

Elevators Tailored to a Customer's Needs

Customize your elevator to suit the people who'll ride it.

The technology, design and functionality of our next-generation

Custom Cars can be tailored to suit any building — and all those who work, visit and live in it."

SPACE-SAVING

Cool and compact designs

COMFORT

Innovations for a safet, more comfortable ride

THE CUSTOM CAR

UNIVERSAL DESIGN

Easy-to-use features

EARTH CONSCIOUS

Ecological, low-energy transport

IT SOLUTIONS

Intelligence-driven performance

SPACE-SAVING

Smaller Equipment, Smaller Machine Room*

Mitsubishi Electric's cutting-edge technology offers the most advanced elevator features without requiring a large machine room. Our newly developed traction machine and control panel can be adapted to suit the required speed and capacity for any building use or design.

- Compact Traction Machine
- Compact Control Panel
- *Not available if the rated capacity of your elevator exceeds 1,600kg or the rated speed exceeds 4.0m/sec.

Compact Traction Machine

Mitsubishi Electric was the world's first company to replace induction motors with permanent magnet (PM) motors, developed in-house, for highspeed and super high-speed elevators. Through continual efforts, our Research and Development engineers have created an extremely compact, highly efficient "Poki Poki Motor"," which reduces the traction machine size by about 30% in axial dimension. The Poki Poki Motor also conserves energy, reduces CO₂ emission, and runs for a longer life span. The combination of its unique foldable-joint structure and our proprietary stator core technology enhanced the manufacturing efficiency significantly, making it possible to adopt the Poki Poki Motor to most of our elevators.

* Refer to "http://www.Global.MitsubishiElectric.com" for details about the Poki Poki Motor.



Compact Control Panel

The reduced number of PCBs, a high-accumulation LSI integrating digital control circuitry, and application of the "heat-pipe method" to the low-loss IGBT (Insulated Gate Bipolar Transistor) are configured in an optimal design and greatly contribute to cutting the size of the control panel to less than half the size of the previous control panels.

COMFORT

Designed for Comfort, Safety and a Smooth Ride

The combination of "high-speed computer processing" and Mitsubishi Electric's innovative "Active Roller Guide" delivers an impressive riding experience with the least noise and vibration. Furthermore, the highly accurate door sensors and leveling devices can be adopted to ensure the safety of passengers boarding and exiting the elevator cars.

- High-Speed Computer Processor
- Advanced Door Controls
- Active Roller Guide (Optional)
- High Accuracy Landing Feature (maximum ±5mm)

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 the least noise and vibration. The adoption of the low-noise IGBT with faster switching speeds also contributes to further reduce the noise.



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. 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. The learning-capabile Door Load Detector immediately reverses the doors when abnormal load is detected on the doors.

*VVVF: Variable Voltage, Variable Frequency





Hall Motion Sensor (Optional)

A conical infrared-light beam scans a 3D area near the open doors to detect passengers or objects. Doors reverse and open immediately if the beam is interrupted during door closing.



Multi-Beam Door Sensor (Optional)

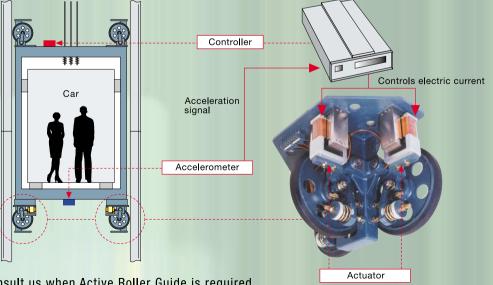
Multiple infrared-light beams cover not only the full width of the doors but also a door height of approximately 1800mm to detect passengers or objects as the doors close. Doors reverse and open immediately if the beams are interrupted during door closing.



Active Roller Guide*

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 greatly reduces the vibration. 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 quides.



*Please consult us when Active Roller Guide is required.

UNIVERSAL DESIGN

Passenger-Friendly

Mitsubishi Electric has taken every step to provide all elevator passengers with a safer, more comfortable ride. We design our elevators with the following seven universal design* principles.

- Equitable Use
- (E) Tolerance for Error
- 1

- Flexibility in Use
- **(F)** Low Physical Effort
- (L)

- •Simple and Intuitive Use (SI)
- Size and Space for Approach and Use
- Perceptible InformationP



• Larger Indicator (PC)

Our new indicators are made more viewable, approximately 1.6 times larger than our previous ones.



2 Tactile Buttons © ©

The tactile buttons have been redesigned for enhanced operability for every passenger including those visually impaired. With the new numeral design and attractive color contrast, passengers can easily recognize which button to press. Besides this new appearance, the

numeral on each button is embossed, so that visually impaired passengers can easily locate the correct button with a simple touch.



3 Larger Door Open Button ₱⑤ ₱①

Our "easy-to-use" door open button is approximately 1.6 times larger than before, so that passengers will not press the door close button by mistake.





● Voice Guidance System (Optional)

The Voice Guidance System narrates information such as elevator traveling direction, floors to serve, etc.



Sonic Car Buttons (Optional) Pu

When a call button is pressed, it confirms operation with a beeping sound.



