



Toshiba Elevator Destination Control System

FLOORNAVI

3rd Edition

Safety Cautions

- Observance of relevant laws / regulations are required.
- Read the entire “Instruction Manual” carefully before use, for important information about safety, handling and operation.



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Toshiba Elevator Destination Control System **FLOORNAVI**

In 1978, Toshiba has adopted the world's first micro-computer as group control system in elevator. Thereafter, various kinds of advanced technologies such as AI (artificial intelligence) techniques, fuzzy control and also expert system had been applied in order to enhance the efficiency of grouping in elevator control system.

22 years has passed ever since Group Control System is commercialized in 1992 without changing basic operability and allocation algorithm. In 2014, TOSHIBA released the new group control system with its characteristic concept of "Real Time Scheduling", and also commercialized Destination Control System "FLOORNAVI" which the users register their destination floor at elevator hall.



Toshiba's Destination Control System FLOORNAVI Wins Gold Award at iF DESIGN AWARD 2020

Toshiba Elevator and Building Systems Corporation (Toshiba) has been awarded with the top distinction in the 2020 iF DESIGN AWARD, the iF gold award. From 7,298 submissions, only 75 were awarded the gold by the independent expert iF jury.

The winning FLOORNAVI, won a gold award in the discipline Product, in the Public Sector / Government category. The jury released the following statement regarding its decision to issue FLOORNAVI the gold:

"Toshiba has designed an efficient elevator (destination) control system in line with universal design to cater to the needs of able and disabled people. AI allows for floor destinations to be bundled effectively, reducing waiting time. The simple and easy interface is readily adaptable to various architecture contexts."

FLOORNAVI / Destination Control System



FLOORNAVI allows passengers to specify destination floors before embarking elevators and guides them to appropriate cars to reduce the number of floors at which they need to stop. Since passengers do not need to push floor buttons in the car, they can get in and out of the car smoothly even when it is congested.

Iconic ring-shaped icons and the chest-high operation panel allow comfortable operations. A full-scale mock-up is used to verify the usability to make FLOORNAVI easy to use for diverse people, including those in a wheelchair. FLOORNAVI helps greatly reduce the elevator travel time during the peak time.

About the iF DESIGN AWARD



For 67 years, the iF DESIGN AWARD has been recognized as an arbiter of quality for exceptional design. The iF label is renowned worldwide for outstanding design services, and the iF DESIGN AWARD is one of the most important design prizes in the world. Submissions are awarded in the following disciplines: Product, Packaging, Communication and Service Design, Architecture and Interior Architecture, as well as Professional Concepts. All awarded entries are featured on the iF WORLD DESIGN GUIDE, in the iF design app and are displayed at the iF design exhibition in Berlin.

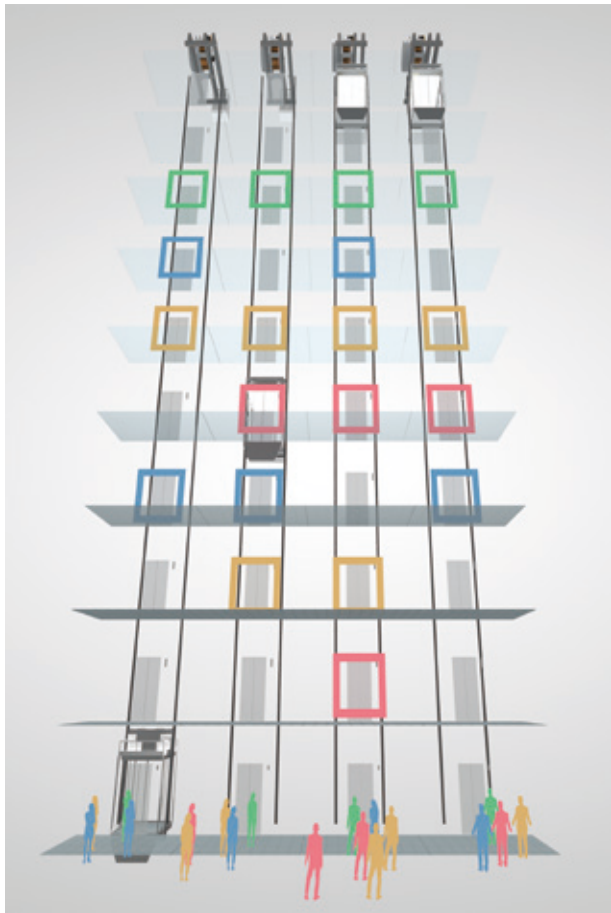
Concept of “FLOORNAVI”

