MITSUBISHI ELECTRIC
Changes for the Better

for a greener tomorrow eco Changes

Quality in Motion

PASSENGER ELEVATOR MODERNIZATION (HIGH-SPEED CUSTOM-TYPE)

NexWay

MODERNIZATION

Principle

Based on our policy, “Quality in Motion”,
we provide elevators and escalators that will
satisfy our customers with high levels of
comfort, efficiency, ecology and safety.

Efficiency

Comfort

Quality in Motion

Ecology

Safety

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.

Mitsubishi Electric’s green technologies have been developed as part of its long and profound commitment to energy-saving.

Milestones of Energy-Saving Technologies in Elevator Development

	1970	1980	1990	2000	2010
Motor	DC Motor		Induction Motor	Permanent Magnet Motor	
Traction Machine	Gearless		Helical Geared	Gearless	
Motor Drive	Ward Leonard system	Thyristor Control	VVVF*1 Control		
Control Circuit	Relay		Microcomputer		
Power Consumption/ CO_2 emissions*2	100%	95%	72%	62%	57% 54%

Notes:
*1 : Variable Voltage, Variable Frequency
*2 : CO_2 emissions in this table are from elevator operation and do not include emissions from manufacturing, transportation and other processes.

Mitsubishi Electric has been focusing on energy-saving technologies for many years. The regenerative converter is a good example. It reuses power in previous systems by transmitting the power generated during traction machine operation back to the distribution transformer. The power is then fed into the electrical network in the building along with electricity from the power supply. Since incorporating regenerative converters in the 1980s, they have contributed to significant reductions in power consumption.

It is Time to Update Your Elevators

Elevator modernization brings you a smooth ride, better traffic flow and more amenities.

Utilize our world-leading technologies to optimize the performance and functionality of your elevators.

Advantages of NexWay Modernization

Earth Conscious

- Reduction of power consumption
- Efficient use of reusable parts

Page 5

Safety

- Higher safety with Door Load Detector feature (option)

Page 5

Comfort

- Reduction of failure
- Better riding comfort

Page 6

Efficiency

- Reduction of passenger waiting time

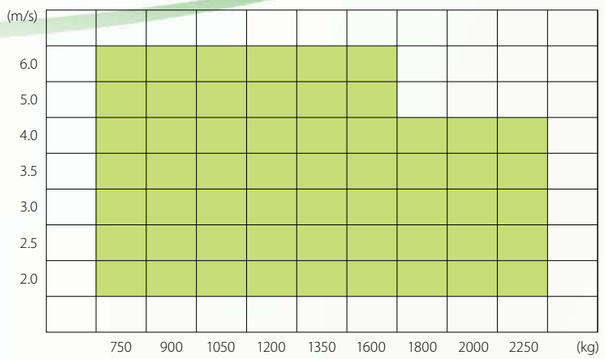
Pages 7 & 8

Sophisticated Designs

- A wide variety of designs

Pages 9 to 16

Application



Advanced Technologies

Earth Conscious

VVVF Inverter Control

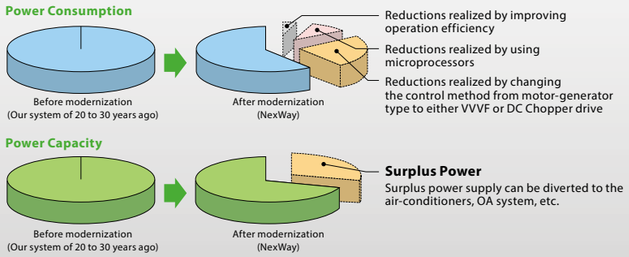
Mitsubishi Electric is the world's first company to develop VVVF Inverter Control technology for elevators. It not only delivers smooth control of the traction machine, but its regenerative system significantly conserves energy.

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.

