MITSUBISHI ELECTRIC

Changes for the Better

Quality in Motion™

PASSENGER ELEVATORS (MACHINE-ROOM-LESS SYSTEM) Series-IP Version2

1800kg, 2025kg, 2250kg, 2500kg



ELENESSA



Utilizing its technological prowess and extensive experience, we have remained a leader in the vertical transportation market since entering the business in 1931. The Company's creative, innovative spirit, represented by production of the world's first spiral escalator and elevator group-control systems that use artificial-intelligence technologies, continues to receive high evaluations industry-wide. Our products and systems are renowned for their high levels of quality, reliability and safety; and it is this sense of security and trust fostered with building owners and end-users alike that has led to the global expansion of our elevator/escalator business and the after-sales network to service it.

We understand responsibilities as a good corporate citizen, and continue to implement measures for protecting the environment and ensuring a sustainable society for future generations. A number of original technologies are being introduced to ensure more efficient products, systems and manufacturing operations, thereby enhancing productivity, reducing energy consumption and providing smoother, faster and more comfortable vertical transportation systems.

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.



Our 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, we promise 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.

* Quality in Motion is a trademark of Mitsubishi Electric Corporation.

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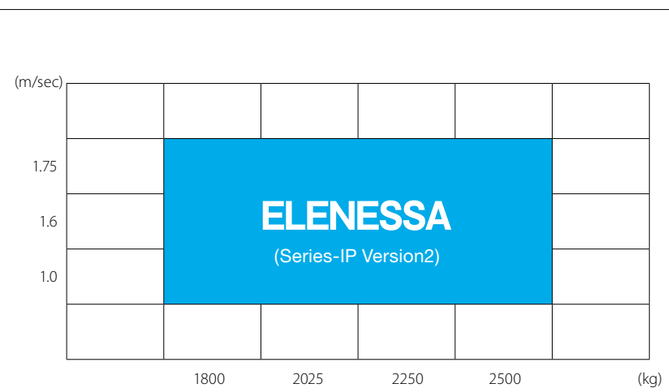
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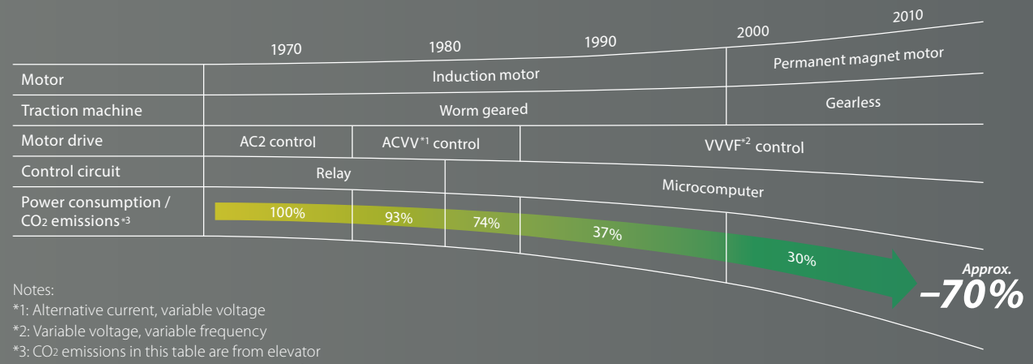


Green Technology

Using Energy Wisely

Our long-term commitment to developing energy-efficient elevators has created systems and functions that make intelligent use of power.

Milestones of Energy-saving Technologies in Elevator Development



Notes:
*1: Alternative current, variable voltage
*2: Variable voltage, variable frequency
*3: CO_2 emissions in this table are from elevator operation and do not include emissions from manufacturing, transportation and other processes.