In buildings, elevators are important means of transportation. For elevators passengers, length of waiting time and service time on the elevator is an essential parameter for building service.

The Destination Control System “**FLOORNAVI**” is a group control system that makes it possible to provide more optimum elevator operation by recognizing passenger’s destination beforehand.

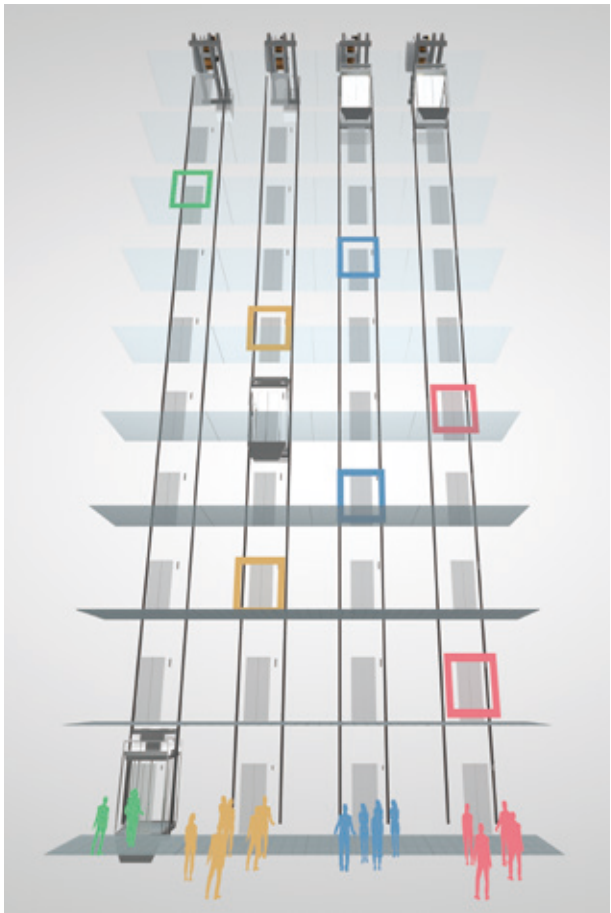
The situation of the flow of people in the building is comprehensively optimized in order to provide efficient travel.

►Before applying the Destination Control System “**FLOORNAVI**”



Regardless of their destinations, all passengers get on the first arriving car, which results that the number of stops increases, and service time will be extended.

►After applying the Destination Control System “**FLOORNAVI**”



The most suitable operating schedule is calculated by advanced calculation algorithm based on registered destination floor.

The optimum elevator operating system provides a stress-free environment for all elevator passengers.

Large reductions in peak hour queuing

By reducing service time drastically, Destination Control System relieves passengers stress from rush-hour congestion in the morning and evening.