*PM : Permanent Magnet

- **40% reduction in power consumption**
- **30% reduction in power capacity**



Safety

Advanced Door Controls

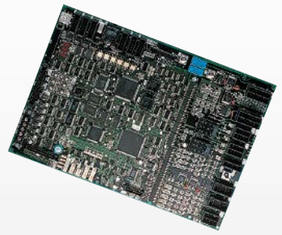
Our innovative door operation system employs a highly efficient "one-chip RISC microcomputer" which detects minor variations in the door load on each floor, the strength of the wind, and even sediment in the sill grooves. It adjusts the door open and close speeds, as well as the door motor torque as needed, for each floor using the Auto-Tuning function.

Note : Not applicable to some plans.

Comfort

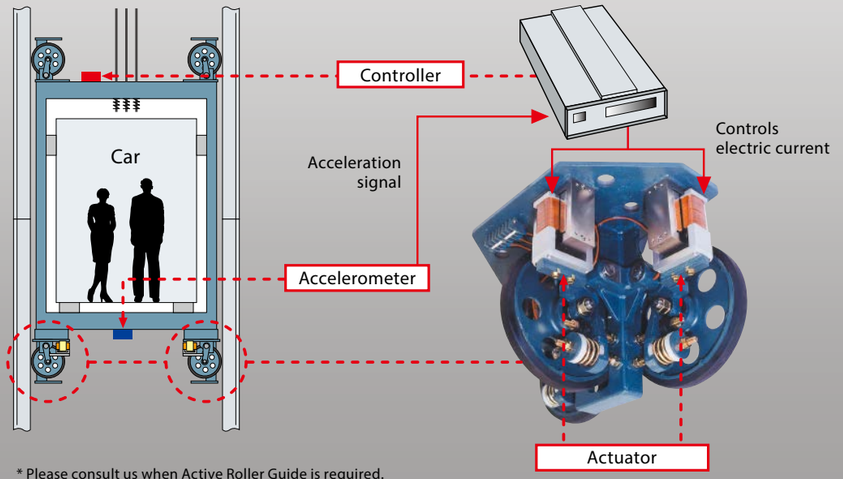
High-Speed Computer Processor

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. The adoption of a low-noise IGBT with faster switching speeds also contributes to further noise reduction.



Active Roller Guide (Optional)*

The amount of lateral vibration generated by high-speed elevator cars is tremendous. A world's first innovation in the industry, Mitsubishi Electric's Active Roller Guide technology reduces the vibration by approximately 50%. It works via an accelerometer that detects car vibration during operation, along with actuators that cancel the vibration through a controlled electromagnetic force. Mitsubishi Electric Active Roller Guides ensure a more comfortable ride than elevators employing conventional roller guides.



* Please consult us when Active Roller Guide is required.

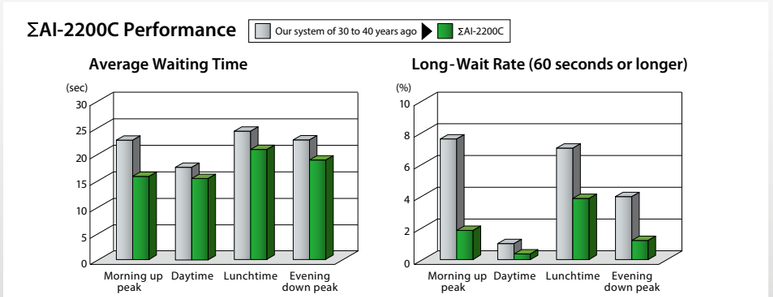
Advanced Technologies

Efficiency

AI Neural Networks

Our breakthrough AI Neural Network technology enhances transport efficiency and reduces passenger waiting time through optimum car allocation, which allows elevators to use energy effectively.