Glass Windows

(Optional) ①

Both car and hall doors are equipped with tempered glass windows*, allowing passengers to be seen from outside the car, thus enhancing the security.

*Recommended for all floors.

**OFull-height Mirror (Optional) (T)(L)

A stainless steel mirror is available for car interior panels. When installed in the center of the rear wall, wheelchair users exiting from the elevator can visually check for obstacles behind them.



Thicker Handrails (Optional) (F)

The handrails have been made thicker (38mm in diameter) so that passengers can hold the handrails securely throughout their travel in the elevator.



EARTH CONSCIOUS

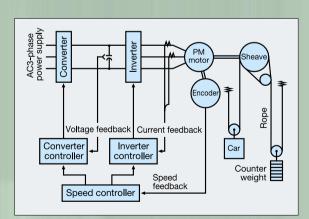
More Efficient Design Delivers Energy Savings

Mitsubishi Electric's advanced control and operation technology provide significant power savings. Other environmentally responsible manufacturing methods include reduction of the amount of lead in wire soldering, and elimination of the use of potentially harmful substances such as vinyl chloride plastics during the manufacturing process.

- VVVF Inverter Control
- Energy Saving in Off-peak Periods
- Reduced Soldering Work
- Elimination of Potentially Harmful Substances

VVVF Inverter Control

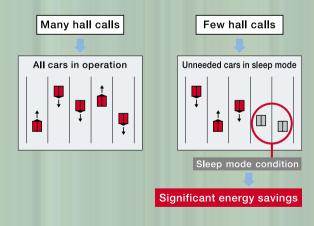
Mitsubishi Electric is the world's first company to develop a VVVF Inverter Control for elevators. The VVVF Inverter Control delivers not only smooth control of the traction machine, but its regenerative braking system also significantly conserves energy. The low-noise IGBT further reduces energy consumption, as it operates at a low voltage yet at a faster switching speed. A highly efficient PWM (pulse width modulation) converter is applied to high-speed elevators, delivering impressive overall energy savings.



Energy Saving in Off-peak Periods*

Mitsubishi Electric's group controller comes with unique energy saving features that are designed to automatically reduce energy consumption while elevators are in standby mode. In addition, during off-peak periods, the group controller goes into "sleep mode" to further reduce energy consumption, yet remains "awake" enough to constantly monitor potential elevator calls.

*Available only with SAI Group Control Systems



IT SOLUTIONS

IT Drives Elevator Evolution

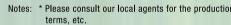
Our new technology creates benefits not only for passengers but also for building tenants and owners. The cutting-edge IT solutions include the following:

- ΣAI Group Control Systems (Refer to pages 29 to 30 for details.)
- Elevator Information Display
- Touch Panel System
- MelEye Elevator & Escalator Remote Monitoring and Control System

Elevator Information Display*

The rich expressionistic technologies of Flash** software enable the LCD (10.4- or 15-inch) to reproduce stereoscopic direction arrows and animated pictures, as well as to play visual data from DVD or real-time CCTV sources.





** Flash is a registered trademark of Adobe Systems Incorporated.





Touch Panel System

The Touch Panel employs advanced touch sensors and offers high reliability and durability. It displays both graphical desti-



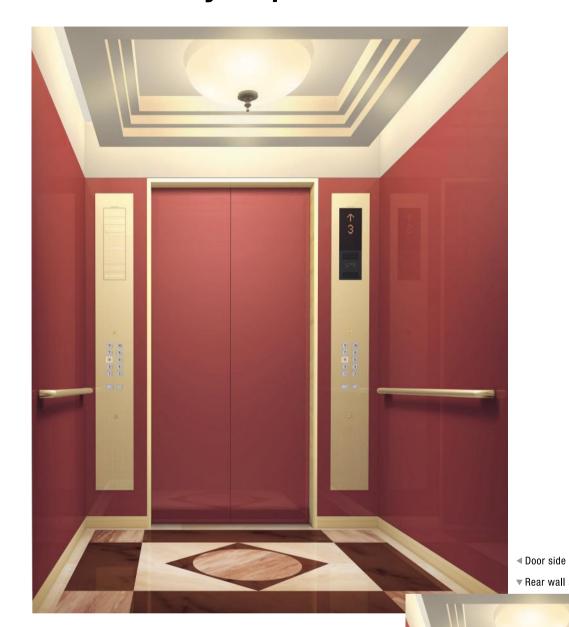
nation buttons and customized messages.
A light touch on the destination button is all that's needed to register a desired floor.



tes:

- •The Touch Panel can be installed in a hall when the Destination Oriented Prediction System is applied.
- •Note that the Touch Panel cannot be used for elevators designed for visually impaired passengers, or for fireman service elevators.
 •Also note that the Touch Panel cannot be used in the United States or in countries where regulations, such as EN 81-70, mandate
- specific measures for physically challenged passengers

Customized Car Designs To meet any request



Deluxe Globelight Ceiling (Optional)

Customized-01

Lighting - Milky white globe (plastic cover made of resin) and indirect lighting

Ceiling - Painted steel sheet

Walls - Painted steel sheet and full-height stainless steel mirror

Doors - Painted steel sheet

Front return panels - Painted steel sheet

Entrance columns -Brass* hairline

Kickplate - Brass* hairline

Flooring - Marble (supplied by customer)

