stretcher, baggage, etc.	√	√	—	√	√	—
Hall Motion Sensor	HMS	Infrared-light is used to scan a 3D area near the open doors to detect passengers or objects.	√#1	√#1	√#1	√#1	√#1	√#1
Multi-beam Door Sensor	—	Multiple infrared-light beams cover some height of the doors to detect passengers or objects as the doors close. (Cannot be combined with the SR feature.)	√#1	√#1	√#1,2	√#1	√#1	√#1,2
OPERATIONAL AND SERVICE FEATURES								
Apartment Service	MES	In residential buildings, to reduce passenger waiting time, the floor where elevators wait on standby can be set according to the time zone; for instance, an intermediate floor during morning down-peak and a lobby floor during evening up-peak hours. (The Apartment Service is not applicable to some elevators. Please contact a Mitsubishi Electric representative for details.)	√†	√	—	√†	√	—
Elevator and Security System Interface	EL-SCA/ EL-SC	Personal authentication by building's security devices can trigger predetermined elevator operation such as permission of access to private floors, automatic registration of a hall call and a destination floor, and priority service.	√#1	√#1	√#1	√#1	√#1	√#1
Car Call Erase	FCC-P	If a wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.	√	√	√	—	—	—
Going-out Service	GOS	When passengers press the down button in the hall of the floor they live on, the car that answers the call automatically travels down to a predetermined floor without any buttons in the car being pressed. (The Going-out Service is not applicable to some elevators. Please contact a Mitsubishi Electric representative for details.)	√	√	—	√	√	—
Landing Open	LO	Doors start opening right before the car has completely stopped at a floor.	√	√	√	—	—	—
Motor Drive Mix	MDX2	The rate of car acceleration and deceleration is automatically increased according to the car load to reduce passenger waiting and travel time.	—	—	—	—	√#3	√#3
Non-service to Specific Floors — Car Button Type	NS-CB	To enhance security, service to specific floors can be disabled using the car operating panel. This function is automatically deactivated during emergency operation.	√	√	√	√	√	√
Non-service Temporary Release for Car Call — Card Reader Type	NSCR-C	To enhance security, car calls for desired floors can be registered only by placing a card over a card reader. This function is automatically deactivated during emergency operations.	√	√	√	√#1	√#1	√#1
Non-service to Specific Floors — Switch Type	NS	To enhance security, service to specific floors can be disabled using a manual switch. This function is automatically deactivated during emergency operation.	√	√	√	√	√	√
Non-service to Specific Floors — Timer Type	NS-T	To enhance security, service to specific floors can be disabled using a timer switch. This function is automatically deactivated during emergency operation.	—	—	—	√	√	√
Out-of-service — Remote	RCS	With a key switch on the supervisory panel, etc., a car can be called to a specified floor after responding to all car calls, and then automatically be taken out of service.	√	√	√	√	√	√
Regenerative Converter	PCNV	For energy conservation, power regenerated by a traction machine can be used by other electrical systems in the building. (The Regenerative Converter is not applicable to some elevators. Please contact a Mitsubishi Electric representative for details.)	√	√	√	—	—	—
Return Operation	RET	Using a key switch on the supervisory panel, a car can be withdrawn from group control operation and called to a specified floor. The car will park on that floor with the doors open, and not accept any calls until independent operations begin.	√	√	√	√	√	√
Secret Call Service	SCS-B	To enhance security, car calls for desired floors can be registered only by entering secret codes using the car buttons on the car operating panel. This function is automatically deactivated during emergency operation.	√	√	√	√	√	√