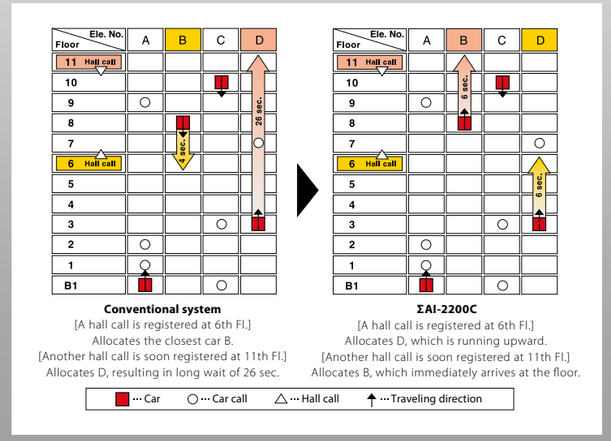
- **ΣAI-2200C group control system provides approx. 20% reduction in waiting time.**



Note: Simulated with 6 cars, 20 persons each at 2.5m/sec for 15 stops.

Cooperative Optimization Assignment

Group control system forecasts a near-future hall call to reduce long waits.



Dynamic Rule-Set Optimizer

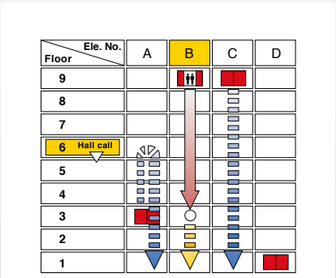
Based on real traffic data, passenger traffic is predicted every few minutes. According to the prediction, real-time simulation selects the best Rule-Set (multiple rules have been set as car allocation patterns), which optimizes transport efficiency.

Energy-Saving Operation — Allocation Control

This system selects the elevator in a group that best balances operational efficiency and energy consumption. Priority is given to operational efficiency during peak hours and energy efficiency during non-peak hours.

Car allocation that maximizes operational efficiency does not necessarily translate to energy efficiency. A car uses energy efficiently when it travels down with a heavy load, or up with a light load. Accordingly, if multiple cars have the same traveling distance, this system chooses the car that requires the least energy.

Through a maximum 10% reduction in energy consumption compared to our conventional system, this system allows building owners to cut energy costs without sacrificing passenger convenience.



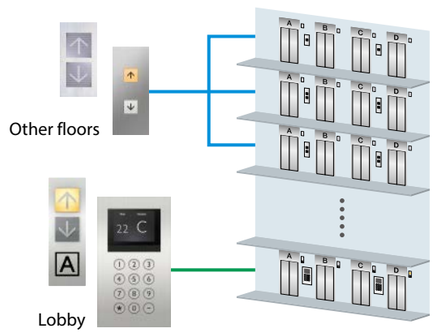
Initial conditions: non-peak period
Car A: Parked at the 3rd floor
Car B: About to leave the 9th floor with several passengers
Car C: Parked at the 9th floor.
Car D: Parked at the 1st floor
Under the conditions above, when a hall call is registered at the 6th floor to go to the 1st floor, waiting time and traveling distance will be the same regardless of whether car A, B or C responds to the call.
In response to the call, the cars will operate in the following ways:
Car A will travel up with no passengers and then down with only one passenger (requires more energy than car B).
Car B will travel down with more passengers than car A (requires the least energy).
Car C will travel down with no passengers and then down with only one passenger (requires the most energy).
Car selection
During non-peak hours when energy efficiency is prioritized, car B is selected.

Destination Oriented Allocation System (DOAS) (Optional)

The Destination Oriented Allocation System allocates passengers to cars depending on destination floors.

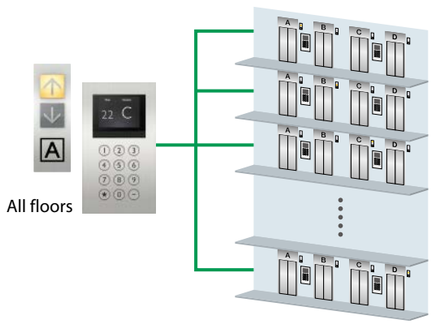
DOAS (Lobby floor(s))
DOAS hall operating panels are installed only on the busy floor(s) such as the lobby while other floors have conventional hall fixtures. This is particularly beneficial to improve the traffic flow leaving from the busy floor. It is especially useful in buildings with heavy up-peak traffic.