SUSTAINABLE ENERGY USE

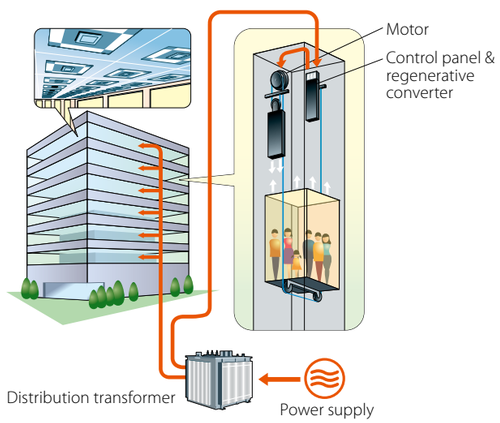
Our leading-edge technologies have made it possible for elevators to conserve energy. Our regenerative converter makes the most of power generated by the traction machine. Additionally, thanks to the joint-lapped core in permanent magnet (PM) motor and energy-saving features, the elevators use energy more wisely and efficiently.

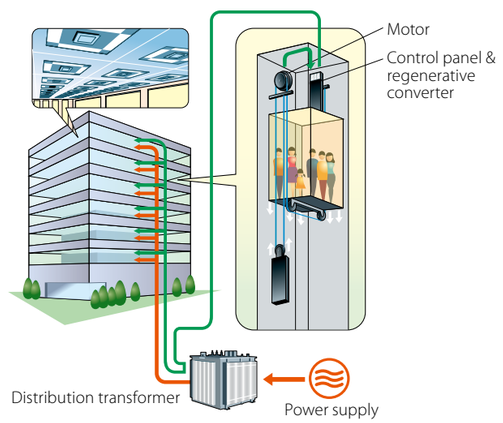
Regenerative Converter : PCNV (Optional)

Efficient use of power

Elevators usually travel using power from a power supply (powered operation); however, when they travel down with a heavy car load or up with a light car load (regenerative operation), the traction machine functions as a power generator. Although the power generated during traction machine operation is usually dissipated as heat, the regenerative converter transmits the power back to the distribution transformer and feeds it into the electrical network in the building along with electricity from the power supply. Compared to the same type of elevator without a regenerative converter, this system provides an energy-saving effect of approximately 35%.* In addition, the regenerative converter has the effect of decreasing harmonic currents.

Note:
* The value is a reference datum and may increase or decrease in accordance with actual conditions of use and elevator specifications.





Joint-lapped Core in Permanent Magnet (PM) Motor

Smaller carbon footprint

The joint-lapped core built into the PM motor of the traction machine features flexible joints. The iron core acts like a hinge, which allows coils to be wound around the core more densely, resulting in improved motor efficiency and compactness. A high-density magnetic field is produced, enabling lower use of energy and resources and reduced CO_2 emissions.



Energy-saving Features

Curbing energy consumption

We offer features that help to reduce the energy consumption of elevators.

Energy-saving Operation
– Number of Cars : ESO-N (Optional for ΣAI-22)

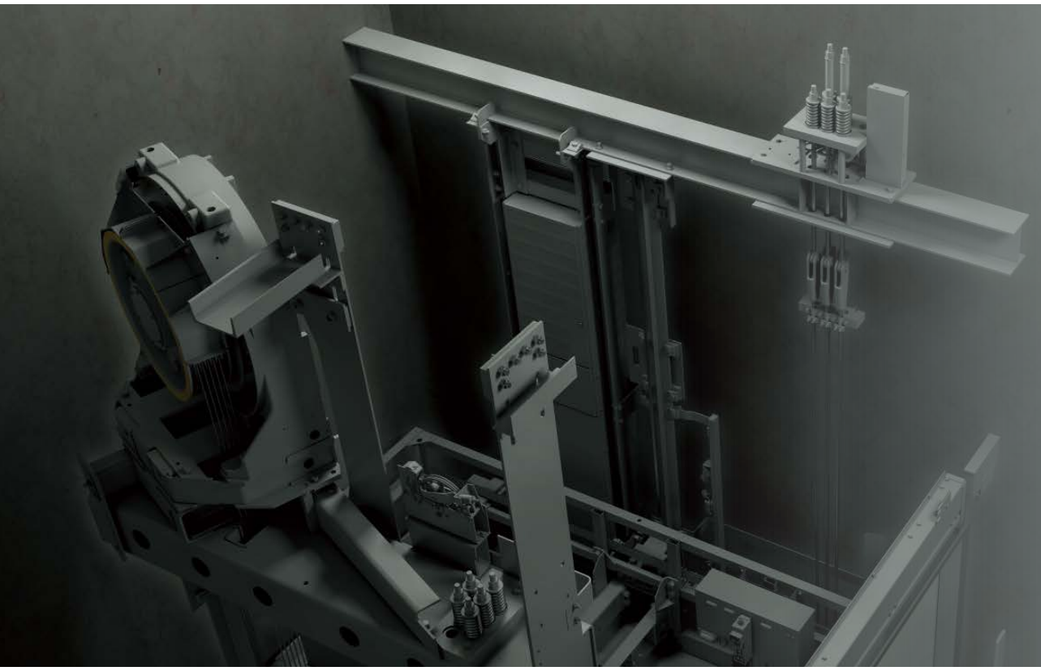
The number of service cars is automatically reduced to some extent without affecting passenger waiting time.