Car operating panels - Faceplate type / Brass* hairline (touch button)

Handrails - Brass* hairline

* Muntz metal 280



Deluxe Full Light Ceiling (Optional)

Customized-02

Lighting - Indirect full lighting

Ceiling - Frosted glass tone resin board

Ceiling trim - Painted steel sheet

Walls - Painted steel sheet and stainless steel mirror etching

Wall trims - Stainless steel hairline

Transom panel - Painted steel sheet

Doors - Painted steel sheet

Front return panels - Painted steel sheet

Entrance columns - Stainless steel hairline

Kickplate - Stainless steel hairline

Flooring - Marble (supplied by customer)

Car operating panels - Integrated with front return panel (push button)



■ Door side

Full Light Ceiling (Optional)

N110

Lighting - Indirect full lighting **Ceiling** - Painted steel sheet (Y055) Ceiling trim - Black alumite Walls - Color (bronze) stainless steel (non-directional hairline)

Transom panel - Painted steel sheet **Doors** - Painted steel sheet

Front return panels - Stainless steel hairline

Kickplate - Stainless steel hairline Flooring - Marble Car operating panel - CBVF-C252



(Ceiling height 2,300 mm)

Full Light Ceiling (Optional) **N100**

Lighting - Indirect full lighting Ceiling - Arched milky white resin board Ceiling trim - Black alumite Walls - Painted steel sheet Transom panel - Painted steel sheet **Doors** - Painted steel sheet

Front return panels - Stainless steel hairline Kickplate - Painted steel sheet

Flooring - Durable vinyl tiles (PR45) Car operating panel - CBD-E240



Central Acrylic Block Ceiling (Optional)

N90

Lighting - Indirect full lighting

Ceiling - Acrylic blocks and milky white resin board

Ceiling trim - Black alumite

Walls - Pattern-printed steel sheet (CP101)

Transom panel - Pattern-printed steel sheet (CP101)

Doors - Pattern-printed steel sheet (CP101)

Front return panels - Stainless steel hairline

Kickplate - Stainless steel hairline

Flooring - Durable vinyl tiles (PR40)

Car operating panel - CBE-N221

(Ceiling height 2,300 mm)

Boxed Arch Ceiling (Optional)

N80

Lighting - Central indirect lighting and downlights

Ceiling - Painted steel sheet with decorative gold resin frame

Walls - Color (gold) stainless steel etching (hairline)

Transom panel - Color (gold) stainless steel (hairline)

(hairline) Front return panels - Stainless steel

Doors - Color (gold) stainless steel

hairline

Kickplate - Stainless steel hairline Flooring - Marble

Car operating panel - CBC-E240



Central Arch Ceiling (Optional)

Lighting - Central indirect lighting Ceiling (both sides) - Painted steel sheet with crystal acrylic blocks and decorative silver resin frame

Walls - Painted steel sheet Transom panel - Painted steel sheet **Doors** - Painted steel sheet Front return panels - Stainless steel hairline Kickplate - Painted steel sheet **Flooring** - Durable vinyl tiles (PR18) Car operating panel - CBN-E240





Full Light Ceiling (Optional)

N60

Lighting - Indirect full lighting Ceiling - Faint patterned white resin board Ceiling trim - Silver white alumite Walls - Painted steel sheet Transom panel - Painted steel sheet **Doors** - Painted steel sheet Front return panels - Stainless steel hairline Kickplate - Stainless steel hairline Flooring - Durable vinyl tiles (PR45) Car operating panel - CBE-N211

(Ceiling height 2,300 mm)

Downlight Ceiling (Optional)

N50

Lighting - Downlights and indirect lighting

Ceiling - Painted steel sheet

Walls - Painted steel sheet

Transom panel - Painted steel sheet

Doors - Painted steel sheet

Front return panels - Stainless steel hairline

Kickplate - Stainless steel hairline Flooring - Marble

Car operating panel - CBE-N221



(Ceiling height 2,300 mm)

Half-Mirror and Downlight Ceiling (Optional)

N40

Lighting - Half mirror and downlights Ceiling (both sides) - Painted steel sheet Ceiling trim - Black alumite Walls - Stainless steel hairline **Transom panel - Stainless steel hairline Doors** - Stainless steel hairline Front return panels - Stainless steel hairline Kickplate - Stainless steel hairline Flooring - Durable vinyl tiles (PR13) Car operating panel - CBT-C240



Central Arch Ceiling (Optional)

N30

Lighting - Indirect full lighting

Ceiling - Arched milky white resin board

Ceiling trim - Black alumite

Walls - Pattern-printed steel sheet (CP141)

Transom panel - Pattern-printed steel sheet (CP141)

Doors - Pattern-printed steel sheet (CP141)

Front return panels - Stainless steel hairline

Kickplate - Painted steel sheet

Flooring - Durable vinyl tiles (PR62)

Car operating panel - CBV-N211

(Ceiling height 2,300 mm)

Central Indirect Downlight Ceiling (Optional)

N20

Lighting - Central indirect downlights

Ceiling - Painted steel sheet

Walls - Pattern-printed steel sheet (CP111)