Feature	Abbreviation	Description	For low speed			For high speed		
			1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
GROUP CONTROL FEATURES								
Bank-separation Operation	BSO	Hall buttons and the cars called by each button can be divided into several groups for independent group control operation to serve special needs or different floors.	—	√	√	—	√	√
Closest-car Priority Service	CNPS	A function to give priority allocation to the car closest to the floor where a hall call button has been pressed, or to reverse the closing doors of the car closest to the pressed hall call button on that floor. (Cannot be combined with hall position indicators.)	—	√#1	√	—	√#1	√
Congested-floor Service	CFS	The timing of car allocation and the number of cars to be allocated to floors where meeting rooms or ballrooms exist and the traffic intensifies for short periods of time are controlled according to the detected traffic density data for those floors.	—	√	√	—	√	√
Destination Oriented Allocation System	DOAS	When a passenger enters a destination floor at a hall, the hall operating panel indicates which car will serve the floor. The passenger does not need to press a button in the car. Dispersing passengers by destination prevents congestion in the cars and minimizes waiting and traveling time. (Cannot be combined with some features. Please contact a Mitsubishi Electric representative for details.)	—	—	√#2	—	—	√#2
Down Peak Service	DPS	Controls the number of cars to be allocated and the timing of car allocation in order to meet increased demands for downward travel during office leaving time, hotel check-out time, etc. to minimize passenger waiting time.	—	√	√	—	√	√
Elevator Call System with Smartphone	ELCS-SP	Using a smartphone equipped with the application, users can change the call setting for their elevator and check the status of the elevator assigned to them. Once inside the secure area, users can call an elevator remotely from anywhere.	—	—	√#1	—	—	√#1
Energy-saving Operation — Number of Cars	ESO-N	To save energy, the number of service cars is automatically reduced to some extent but not so much as to adversely affect passenger waiting time.	—	√	√	—	—	—
Energy-saving Operation — Power Reduction during Off-peak	ESO-A	To save energy, some elevators are automatically put into sleep mode if there are no calls for a specified period.	—	—	—	—	√	—
Energy-saving Operation — Speed Control	ESO-V	To save energy, the car speed is automatically reduced to some extent, but not so much that it adversely affects passenger waiting time.	—	—	—	—	√	√
Forced Floor Stop	FFS	All cars in a bank automatically make a stop at a predetermined floor on every trip without being called.	√	√	√	√	√	√
Intense Up Peak	IUP	To maximize transport efficiency, an elevator bank is divided into two groups of cars to serve upper and lower floors separately during up peak. In addition, the number of cars to be allocated, the timing of car allocation to the lobby floor, the timing of door closing, etc. are controlled based on predicted traffic data.	—	—	√	—	—	√
Light-load Car Priority Service	UCPS	When traffic is light, empty or lightly loaded cars are given higher priority to respond to hall calls in order to minimize passenger travel time. (Cannot be combined with hall position indicators.)	—	√#1	√	—	√#1	√
Lunchtime Service	LTS	During the first half of lunchtime, calls for a restaurant floor are served with higher priority, and during the latter half, the number of cars allocated to the restaurant floor, the allocation timing for each car and the door opening and closing timing are all controlled based on predicted data.	—	√	√	—	√	√
Main Floor Changeover Operation	TFS	This feature is effective for buildings with two main floors. The floor designated as the "main floor" in a group control operation can be changed as necessary using a manual switch.	√	√	√	√	√	√
Main Floor Parking	MFP	An available car always parks on the main floor with the doors open to reduce passenger waiting time.	√	√	√	√	√	√
Special Car Priority Service	SCPS	Special cars, such as observation elevators and elevators with basement service, are given higher priority to respond to hall calls. (Cannot be combined with hall position indicators.)	—	√#1	√	—	√#1	√
Special Floor Priority Service	SFPS	Special floors, such as floors with VIP rooms or executive rooms, are given higher priority for car allocation when a call is made on those floors. (Cannot be combined with hall position indicators.)	—	√#1	√	—	√#1	√
Swing Service	SWSV	A car is temporarily split from the group to work as a single car. This dedicates one car to mail deliveries or facility maintenance through certain parts of the day. The swing car is operated from an inconspicuous riser of pushbuttons mounted in the doors jamb.	—	√	√	—	√	√
Up Peak Service	UPS	Controls the number of cars to be allocated to the lobby floor, as well as the car allocation timing, in order to meet increased demands for upward travel from the lobby floor during office starting time, hotel check-in time, etc., and minimize passenger waiting time.	—	√	√	—	√	√
VIP Operation	VIP-S	A specified car is withdrawn from group control operation for VIP service operation. When activated, the car responds only to existing car calls, moves to a specified floor and parks there with the doors open. The car then responds only to car calls.	—	√	√	—	√	√
SIGNAL AND DISPLAY FEATURES								
Auxiliary Car Operating Panel	ACS	An additional car control panel which can be installed for large-capacity elevators, heavy-traffic elevators, etc.	√	√	√	√	√	√
Car Arrival Chime — Hall	AECH	Electronic chimes sound to indicate that a car will soon arrive. (The chimes are mounted in each hall.)	√	√	—	√	√	—
Immediate Prediction Indication	AIL	When a passenger has registered a hall call, the best car to respond to that call is immediately selected, the corresponding hall lantern lights up and a chime sounds once to indicate which doors will open.	—	—	√	—	—	√
Second Car Prediction	TCP	When a hall is crowded to the extent that one car cannot accommodate all waiting passengers, the hall lantern of the next car to serve the hall will light up.	—	—	√	—	—	√
Voice Guidance System	AAN-G	Information on elevator service such as the current floor or service direction is given to the passengers inside a car. (Available only in English.)	√	√	√	√	√	√