Energy-saving Operation
– Allocation Control : ESO-W (ΣAI-2200C only)

Based on each elevator's potential energy consumption, the system selects the elevator that best balances operational efficiency and energy consumption.

Car Light/Fan Shut Off
– Automatic : CFO-A/CLO-A

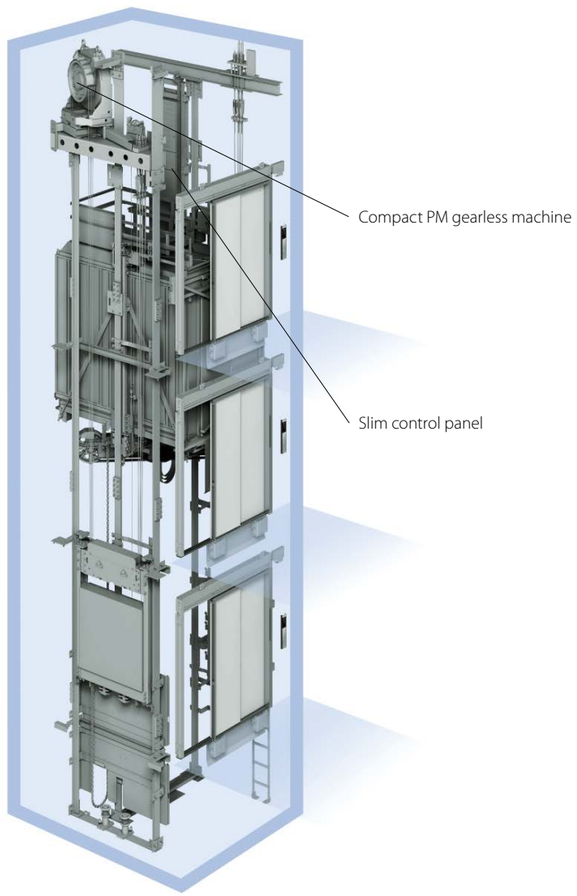
The car lighting/ventilation fan is automatically turned off if there are no calls for a specified period.



Machine-room-less

SPACE-SAVING

As all equipment is installed within the hoistway, there are fewer restrictions on building design except for the actual space required for the shaft. Architects and interior designers have more design freedom.



Compact PM Gearless Traction Machine

The gearless traction machine with a PM (permanent magnet) motor is packed with cutting-edge technology, such as our unique stator-core structure and built-in double brakes. This optimized motor design dramatically reduces the level of torque ripple, which positively affects the quality of the ride. So even though the machinery is compact, the ride is smooth, quiet and comfortable.

Furthermore, the PM motor suppresses harmonic noise and torque ripple, providing greater riding comfort.



Slim Control Panel

More technological advances, such as the high-accumulation LSI (large scale integration) and low-noise PWM (pulse wide modulation) inverter, enable the VVVF (variable voltage, variable frequency) inverter to deliver smooth, high-precision control of the traction machine.