Transom panel - Pattern-printed steel sheet (CP111)

Doors - Pattern-printed steel sheet (CP111)

Front return panels - Stainless steel

Kickplate - Stainless steel hairline

Flooring - Marble

Car operating panel - CBV-N211



(Ceiling height 2,300 mm)

Car Finishes and Designs

Walls,	Std.	Pattern-printed steel sheet
transom panel and doors	Opt. Painted steel sheet Decorative laminated plastic*1/* Decorative wooden panel*1/*2 Stainless steel hairline*5 Stainless steel etching*5 Stainless steel colored-etching* Stainless steel mirror Stainless steel non-directional r Stainless steel hairline door trim Incorporating glass windows*3 Std. Stainless steel hairline	Painted steel sheet
	Opt. Painted steel sheet Decorative laminated plasti Decorative wooden panel*1. Stainless steel hairline*5 Stainless steel etching*5 Stainless steel colored-etch Stainless steel mirror Stainless steel non-directio Stainless steel hairline door Incorporating glass window Std. Stainless steel hairline	Decorative laminated plastic*1/*4
		Decorative wooden panel*1/*2
		Stainless steel hairline*5
		Stainless steel etching*5
		Stainless steel colored-etching*5
		Stainless steel mirror
		Stainless steel non-directional hairline
		Stainless steel hairline door trims
		Incorporating glass windows*3
Front return	Std.	Stainless steel hairline
panel	Opt.	Integrated with car operating panel

Entrance columns	Std.	Integrated with front return panel			
Kickplate	Std.	Painted steel sheet			
	Opt.	Stainless steel hairline			
Flooring	Std.	Durable vinyl tiles (2mm thick)			
	Opt.	Durable rubber tiles (3mm or 6mm thi			
		Carpet*1			
		Marble/granite*1			
Sill	Std.	Extruded hard aluminum			
	Opt.	Stainless steel			

- 1. *1: Supplied by customer.
- *2: Only applicable to car walls.
- *3: Only applicable to car doors.
- *4: Car transom panel: only stainless steel with hairline finish available.
- *5: Kickplate: only stainless steel with hairline finish available
- 2. Please consult our local agents if other finishes are required.

Downlight Ceiling (Optional)

Lighting - Downlights

Ceiling - Painted steel sheet

Walls - Color (black) stainless steel (beads blast)

Transom panel - Color (black) stainless steel (beads blast)

Doors - Stainless steel mirror

Front return panels - Stainless steel hairline

Kickplate - Stainless steel hairline

Flooring - Marble

Car operating panel - CBE-C251



Globelight Ceiling (Standard)

S10

Lighting - Milky white globe (plastic cover made of resin)

Ceiling - Painted steel sheet

Walls - Pattern-printed steel sheet (CP23)

Transom panel - Pattern-printed steel sheet (CP23)

Doors - Pattern-printed steel sheet (CP23)

Front return panels - Stainless steel hairline

Kickplate - Painted steel sheet

Flooring - Durable vinyl tiles (PR45)

Actual elevator color may differ slightly from those shown. 18

(Ceiling height 2,200 mm)

Customized Hall Designs To suit any building

Splayed Jamb with Transom Panel (Optional)

Square Jamb with Transom Panel (Optional)



Jamb - Stainless steel hairline Transom panel - Stainless steel hairline **Doors - Stainless steel etching** Hall lantern - HLV-A10 Hall button - HBC-C210



Jamb - Stainless steel hairline Transom panel - Stainless steel hairline **Doors** - Stainless steel etching Hall position indicator - PID-D410 Hall button - HBN-C210

Splayed Jamb (Optional)

Square Jamb (Optional)



Jamb - Painted steel sheet

Doors - Painted steel sheet

Hall position indicator - PIH-D421 Boxless *

Hall button - HBE-C260N Boxless *

Note: *Please refer to page 26 for the sectional image of the boxless type.

Narrow Jamb (Standard)

E-102



Jamb - Painted steel sheet

Doors - Painted steel sheet

Hall position indicator and call button - PIE-A210N Boxless *

Entrance Finishes and Designs

Liitiaii	ושט	riilisiles aliu Desiglis
Jamb	Std.	Narrow jamb with painted steel sheet
	Opt.	Splayed or square jamb with painted steel sheet
		Stainless steel hairline
		Stainless steel mirror
		Stainless steel non-directional hairline
Transom	Std.	Painted steel sheet
panel*1 and doors	Opt.	Stainless steel hairline
		Stainless steel etching
		Stainless steel colored-etching
		Stainless steel mirror
		Stainless steel non-directional hairline
		Stainless steel hairline door trims
		Incorporating glass windows*2
Sill	Std.	Extruded hard aluminum
	Opt.	Stainless steel

- 1. *1: Transom panel is optional.
- *2: Only applicable to entrance doors.
- 2. Please consult our local agents for finishes not included in the above table.