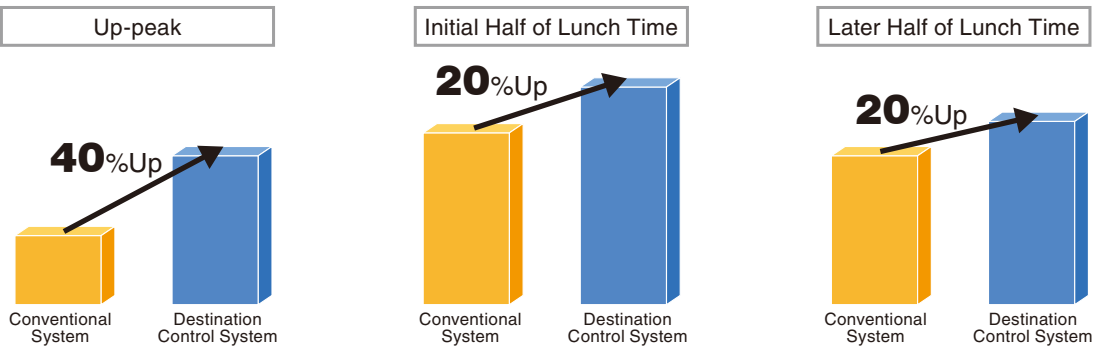
Shorter traveling time

By registering the destination floor before the elevator ride, the number of floor stops is reduced because the person who wants to move to the same floor can be collected at the same elevator. Therefore, the ride time is shortened as a result.

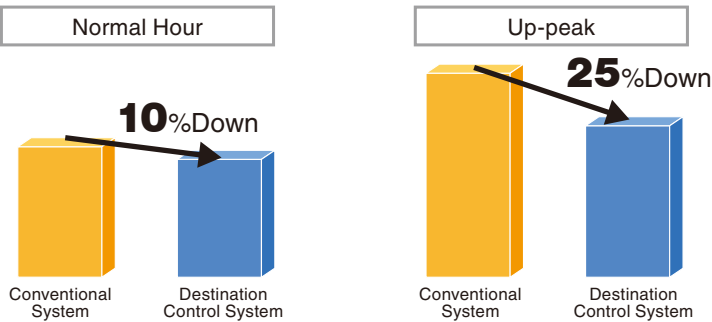
Not required to press the floor button inside the car

Once passengers get inside the elevator, they are no longer required to enter the destination floor. It removes the burden of the destination entry inside a packed elevator and thus improving passenger experience.

Result of Handling Capacity



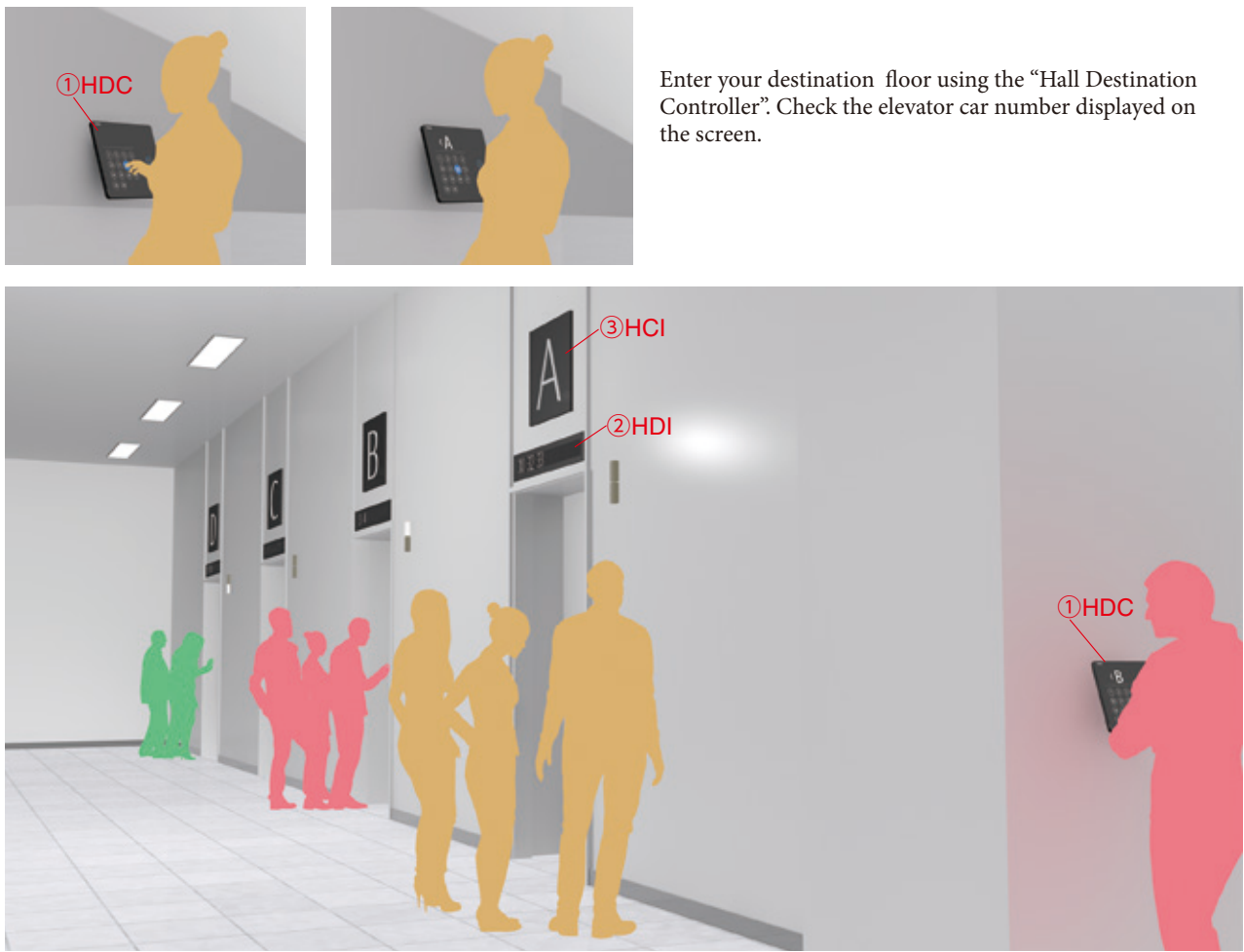
Average Service Time (service time = waiting time + traveling time)