In addition, an IPU (integrated power unit) acts as a high-efficiency power supply circuit for the motor drive and, along with the PM motor, delivers great energy-savings. The result is more efficient, more reliable drive control.



Group Control

EFFICIENT TRANSPORTATION

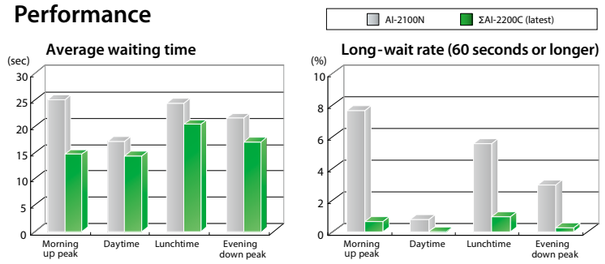
Our breakthrough AI Neural Network* technology in elevator control enhances transport efficiency and reduces passenger waiting time through optimum car allocation, which allows elevators to use energy effectively. Two basic group control systems offer a variety of innovative group control features.

Note: *Neural Network is a mathematical model that emulates the structure of the nerves and cells of the human brain and its information processing mechanism.

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, a building with dynamic traffic conditions)	3 to 8

The features introduced on these pages are applicable to ΣAI-2200C only. Please refer to pages 15 and 16, and the ΣAI-2200C brochure for other features and details.

Performance

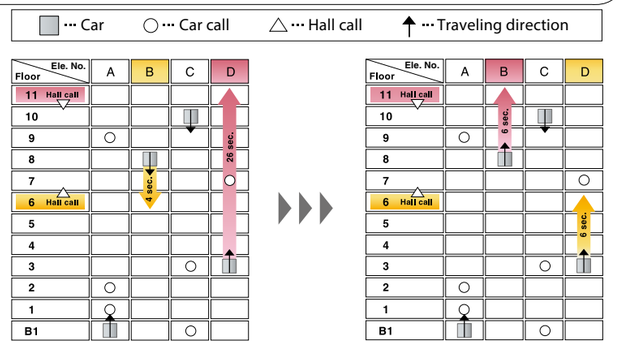


Improved: Max. 40% **Improved: Max. 80%**

Cooperative Optimization Assignment

Forecasts a near-future hall call to reduce long waits

When a hall call is registered, the algorithm predicts near-future calls 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.



AI-2100N
[A hall call is registered at 6th Fl.]
Allocates the closest car B.
[Another hall call is soon registered at 11th Fl.]
Allocates D, resulting in long wait of 26 sec.

ΣAI-2200C (latest)
[A hall call is registered at 6th Fl.]
Allocates D, which is moving upward.
[Another hall call is soon registered at 11th Fl.]
Allocates B, which immediately arrives at the floor.

Dynamic Rule-set Optimizer

Selecting optimum car allocation through rule-set simulations

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.

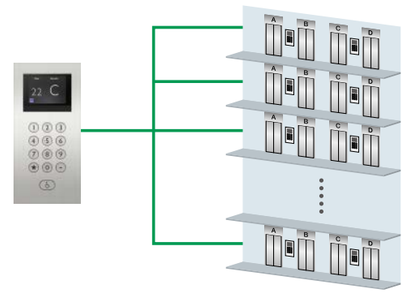
Destination Oriented Allocation System : DOAS (Optional)

Allocates passengers to cars depending on destination floors

When a passenger enters a destination floor at a hall, the hall operating panel immediately indicates which car will serve the floor. Because the destination floor is already registered, the passenger does not need to press a button in the car. Furthermore, dispersing passengers by destination prevents congestion in cars and minimizes waiting and traveling time.

Standard arrangement of hall fixtures (No hall lantern* is provided.)
Cars receive destination information from all floors to provide the best service for more complex traffic conditions throughout the day.

Example of hall arrangement



Note:
* Hall lanterns are available as optional.