Simple-to-use Car Operating Panels

Car Operating Panels

<Side Wall only>



CBE-N211 (Standard for 2 to 30 floors)

Tactile button *1 (Plastic)



CBE-N217 (With alarm indication for EN81-70) *2



Tactile button (Plastic)



CBE-N218 (With alarm indication for EN81-70) *2



Tactile button (Plastic)



CBH-N211 (Standard for 31 or more floors)





Flat button *3 (Plastic)



CBV-N211



Flat button *3

(Plastic)

Tactile button *3 (Stainless steel matte)



CBE-N221 (LCD indicator)



Tactile button *1 (Plastic)



CBVF-N222 (Keypad type)



Number - Flat button *3 *4 (Stainless steel matte) Star - Tactile button (Plastic)

- *1: Flat buttons are also available as CBF-N211 / CBF-N221.
- *2: Interphone which complies with EN81-28 is required.
- *3: Please note that flat (non-tactile) buttons and buttons without color contrast cannot be used in countries
- where regulations such as EN81-70 mandate specific measures for physically disabled passengers.
- *4: The number "5" has a small raised dot as tactile orientation of the keypad for visually-impaired passengers

Simple-to-use Car Operating Panels

Car Operating Panels

<Front Return Panel only>



33 34 35 36 29 30 31 32 23 22 27 28 2222

CBH-C240

























Tactile button *1 (Plastic)

CBN-E240 CBD-E240





Tactile button *1 (Plastic)

Flat button *2 (Plastic)

<u>2</u>5

Tactile button *2 (Stainless steel matte)

Flat button *2 (Plastic)

Touch button *2 (Plastic)

Touch button *2 (Stainless steel & Plastic)

Push button *2 (Plastic)

Flat button *2 (Plastic)

Number - Flat button *2 *3 (Stainless steel matte) Star - Tactile button (Plastic)

^{*1:} Flat buttons are also available as CBF-C240 / CBF-C251.

^{*2:} Please note that flat (non-tactile) buttons and buttons without color contrast cannot be used in countries where regulations such as EN81-70 mandate specific measures for physically disabled passengers. *3: The number "5" has a small raised dot as tactile orientation of the keypad for visually-impaired passengers.

Easy-to-understand

Hall Signal Fixtures

Hall Position Indicators and Call Buttons



PIE-A210N Boxless (Standard)

PIE-A220N Boxless (Standard)

PIE-A210B Tactile button *1 (Plastic)

PIE-A220B Tactile button *1 (Plastic)



(Plastic)

V



PIE-C210N PIE-C220N Tactile button *1 Tactile button *1 (Plastic)



PIV-C210N Tactile button *2 Tactile button *2 (Stainless steel matte)



PIV-C220N Flat button *2 (Stainless (Plastic) steel matte)

0



(Plastic)

Hall Buttons



HBE-A210N Boxless

HBE-A210B Tactile button *1 (Plastic)



HBE-C210N Tactile button *1 (Plastic)



HBV-C210N Tactile button *2 (Stainless steel matte)



HBJ-C210N Flat button *2 (Plastic)



HBT-C210N Touch button (Plastic)



HBC-C210N Touch button (Stainless steel

& acrylic)



HBN-C210N Push button (Plastic)



HBL-C210N Flat button *2 (Plastic)



HBE-C260N Tactile button *1

(Plastic)

PIJ-C220N Flat button *2

Hall Position Indicators



PIH-D410



PIH-D421 Boxless



PID-D410 (Built into transom panel)



PIH-C115*

(LCD indicator)

*Please consult our local agents for the production terms, etc.



PIHA-806



PID-806 (Built into transom panel)

Hall Lanterns



HLH-A10



HLV-A10



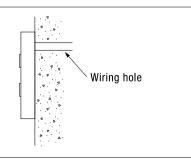
HL-2N



HLV-E50

Cross-section of boxless fixtures

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



- *1: Flat buttons are also available as PIF-A210 / PIF-A220 / PIF-C210 / PIF-C220 / HBF-A210 / HBF-C210 / HBF-C260.
- *2: Please note that flat (non-tactile) buttons and buttons without color contract cannot be used in

Select your own color Color Samples

Pattern-Printed Steel Sheet

<for Car Walls and Doors: Standard>



Painted Finish

<for Car Ceiling>



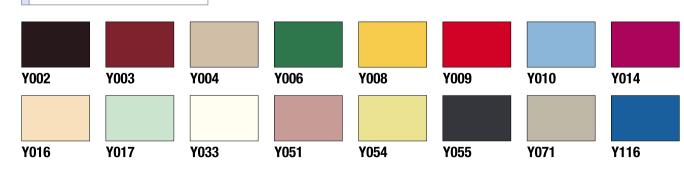
Vinyl Tile

<for Car Flooring>



Painted Finish

<for Entrance Jambs and Doors: Standard, Car Walls and Doors: Optional>



Note: Please refer to the Mitsubishi elevator color sample book S10 for actual colors.