Notes: 1C-2BC (1-car selective collective) - Standard, 2C-2BC (2-car group control system) - Optional
ΣAI-22 (3- to 4-car group control system) - Optional, ΣAI-2200C (3- to 8-car group control system) - Optional
√ = Applicable † = Not applicable to 1C-2BC — = Not applicable
#1: Please contact a Mitsubishi Electric representative for lead times and details.
#2: When DOAS is applied, Multi-beam Door Sensor feature is required.
#3: Applicable only if the entire traction machine is replaced. Please contact a Mitsubishi Electric representative for details.

Work Not Included in Basic Elevator Contract

The following items are excluded from Mitsubishi Electric's elevator modernization work, and are therefore the responsibility of the building owner or general contractor.

Elevator Halls and Hoistways

1. Finishing of walls and floors of elevator halls after installation of elevator hall fittings.
2. Hoistway repair work.
3. Installing intermediate beams (where existing ones cannot be used).
4. Drilling holes for jambs and transom panels, hall indicators, hall buttons, etc., in the entrance halls on each floor (where existing ones cannot be used).
5. Installing steel backing plates for the jambs and transom panels, hall buttons, hall indicators, etc., in the entrance halls on each floor where steel-frame construction is used (where existing ones cannot be used).
6. Installing fasteners for the mounting of rail brackets on floors where steel-frame construction is used (where existing ones cannot be used).

Machine Rooms

1. Removing the machine-room floor (breaking up cinder concrete).
2. Laying conduits in the machine-room floor before laying and finishing cinder concrete.
3. Drilling holes in the machine-room floor.
4. Providing a temporary opening to bring in machinery and perform restoration work.
5. Access to the elevator machine room sufficient to allow passage for transporting machinery from outside the building.

Temporary Installation Work

1. Disposing of removed parts, cleaning up and disposing of broken glass and scrap.
2. Providing a suitable, locked space for storage of removed or to-be-installed elevator parts and tools.
3. Supplying electric power for the work and lighting.

Cautions Regarding Installation Work

1. Temporary hall enclosures should be provided.
2. A certain amount of vibration and noise is inevitable during the installation period.
3. Flammable materials are used during the installation period.
4. Security guards should be deployed throughout the installation period.

* Work responsibilities in installation and construction shall be determined according to the local laws. Contact a Mitsubishi Electric representative for more details.

Mitsubishi Electric elevators, escalators and building management systems are always evolving,
helping achieve our goal of being the No.1 brand in quality.
In order to satisfy customers in all aspects of comfort, efficiency and safety while realizing a sustainable society,
quality must be of the highest level in all products and business activities, while priority is place on consideration for the environment.
As the times change, Mitsubishi Electric promises to utilize the collective strengths of its advanced and environmental technologies
to offer its customers safe and reliable products while contributing to society.

We strive to be green in all of our business activities.

We take every action to reduce environmental burden during each process of our elevators' and escalators' lifecycle.

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Notes

State-of-the-Art Factories…
For the Environment. For Product Quality.

Mitsubishi Electric elevators and escalators are currently operating in approximately 90 countries around the globe. Built placing priority on safety, our elevators, escalators and building system products are renowned for their excellent efficiency, energy savings and comfort.
The technologies and skills cultivated at the Inazawa Works in Japan and 12 global manufacturing factories are utilized in a worldwide network that provides sales, installation and maintenance in support of maintaining and improving product quality.
As a means of contributing to the realization of a sustainable society, we consciously consider the environment in business operations, proactively work to realize a low-carbon, recycling-based society, and promote the preservation of biodiversity.

ISO9001/14001 certification

Mitsubishi Electric Corporation Inazawa Works has acquired ISO 9001 certification from the International Organization for Standardization based on a review of quality management. The plant has also acquired environmental management system standard ISO 14001 certification.

ISO 9001
BUREAU VERITAS
Certification

BUREAU VERITAS 1828

ISO 14001
JACO
EC98J2017
UKAS MANAGEMENT SYSTEMS
051

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⚠ **Safety Tips:** Be sure to read the instruction manual fully before using this product.

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