Standard Design

Car

Ceiling: S00



Car Design Example

Walls	SUS-HL
Transom panel	SUS-HL
Doors	SUS-HL
Front return panels	SUS-HL
Kickplate	Aluminum
Flooring	PR803: Gray
Car operating panel	CBV1-C760

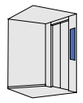


Ceiling : Painted steel sheet (Y033)
with a milky white resin lighting cover
Lighting: Central lighting

Car operating panel



For front return panel



Yellow-orange lighting



Tactile button

CBV1-C760[*1]
Segment LED indicators[*2]
Tactile buttons with yellow-orange lighting

Hall

Narrow Jamb: E-102



Hall Design Example

Jamb	SUS-HL
Doors	SUS-HL
Hall position indicator and button	PIV1-A1010N Boxless

Hall position indicators and buttons

With plastic case



PIV1-A1010N Boxless



PIV1-A1020N Boxless

Segment LED indicators[*2]
Tactile buttons with yellow-orange lighting

Notes:
*1: Maximum number of floors: 22 floors *2: Some letters of the alphabet are not available. Please consult our local agents for details.

Actual colors may differ slightly from those shown.
Please refer to the design guide for details and other designs.

Features (1/2)

Feature	Abbreviation	Description	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.	◎	◎	◎
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 fire-fighting 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 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	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, the predetermined car(s) 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.	◎	◎	◎ #1
■ DOOR OPERATION FEATURES					
Automatic Door-open Time Adjustment	DOT	The time 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.	Ⓢ	Ⓢ	Ⓢ
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.	Ⓞ	Ⓞ	Ⓞ
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.)	Ⓞ	Ⓞ	Ⓞ
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.)	Ⓞ	Ⓞ	Ⓞ

Feature	Abbreviation	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
■ 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.	Ⓢ #2	Ⓢ	Ⓢ
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.	Ⓢ †	Ⓢ	Ⓢ
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.	Ⓞ #3	Ⓞ	Ⓞ
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.	Ⓢ	Ⓢ	Ⓢ
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.	Ⓢ	Ⓢ	Ⓢ
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.	Ⓞ	Ⓞ	Ⓞ
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.	Ⓞ	Ⓞ	Ⓞ
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.	Ⓢ	Ⓢ	Ⓢ
Regenerative Converter	PCNV	For energy conservation, power regenerated by a traction machine can be used by other electrical systems in the building.	Ⓞ	Ⓞ	Ⓞ
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.	Ⓞ	Ⓞ	Ⓞ

Features (2/2)

Feature	Abbreviation	Description	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.	ⓞ†,#1	ⓞ	ⓞ
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.	—	ⓞ	ⓞ
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.	—	—	ⓞ#4
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.	—	—	Ⓢ
Elevator Call System with Smartphone	ELCS-SP	Users can call an elevator remotely by accessing a dedicated website with a smartphone. By eliminating the need to touch a call button in the elevator lobby or car, the system provides increased convenience and comfort to users.	ⓞ#1	ⓞ#1	ⓞ#1
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 — Number of Cars	ESO-N	To save energy, the number of service cars is automatically reduced to some extent, but not so much that it adversely affects passenger waiting time.	—	ⓞ	Ⓢ
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.	ⓞ	ⓞ	ⓞ
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 (or closed only in China).	ⓞ	ⓞ	ⓞ
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	ⓞ
■ GROUP CONTROL FEATURES					
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.	ⓞ†,#1	ⓞ	ⓞ
■ 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.	ⓞ	ⓞ	ⓞ
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)	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.)	ⓞ	ⓞ	—
	AECH (hall)		ⓞ	ⓞ	Ⓢ
Car Information Display	CID	This 10.4- or 15-inch LCD for car front return panels shows the date and time, car position, travel direction and elevator status messages. * Please consult our local agents if you would like to display a video or a slideshow of still images on the screen.	ⓞ#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 10.4- or 15-inch LCD for elevator halls shows the date and time, car position, travel direction and elevator status messages. * Please consult our local agents if you would like to display a video or a slideshow of still images on the screen.	ⓞ#1	ⓞ#1	—
Hall LCD Position Indicator	HID-S	This 5.7-inch LCD for elevator halls shows the date and time, car position, travel direction and elevator status messages.	ⓞ#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.	ⓞ	ⓞ	ⓞ

Notes: 1C-2BC (1-car selective collective) - Standard, 2C-2BC (2-car group control) - 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: Optional when the operation system is 1C-2BC.
#3: When 2C-2BC, please consult our local agents.
#4: • 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.