Tables of speed and capacity Specifications

Capacity and Speed

Rated	Number	Rated speed (m/sec)							Capacity according to country standards					
capacity (kg) p	of persons	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0	8.0	9.0	Japan	Countries under EN81-1	Singapore/ Malaysia
750	10												☆	
750	11	•	_	•		•	•	•	•	•	•	☆		☆
885	13													☆
000	12	•	•	•	•	•	•	•	•	•	•		☆	
900	13											☆		
1,000	15											☆		
1,020/1,025	15	•	•	•	•	•	•	•	•	•	•			☆
1,050	14												☆	
1,150	17											☆		
1,155/1,160	17	•	•	•	•	•	•	•	•	•	•			☆
1,200	16												☆	
1.050	18												☆	
1,350	20	•	•	•	•	•	•	•	•	•	•	☆		
1,360/1,365	20													☆
1 000	21												☆	
1,600	24	•	•	•	•	•	•	•	•	•	•	☆		
1,630/1,635	24													☆
1 000	24	•	•	•	•	•	•	•					☆	
1,800	27	•	•	•	•	•	•	•				☆		
0.000	26	•	•	•	•	•							☆	
2,000	30	•	•	•	•	•						☆		
0.050	30	•	•	•	•	•							☆	
2,250	34	•	•	•	•	•						☆		
0.500	33	•	•	•	•	•							☆	
2,500	38	•	•	•	•	•						☆		
0.000	40	•	•	•	•	•							☆	
3,000	46	•	•	•	•	•						☆		

Notes: 1. Please consult us for specifications and conditions outside the above table.

2. The specifications in blue frame () are for the space saving models.

Specifications*1

Rated speed (m/sec)	2.0	2.5	3.0	3.5	4.0	5.0	6.0	7.0	8.0	9.0
Maximum numbers of stops		128: One gate (1D1G), 64: Two gates (1D2G & 2D2G)								
Maximum travel (m)	150* ¹				20	0 *1		250 *1		
Minimum floor height (mm)		2,500*2								

Notes: *1 Please consult us if the maximum travel exceeds the values specified in the above table.

Door System

Standard	2-panel center opening (CO)
Optional	2-panel side opening (2S) or 4-panel center opening (2CO)

Operation System

Standard	1-car Selective Collective (1C-2BC)
Optional	2-car Selective Collective (2C-2BC), 3 or 4-car Group control ΣAI-22 system, or 3 to 8-car Group control ΣAI-2200C system

^{*2} For some elevator specifications, the floor height (distance between floors) must be a minimum of 2,500mm Please consult us if the floor height is less than "Entrance height HH + 700mm".

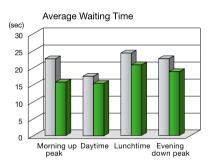
Greater passenger satisfaction with Al Neural Networks

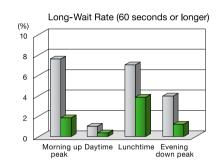
Mitsubishi Electric's breakthrough Al Neural Network technology enhances transport efficiency and reduces passenger waiting time through optimum car allocation, which allows elevators to use energy effectively.

Group Control Systems	Suitable Building Size	Number of Cars in a Group
ΣAI-22 System	Small to medium	3 to 4 cars
ΣAI-2200C System*	Large (Especially, a building with dynamic traffic conditions)	3 to 8 cars

The features introduced on these pages are applicable to \$\Sigma Al-2200C\$ only. Please refer to page 31 to 32 and \$\Sigma Al-2200C\$ brochure for other features and details.

Performance





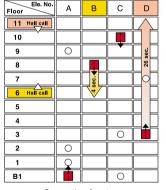


Cooperative Optimization Assignment

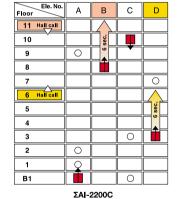
Forecasts a near future hall call to reduce long waits

When a hall call is registered, the algorithm assumes 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.



Conventional system
[A hall call is registered at 6th FI.]
Allocates the closest car B.
[Another hall call is soon registered at 11th FI.]
Allocates D, resulting in long wait of 26 sec.



[A hall call is registered at 6th Fl.]
Allocates D, which is running upward.
[Another hall call is soon registered at 11th Fl.]
Allocates B, which immediately arrives at the floor

... Car ○... Car call △... Hall call ↑... Traveling direction

Dynamic Rule-Set Optimizer

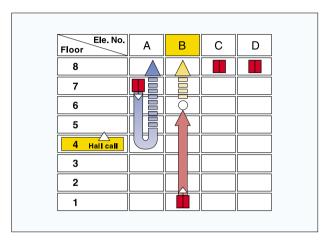
Selects optimum car allocation through "Rule-Set" simulations

The Neural Network*1 technology enables the system to continually and accurately predict the passenger traffic within intervals of several minutes. A high speed Reduced Instruction Set Computer (RISC) runs real-time simulations using multiple Rule-Sets*2 and the predicted passenger traffic to select the best Rule-Set which optimizes transport efficiency.

Energy-Saving Operation — Allocation Control

Minimizes elevator traveling distance for energy-savings

The near-future traveling distance of all elevators in a group, as well as passenger waiting time, is evaluated for a new call. Cars are assigned optimally so that the total traveling distance is shorter, thus realizing energy-savings. Unlike the conventional energy-saving operations, the new operation allows energy-savings even in the daytime.



Example of Car Allocation

In the figure on the left, current elevator conditions are:

•Car A: Parked at the 7th floor.

•Car B: At the 1st floor and about to move to the 6th floor in response to a car call.

•Car C, D: Parked at the 8th floor.

In this situation, suppose that a passenger registers a hall call on the 4th floor to go up to the 8th floor.