Example of hall arrangement



DOAS (All floors)
DOAS hall operating panels are installed on all floors. Cars receive destination information from all floors to provide the best service for more complex traffic conditions throughout the day.

Example of hall arrangement



Please consult our local agents for DOAS (all floors).

The features introduced on these pages are applicable to ΣAI-2200C only. Please refer to page 19 and 20.

Sophisticated Designs

A wide variety of sophisticated designs are available to meet your requests.
Our latest designs will give passengers an attractive new ride.

Car Designs

L210

N130

N300

N120

For details of designs and other options, refer to the NexWay brochure.

CBV1-C730

LCD Position Indicator
Various graphic indication patterns increase visibility.

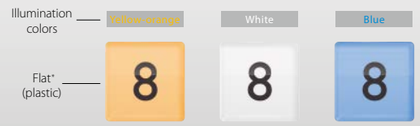
Normal operation

Emergency operation

Button Line-up

Buttons accented with LED halo illumination

Square buttons



*Flat buttons are not applicable to regulation EN81-70.

Hall Designs

E-302

E-312

Actual colors may differ slightly from those shown.

Car Signal Fixtures

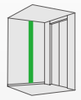
Car Operating Panel (For front return panel)

Notes:
*1: Segment LED indicators cannot display some letters of alphabet. Please consult our local agents for details.
*2: Please select a button type referring to page 10, and enter the number in the space shown as ■.
*3: Faceplates with stainless-steel, mirror-finish are also available (optional). Please consult our local agents for details.
*4: Maximum number of floors: 22 floors.
*5: The types in parentheses ( ) show auxiliary car operating panels (optional). The design is slightly different from the above images.
Please consult our local agents for further information such as installation location.
*6: Please consult our local agents for the production terms, etc.

Actual colors may differ slightly from those shown.

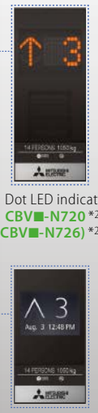
Car Signal Fixtures

Car Operating Panel (For side wall)



Segment LED indicator *1

Dot LED indicator
CBV■-N720 *2, 3
(CBV■-N726) *2, 3, 4

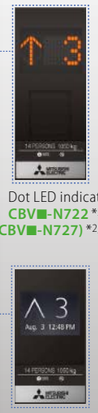


LCD indicator
CBV■-N730 *2, 3
(CBV■-N736) *2, 3, 4

CBV■-N710 *2, 3
(CBV■-N716) *2, 3, 4

Segment LED indicator *1

Dot LED indicator
CBV■-N722 *2, 3
(CBV■-N727) *2, 3, 4, 5



LCD indicator
CBV■-N732 *2, 3
(CBV■-N737) *2, 3, 4, 5

CBV■-N712 *2, 3
(with alarm indication
and tactile buttons for EN81-70)
(CBV■-N717) *2, 3, 4, 5

Dot LED indicator only

CBH-N215

Flat buttons (plastic)

LCD indicator (5.7-inch) only

Car destination floor indicator

CBVF-N228
Keypad type

CBVF-N229S
(with alarm indication
and buttons for EN81-70)
Keypad type

CBVF-N229L
(with alarm indication
and buttons for EN81-70)
Keypad type

Numbers: Flat buttons
Star: Tactile button
(stainless-steel matte)

Notes:
*1: Segment LED indicators cannot display some letters of alphabet. Please consult our local agents for details.
*2: Please select a button type referring to page 10, and enter the number in the space shown as ■.
*3: Faceplates with stainless-steel, mirror-finish are also available (optional). Please consult our local agents for details.
*4: The types in parentheses ( ) show auxiliary car operating panels (optional). The design is slightly different from the above images. Please consult our local agents for further information such as installation location.
*5: Please consult our local agents for the production terms, etc.

Actual colors may differ slightly from those shown.