Basic Specifications and Important Information on Elevator Planning

Horizontal Dimensions <1-Door 1-Gate>

Code number	Number of persons	Rated capacity (kg)	Door type	Entrance width (mm) JJ	Counter-weight position	Car internal dimensions(mm) AA x BB	Minimum hoistway dimensions (mm) AHxBH/car
P24	24	1800	CO	1200	Rear	2350×1600	2900×2290
P27	27	2025	CO	1200	Rear	2350×1700	2900×2390
				1100	Side	1500×2700	2570×3080
			2S	1300			2520×3150
P30	30	2250	CO	1200	Rear	2350×1900	2900×2590
P33	33	2500	CO	1100	Side	1800×2700	2820×3080
			2S	1300			2820×3150

<1-Door 2-Gate>

Code number	Number of persons	Rated capacity (kg)	Door type	Entrance width (mm) JJ	Counter-weight position	Car internal dimensions(mm) AA x BB	Minimum hoistway dimensions (mm) AHxBH/car
P27	27	2025	CO	1100	Side	1500×2600	2570×3154
			2S	1300			2520×3298
P33	33	2500	CO	1100		1800×2600	2820×3154
			2S	1300			2820×3298

[Terms of the table]
- This table shows standard specifications without the fireproof landing door and counterweight safety. Please consult our local agents for other specifications.
- CO: 2-panel center opening doors, 2S: 2-panel side sliding doors.
- Minimum hoistway dimensions (AH and BH) shown in the table are after waterproofing of the pit and do not include plumb tolerance.

Vertical Dimensions <1-Door 1-Gate & 1-Door 2-Gate>

Rated speed (m/sec)	Rated capacity (kg)	Maximum travel (m)	Maximum number of floors	Minimum overhead (mm) OH		Minimum pit depth (mm) PD	Minimum floor to floor height (mm)
				1D1G	1D2G		
1.0	1800	60	24	4220	—	1630	2500
	~2025				4450		
	~2250				—		
	~2500				4450	1730	
1.6	1800			4380	—	1730	
	~2025				4610		
	~2250				—		
	~2500				4610		
1.75	1800			4440	—	1770	
	~2025				4670		
	~2250				—		
	~2500				4670		

[Terms of the table]
- This table shows standard specifications without counterweight safety. Please consult our local agents for other specifications.
- Minimum overhead (OH) and minimum pit depth (PD) should be increased when the travel is over 30m.
- Some specifications require more than 2500mm as a minimum floor height. Please consult our local agents if the floor height is less than entrance height HH + 700mm, and the elevator is 1-Door 2-Gate.

Work Not Included in Elevator Contract

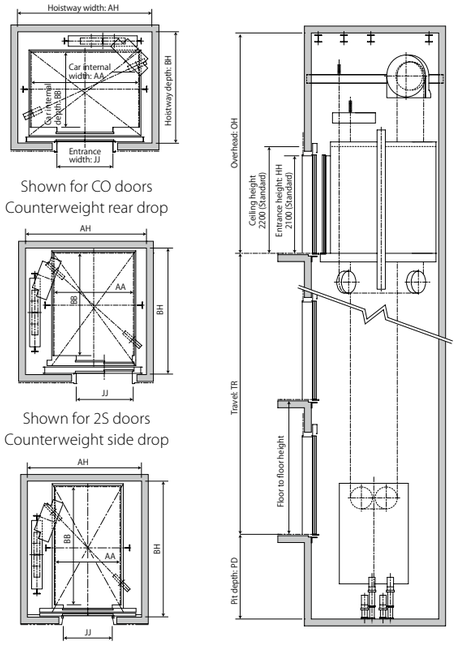
The following items are excluded from our elevator installation work. Their conditions and other details are to be conformed to the statement of local laws or our requirements on the responsibility of the building owner or general contractor.