For the shortest passenger waiting time, either A or B is allocated to the call

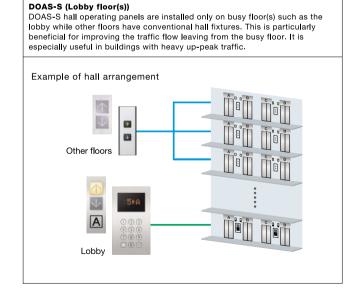
If A responds, it will run a traveling distance of seven floors in total (7FI.→4FI.→8FI.). If B is assigned, the car can stop to pick up the passenger on the way to the 6th floor, and extend its service up to the 8th floor, traveling two more floors (6FI.→8FI.) than originally thought.

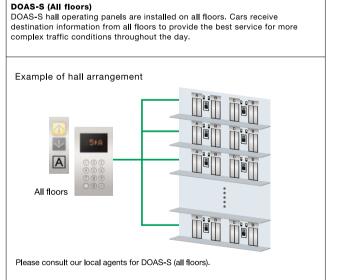
Through such evaluations, the system gives priority to B, which has a shorter traveling distance, thereby saving energy.

Destination Oriented Prediction System (DOAS-S) (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 their waiting and traveling time.





Note

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^{*1:} Neural Network is a mathematical model that emulates the structure of the nerves and cells of the human brain and its information processing mechanism.

^{*2:} Hypothetical rules used for the simulations.

A wide range of Comfort and Convenience Features

Feature	Description	1C to 2C 2BC	3C to 4C ΣΑΙ-22	3C to 8C ΣΑΙ-2200C
■ OPERATIONAL AND SERVICE	FEATURES	1 250	L/U LL	Z/II ZZOOO
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 ± 5 mm under any conditions.	S	S	S
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.	_	0	0
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.	S	S	S
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 will open.	S	S	S
Continuity of Service (COS)	A car which is experiencing trouble is automatically withdrawn from group control operation to maintain overall group performance.	\$†	S	S
Automatic Bypass (ABP)	A fully-loaded car bypasses hall calls in order to maintain maximum operational efficiency. (Optional in case of 1-car 2BC system.)	S	S	S
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.	S	S	S
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.	S	S	S
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.	S	S	S
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.	S	S	S
Car Light Shut Off — Automatic (CLO-A)	If there are no calls for a specified period, the car lighting will automatically be turned off to conserve energy.	S	S	S
Backup Operation for Group Control Microprocessor (GCBK)	An operation by car controllers which automatically starts to maintain elevator operation, in the event that a microprocessor or transmission line in the group controller has failed.	\$†	S	S
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.	S	S	S
False Call Canceling — Car Button type (FCC-P)	If the wrong car button is pressed, it can be canceled by quickly pressing the same button again twice.	S	S	S
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.	0	0	0
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.	0	0	0
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.	0	0	0
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.	0	0	0
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.	0	0	0
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.	0	0	0
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.	0	0	0
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.	S	S	S
■ GROUP CONTROL FEATURES				
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.	_	S	S
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.	_	S	S
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.	_	_	S
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.	_	S	S

Feature	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣΑΙ-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, such as Lunchtime Service or Up Peak Service, is selected or canceled accordingly at the appropriate time.	_	_	S
Car Allocation Tuning (CAT)	The number of cars allocated or parked on crowded floors are 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.	_	_	S
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.	_	_	S
Destination Oriented Prediction System (DOAS-S)	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 their waiting and traveling time. (Cannot be combined with the IUP feature)	_		⊚#2
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.	_	S	S
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.	\$†	S	S
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.	_	_	©
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.	_	0	0
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.	_	0	0
Forced Floor Stop (FFS)	All cars in a bank automatically make a stop at a predetermined floor on every trip without being called.	0	0	0
Main Floor Parking (MFP)	An available car always parks on the main (lobby) floor with the doors open to reduce passenger waiting time.	0	0	0
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}	0
Energy-Saving Operation — Allocation Control (ESO-W)	When a call is registered, the system controls car assignment, considering near-future traveling distance of all elevators to conserve energy.	_	_	S
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}	©
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	0
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	©
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}	0
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	©
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.	_	0	0
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 will then respond only to car calls.	_	0	©
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.	_	0	©
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.	0	0	0

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A wide range of Comfort and Convenience Features