Hall Signal Fixtures

Hall Position Indicators and Call Buttons

Segment LED indicator *1, 2, 6
With plastic case

PIV■-A1010N*3
Boxless
PIV■-A1010B*3

PIV■-A1020N*3
Boxless
PIV■-A1020B*3

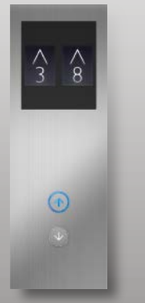
Segment LED indicator *1

PIV■-C710N *3, 4, 5

PIV■-C720N *3, 4, 6

LCD indicator

PIV■-C766N *3, 4, 5



PIV■-C776N *3, 4, 6

Dot LED indicator

PIV■-C730N *3, 4, 5

PIV■-C740N *3, 4, 6

Hall Buttons

With plastic case

HBV■-A1010N *3, 6
Boxless
HBV■-A1010B *3, 6

HBV■-C710N *3, 4

HBN■-C710N *3, 4, 6
(flat buttons only)

No-entry Indicators for EN81-73

HBV■-C711N *3, 4

SN-C10

Notes:
*1: Segment LED indicators cannot display some letters of alphabet. Please consult our local agents for details.
*2: Dot LED indicators are available (optional). Please consult our local agents for details.
*3: Please select a button type referring to page 10, and enter the number in the space shown as ■.
*4: Faceplates with stainless-steel, mirror-finish are also available (optional). Please consult our local agents for details.
*5: These types are applicable to EN81-70 compliant elevators only in 1C-2BC where one car is controlled independently.
*6: These types are not applicable to elevators complying with EN81-70.

Hall Lanterns

HLV-A21S

HLV-A31S

HLV-E65
Gold ornament

HLV-E66
Silver ornament

HLV-E71

HLH-A31S

HLV-A16S

HLH-A16S

LCD Position Indicator

PIH-C117 (5.7-inch)

LCD Information Displays

PIH-C216 (10.4-inch)

PIH-C226 (15-inch)

Hall Position Indicators

PIH-D415
(Dot LED indicator)

PIH-D417
(Segment LED indicator)

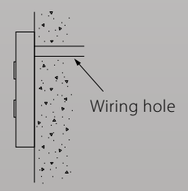
PID-D417 *2
(Built into transom panel)

Hall Position Indicator with Lantern

PIE-B47 *2

Cross-section of boxless fixtures Boxless

These hall signal fixtures can be easily mounted on the wall surface without having to cut into the wall to embed the back box.