- Architectural finishing of walls and floors in the vicinity of the entrance hall after installation has been completed.
- Construction of an illuminated, ventilated and waterproofed hoistway.
- The provision of a ladder to the elevator pit.
- The provision of openings and supporting members as required for equipment installation.
- The provision of separate beams when the hoistway dimensions markedly exceed the specifications, and intermediate beams and separator partitions when two or more elevators are installed.
- The provision of an emergency exit door, inspection door and pit access door, when required, and access to the doors.
- All other work related to building construction.
- The provision of the main power and power for illumination in the hoistway by laying of the feeder wiring from the electrical switch boxes in electrical room into the hoistway.
- The provision of outlets and laying of the wiring in the hoistway, plus the power from the electrical switch box.
- The laying of conduits and wiring between the elevator pit and the terminating point for the devices installed outside the hoistway, such as the emergency bell, intercom, monitoring and security devices.
- The power consumed in installation work and test operations.
- All the necessary building materials for grouting in of brackets, bolts, etc.
- The test provision and subsequent alteration as required, and eventual removal of the scaffolding as required by the elevator contractor, and any other protection of the work as may be required during the process.
- The provision of a suitable, locked space for the storage of elevator equipment and tools during elevator installation.
- The security system, such as a card reader, connected to our elevator controller, when supplied by the building owner or general contractor.

Note: Work responsibilities in installation and construction shall be determined according to local laws.

<1-Door 1-Gate>

Hoistway Plan **Elevation**



Shown for CO doors
Counterweight rear drop

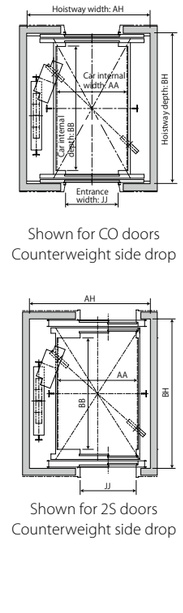
Shown for 2S doors
Counterweight side drop

Shown for CO doors
Counterweight side drop

Note:
- The layout (position of traction machine, etc.) differs depending on capacity.
- Elevation for counterweight rear drop is slightly different from this figure.

<1-Door 2-Gate>

Hoistway Plan **Elevation**



Shown for CO doors
Counterweight side drop

Shown for 2S doors
Counterweight side drop

Note: The layout (position of traction machine, etc.) differs depending on capacity.

Basic code compliance

The dimensional information shown here in this page is based on the requirements of EN81-1. For other components, please consult our local agent.

Elevator Site Requirements

- The temperature of the elevator hoistway shall be below 40˚C.
- The following conditions are required for maintaining elevator performance.
  a. The relative humidity shall be below 90% on a monthly average and below 95% on a daily average.
  b. Prevention shall be provided against icing and condensation occurring due to a rapid drop in the temperature in the elevator hoistway.
  c. The elevator hoistway shall be finished with mortar or other materials so as to prevent concrete dust.
- Voltage fluctuation shall be within a range of +5% to -10%.

Ordering Information

Please include the following information when ordering or requesting estimates:

- The desired number of units, speed and loading capacity.
- The number of stops or number of floors to be served.
- The total elevator travel and each floor-to-floor height.
- Operation system.
- Selected design and size of car.
- Entrance design.
- Signal equipment.
- A sketch of the part of the building where the elevators are to be installed.
- The voltage, number of phases, and frequency of the power source for the motor and lighting.



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

Our 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 Building Systems 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 Building Solutions Corporation Inazawa Building Systems 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

ISO 14001
JACO
EC98J2017
UKAS MANAGEMENT SYSTEMS
0051

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HEAD OFFICE : TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
www.MitsubishiElectric.com

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

MS

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