Conventional Group Control System and Destination Control System are compared as shown below: Simulation has been conducted according to follows conditions. Based on the result, Destination Control System performance has exceeded conventional group control system in terms of average service time and also handling capacity. The effect is more pronounce particularly during up-peak hour. Measurement Conditions: 6 Elevators, 15 stops, rated speed 150 m/min, Car capacity 24person. Waiting time for conventional system is shorter than Destination Control System. However, for the case of traveling time, Destination Control system shows better performance compared to conventional type. Overall, Destination Control System shows better service time in total compare to conventional system.

Device Description of FLOORNAVI

Basic usage procedure



Device location in the Car

FULL DCS type




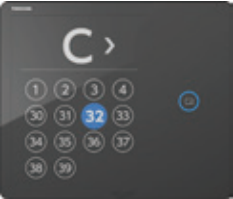






HYBRID DCS type



※Note : In the case of HYBRID DCS type, the floor button of the registered destination floor lights up like the conventional elevator.

Table of Equipment and Application

DCS Devices	Standard	Optional	Use and conditions
① HDC : Hall Destination Controller	 HDC2-B SUS button type	 HDC2-B-C SUS button type activate with card reader type  HDC2-T Touch panel type ※10-key method type display  HDC2-T-C Touch panel type activate with card reader type ※Direct input method type display	<ul style="list-style-type: none">Input destination floor.Display shows assigned car No.Card reader is worked by othersPut your card on the card reader, and card reader will activate.HDC has two types of installation methods: "hung on the wall type" and "embedding to the wall type".The touch panel HDC has two display methods on the destination floor registration screen: the "10-key method" and the "Direct input method".
② HDI : Hall Destination Indicator		 HDI2	<p>(The display device is optional only)</p> <ul style="list-style-type: none">Install for every car in the hall, display assigned destination floor.Lantern can be applied instead of HDI. However, arrival forecast lamp is not applicable. <p>Note : A white light or orange light can also be selected for the indicator LED Dot Matrix display.</p>
③ HCI : Hall Car Indicator			<ul style="list-style-type: none">Display which identifies the assigned car in Hall Car indicator.
④ CDI : Car Destination Indicator		 CDI2-H  CDI2-V	<p>(The display device is optional only)</p> <ul style="list-style-type: none">Install inside of the car, and display the next stop floor.Installation to entrance column is acceptable. (Vertical type is also available) <p>Note : A white light or orange light can also be selected for the indicator LED Dot Matrix display.</p>