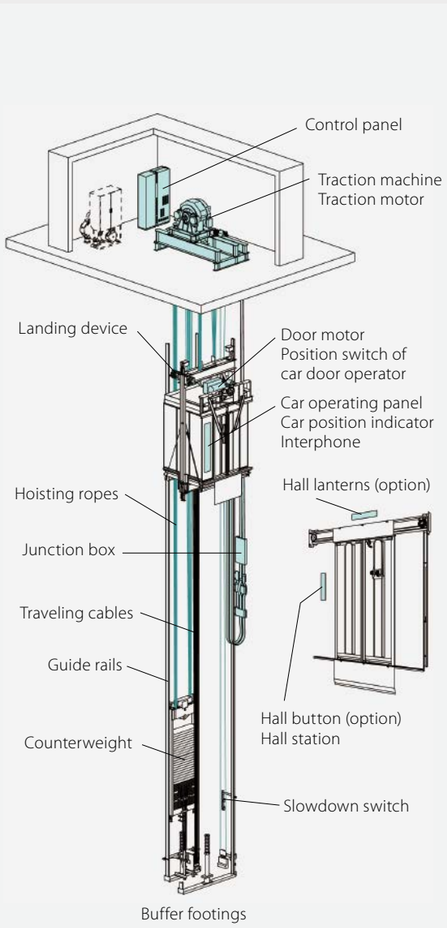


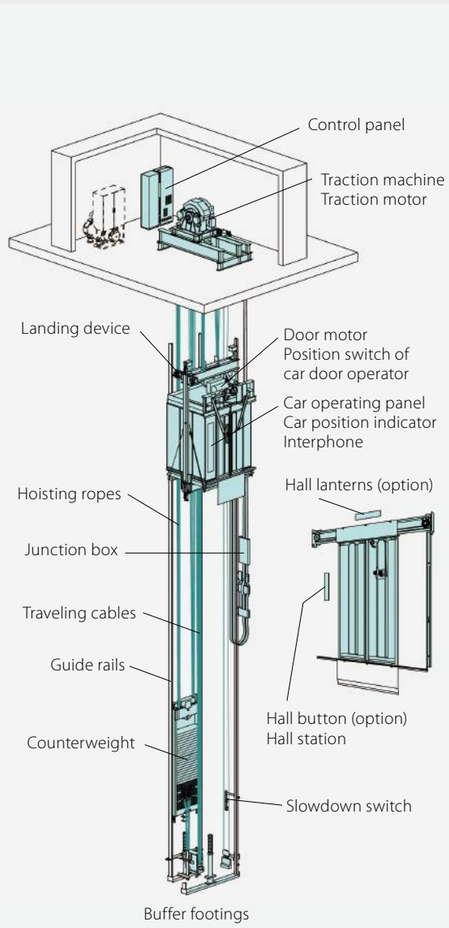
Actual colors may differ slightly from those shown.

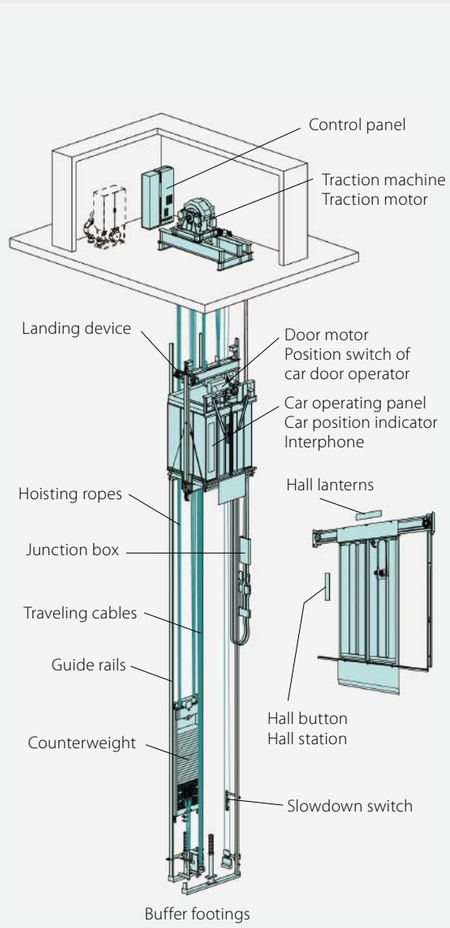
Plans

Control system modernization allows cost savings and minimizes downtime.
Utilizing existing elevator parts makes contributions to reducing of CO_2 emissions and greening activities.

Modernization Plans	CM2	SM	FM
Replaced elements	Traction machine, Control panel, Signal fixtures, Door motor, Machine beams, etc.	Traction machine, Control panel, Signal fixtures, Car, Door operator (Car & Hall), etc.	All parts
Reused elements	Car sling / Car platform / Car interior / Car door / Landing doors / Landing sills / Door frames / Guide rails / Counterweight / Buffer footings, etc.	Landing sills / Door frames / Guide rails*, etc.	None







Work Not Included in 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 fitting.
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 (when 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 of 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 machine-room floor.
4. Providing a temporary opening to introduce machinery and 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.

Installation Period Cautions
1. Security guards should be deployed throughout the installation period.

Cautions to Be Noted During the Installation Work

1. Providing temporary hall enclosures.
2. It should be remembered that a certain amount of vibration and noise is inevitable during the installation period.
3. It should be noted that flammable materials will be used during the installation period.

* Work responsibilities in installation and construction shall be determined according to the local laws. Please consult our local agents for details.

Note:
* Guide rails supplied by Mitsubishi Electric Corporation Inazawa Works.