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. Automatic Door Speed Control (DSAC) Automatic Door Speed Control (DSAC) The time doors are open will automatically be adjusted, depending on whether the stop was called from the half or the car, to allow smooth boarding of passengers or loading of baggage. Reopen with Half Button (ROHB) Closing doors can be reopened by pressing the half 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. Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is cleared from the doorway. Should an obstacle prevent the doors from closing, the doors will repeatedly open and close until the obstacle is cleared from the doorway. When the button inside a car is pressed, the doors will remain open longer to allow loading and unloading of a baggage, a stretcher, etc. Extended Door-Open Button When the button inside a car is pressed, the doors will remain open for longer than the with Buzzer (NDG) When excessive door load has been detected while opening or closing, the doors immediately reverse. Safety Door Edge (SDE) One side (2S & 3S Doors) Both sides (CO & 2CO Doors) Sensitive door edge(s) detects passengers or objects during door closing. Sensitive door edge(s) detects passengers or objects during door closing. Sensitive door sat they close to detect passengers or objects. One or two infrared-light beams cover the full width of the doors as they close to detect passengers or objects. One or pen time is minimized using safety ray(s) or multi-beam door sensor feature.) Sensor and the safe doors and the combined with the SR feature.) Mul	Feature		Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣΑΙ-2200C	
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CICACO The door speed, thereby making the door speed consistent throughout all floors.		diagnosed, the door close timing is	delayed and the closing speed is reduced to maintain	S	S	S	
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passengers or objects as the doors close. (Cannot be combined with the SR feature.)	Electronic Doorman (EDM)		safety ray(s) or multi-beam door sensors that detect	0	0	0	
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. Car Arrival Chime — Car or Hall (AECC/AECH) 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.) A hall lantern, which corresponds to a car's service direction, flashes to indicate that the car will soon arrive. A hall lantern which corresponds to a car's service direction, flashes to indicate that the car will soon arrive. A hall lantern which corresponds to a car's service direction, flashes to indicate that the car will soon arrive. This 5.7-inch LCD for car operating panels shows the date and time, car position, travel direction and elevator status messages. This 5.7-inch LCD for elevator halls shows the date and time, car position, travel direction and elevator status messages. This 10.4-inch LCD (Graphics Display) for car front return panels shows a variety of information such as the date and time, customized messages, floor directions or tenant advertisements, as well as elevator information like car position and travel direction. A touch-screen panel (Touch Panel) car be installed in place of the traditional floor buttons in a cflering simple operation and easy destination selection. Customized screen designs are available. Car Information Display (CID) This 10.4-inch LCD (Graphics Display) for eventor halls shows a variety of information such as the date and time, customized messages, floor maps or tenant advertisements, as well as elevator information selection. Customized screen designs are available. Car Information Display (CID) This LCD (10.4 or 15-inch) for car front return panels shows the adae and time, car position, travel direction and easy destination selection. Customized screen designs are available. This LCD (10.4 or 15-inch) for car front return panels shows the date and time, car position, travel direction and elevator status mes	Multi-Beam Door Sensor						
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(ACB) the call has been registered. Car Arrival Chime — Car or Hall (AECC/AECH) 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.) Flashing Hall Lantern (FHL) A hall lantern, which corresponds to a car's service direction, flashes to indicate that the car will soon arrive. In-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. 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. Car Graphic Display and Touch Panel System (CGP) This 1.0-4-inch LCD (Graphics Display) for car front return panels shows a variety of information and elevator information like car position and travel direction. A touch-screen panel (Touch Panel) can be installed in place of the traditional floor buttons in a car, offering simple operation and easy destination selection. Customized screen designs are available. Car Information Display (CID) This 10.4-inch LCD (Graphics Display) for elevator halls shows a variety of information such as the date and time, customized messages, floor maps or tenant advertisements, as well as the installed in place of the traditional floor buttons in a car, offering simple operation and easy destination selection. Customized screen designs are available. Car Information Display (CID) This LCD (10.4- or 15-inch) for car front return panels shows a variety of information undeasy destination selection. Customized screen designs are available. Car Information Display (HID) 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. Immediate Prediction (TCP) When a passenger has registered a hall call, the best	■ SIGNAL AND DISPLAY FEATU	RES		•			
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(AIL) 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 can not accommodate all waiting	Hall Information Display (HID)	direction and elevator status messa	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				
		immediately selected, the correspo		_	_	0	
	Second Car Prediction (TCP)			_	_	0	

Feature	Description	1C to 2C 2BC	3C to 4C ΣAI-22	3C to 8C ΣAI-2200C
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. (Voice available only in English.)	S	S	S
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. (Voice guidance available only in English.)	0	0	0
Auxiliary Car Operating Panel (ACS)	An additional car control panel which can be installed for large-capacity elevators, heavy-traffic elevators, etc.	0	0	0
Inter Communication System (ITP)	A system which allows communication between passengers inside a car and the building personnel.	0	0	0
■ EMERGENCY OPERATIONS	AND FEATURES	•		•
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.)	0	0	0
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 predetermined car(s) have arrived at the floor, normal operation will be available with only predetermined car(s).	0	0	0
Fire Emergency Return (FER)	Upon activation of a key switch or a building's fire sensors, all calls are canceled, all cars immediately return to a specified evacuation floor and the doors open to facilitate the safe evacuation of passengers.	0	0	0
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 operations.	0	0	0
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.	0	0	0
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.	0	0	0
MelEye (WP-W) Mitsubishi Elevators & Escalators Monitoring and Control System	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.	0	0	0
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.)	0	0	0

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 ③ = Standard ⊙ = Optional † = Not applicable to 1-car 2BC system — = Not applicable

#1 = Please consult our local agents for the production terms, etc.

#2 = When DOAS-S is applied, SR or Multi-Beam Door Sensor should be installed.

ISO 9001 **BUREAU VERITAS** Certification







Mitsubishi Electric Inazawa Works has acquired ISO 9001 certification by the International Standards Organization (ISO) based on a review of quality management.

The company has also acquired the environmental management system standard ISO 14001 certification.