Features

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
■ EMERGENCY OPERATIONS AND FEATURES					
Earthquake Emergency Return	EER-P EER-S	Upon activation of primary and/or secondary wave seismic sensors, all cars stop at the nearest floor, and park there with the doors open to facilitate the safe evacuation of passengers.	◎	◎	◎
Emergency Car Lighting	ECL	Car lighting which turns on immediately when power fails, providing a minimum level of lighting within the car. (Choice of dry-cell battery or trickle-charge battery.)	◎	◎	◎
Fire Emergency Return	FER	Upon activation of a key switch or a building's fire alarm, all calls are canceled, all cars immediately return to a specified evacuation floor and the doors open to facilitate the safe evacuation of passengers.	◎	◎	◎
Firefighters' Emergency Operation	FE	During a fire, when the fire operation switch is activated, the car calls of a specified car and all hall calls are canceled and the car immediately returns to a predetermined floor. The car then responds only to car calls which facilitate firefighting and rescue operation.	◎	◎	◎
MelEye Mitsubishi Elevators & Escalators Monitoring and Control System	WP-W	Each elevator's status and operation can be monitored and controlled using an advanced Webbased 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	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. (Maximum allowable floor-to-floor distance is 10 meters.)	◎	◎	◎
Operation by Emergency Power Source — Automatic/Manual	OEPS	Upon power failure, predetermined car(s) uses the building's emergency power supply to move to a specified floor, where the doors then open to facilitate the safe evacuation of passengers. After all cars have arrived, predetermined cars resume normal operation.	◎	◎	◎
Supervisory Panel	WP	Each elevator's status and operation can be remotely monitored and controlled through a panel installed in a building's supervisory room, etc.	◎	◎	◎
■ DOOR OPERATION FEATURES					
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	A buzzer sounds and the doors slowly close when they have remained open for longer than the preset period. With the AAN-B or AAN-G feature, a beep and voice guidance sound instead of the buzzer.	Ⓢ	Ⓢ	Ⓢ
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.	Ⓢ	Ⓢ	Ⓢ
Electronic Doorman	EDM	Door open time is minimized using the SR or Multi-beam Door Sensor feature that detects passengers boarding or exiting.	◎	◎	◎
Extended Door-open Button	DKO-TB	When the button inside a car is pressed, the doors will remain open longer to allow loading and unloading of baggage, a stretcher, 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]
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.)	◎	◎	◎
3D Multi-beam Door Sensor	—	Multiple infrared-light beams cover some height of the doors to detect passengers or objects as the doors close. The 3D sensor can also monitor the hall by expanding multiple infrared-light beams. (Cannot be combined with the SR feature.)	◎	◎	◎
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.	Ⓢ	Ⓢ	Ⓢ
Safety Ray	SR	One or two infrared-light beams cover the full width of the doors as they close to detect passengers or objects. (Cannot be combined with the Multi-beam Door Sensor feature.)	◎	◎	◎
■ OPERATIONAL AND SERVICE FEATURES					
Attendant Service	AS	Exclusive operation where an elevator can be operated using the buttons and switches located in the car operating panel, allowing smooth boarding of passengers or loading of baggage.	◎	◎	◎
Automatic Bypass	ABP	A fully-loaded car bypasses hall calls in order to maintain maximum operational efficiency.	Ⓢ[#3]	Ⓢ	Ⓢ
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, all calls are canceled to avoid unnecessary stops.	Ⓢ	Ⓢ	Ⓢ
False Call Canceling — Car Button Type	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.	Ⓢ	Ⓢ	Ⓢ
Motor Drive Mix	MDX	The rate of car acceleration and deceleration is automatically increased according to the car load to reduce passenger waiting and travel time.	—	◎[#1]	◎[#1]
Next Landing	NXL	If the elevator doors do not open fully at a destination floor, the doors close, and the car automatically moves to the next or nearest floor where the doors open.	Ⓢ	Ⓢ	Ⓢ
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 to Specific Floors — Switch/Timer Type	NS NS-T	To enhance security, service to specific floors can be disabled using a manual or timer switch. This function is automatically deactivated during emergency operation.	◎	◎	◎
Out-of-service by Hall Key Switch	HOS HOS-T	For maintenance or energy-saving measures, a car can be taken out of service temporarily with a key switch (with or without a timer) mounted in a specified hall.	◎	◎	◎
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.	◎	◎	◎
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.	Ⓢ	Ⓢ	Ⓢ
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.	◎	◎	◎
Safe Landing	SFL	If a car has stopped between floors due to some 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.	Ⓢ	Ⓢ	Ⓢ
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.	◎	◎	◎
■ 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.	—	◎	◎
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.	—	Ⓢ	Ⓢ
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]	◎
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.	—	◎[#1]	◎
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.	—	—	Ⓢ
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.)	—	—	◎[#2]

Features

GROUP CONTROL FEATURES

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
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.	—	—	Ⓢ
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.	—	Ⓞ	Ⓞ
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.	—	Ⓞ#1	Ⓢ#1
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.	—	Ⓞ#1	Ⓞ
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.	—	Ⓢ	Ⓢ
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	Ⓞ
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 (lobby) 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 (lobby) floor with the doors open to reduce passenger waiting time.	Ⓞ	Ⓞ	Ⓞ
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.	—	Ⓢ	Ⓢ
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	Ⓞ
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	Ⓞ
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.	Ⓢ†	Ⓢ	Ⓢ
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

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
Auxiliary Car Operating Panel	ACS	An additional car control panel which can be installed for large-capacity elevators, heavy-traffic elevators, etc.	Ⓞ	Ⓞ	Ⓞ
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 in limited languages.)	Ⓢ	Ⓢ	Ⓢ
Car Arrival Chime	AECC (car) AECH (hall)	Electronic chimes sound to indicate that a car will soon arrive. (The chimes are mounted either on the top and bottom of the car, or in each hall.)	Ⓞ	Ⓞ	Ⓢ (each floor)
Car Information Display	CID	This LCD (10.4- or 15-inch) for car front return panels shows the date and time, car position, travel direction and elevator status messages. In addition, customized video images can be displayed in full-screen or partial-screen formats.	Ⓞ#1	Ⓞ#1	Ⓞ#1
Car LCD Position Indicator	CID-S	This 5.7-inch LCD for car operating panels shows the date and time, car position, travel direction and elevator status messages.	Ⓞ	Ⓞ	Ⓞ
Flashing Hall Lantern	FHL	A hall lantern, which corresponds to a car's service direction, flashes to indicate that the car will soon arrive.	Ⓞ	Ⓞ	Ⓢ
Hall Information Display	HID	This LCD (10.4- or 15-inch) for elevator halls shows the date and time, car position, travel direction and elevator status messages. In addition, customized video images can be displayed in full-screen or partial-screen formats.	Ⓞ#1	Ⓞ#1	Ⓞ#1
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.	—	—	Ⓞ
Intercommunication System	ITP	A system which allows communication between passengers inside a car and the building personnel.	Ⓞ	Ⓞ	Ⓞ
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.	—	—	Ⓞ
Sonic Car Button — Click Type	ACB	A click-type car button which emits electronic beep sounds when pressed to indicate that the call has been registered.	Ⓞ	Ⓞ	Ⓞ
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 in limited languages.)	Ⓞ	Ⓞ	Ⓞ

Notes: 1C-2BC (1-car selective collective) – Standard, 2C-2BC (2-car selective collective) – Optional
ΣAI-22 (3- to 4-car group control system) – Optional, ΣAI-2200C (3- to 8-car group control system) – Optional
Ⓢ = Standard Ⓞ = Optional † = Not applicable to 1C-2BC — = Not applicable
#1: Please consult our local agents for the production terms, etc.
#2: • When the DOAS is applied, AECC is Ⓢ and the Safety Ray (SR) or Multi-beam Door Sensor feature should be installed.
• The DOAS cannot be combined with some features. Please refer to the ΣAI-2200C brochure for those features.
#3: Optional when the operation system is 1C-2BC.

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

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