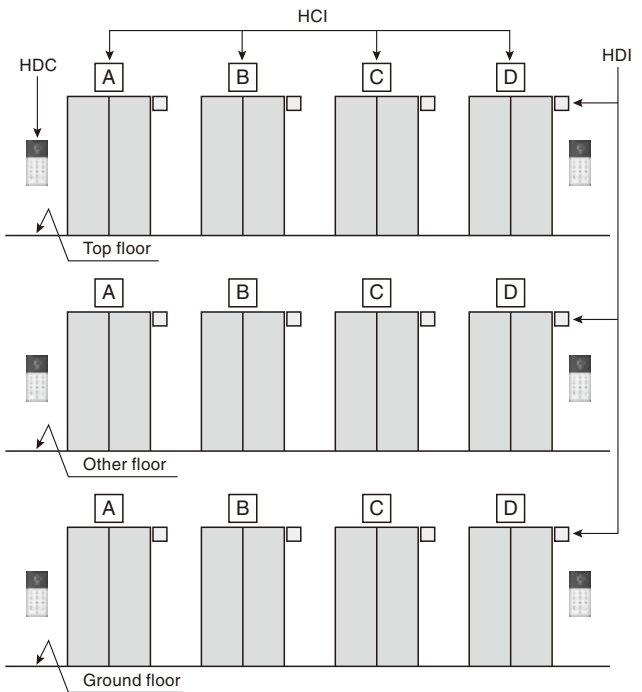
HDC Location

DCS allocates specific car according to the destination floor registered by the user in advance, and specifies the elevator as it for every destination floor.

There are a FULL DCS type and a HYBRID DCS type of DCS(s).

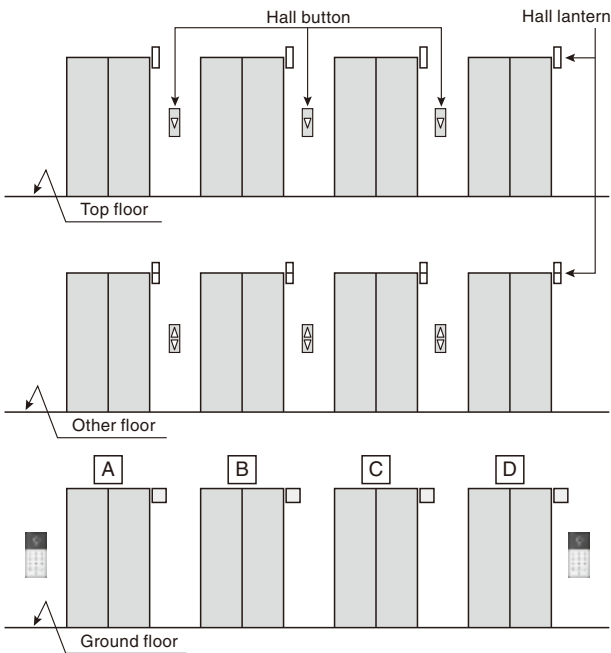
FULL DCS type

HDC is installed in all the floors, and an elevator calls, and it performs all registration of a destination floor by HDC. Since a destination floor is automatically registered at the time of an elevator response, a destination floor button is not installed in a cage.



HYBRID DCS type

By only the floor of a specific floor (a standard floor, a dining-floor, or the specified floor) installing HDC, the other floor installs the usual hall button, and an elevator calls it only on a specific floor, and it performs registration of a destination floor, etc. by HDC. In the other floor, an elevator is called with the hall button like the usual elevator, and a destination floor is registered with the destination floor button in a cage.



The equipment installed by DCS

The equipment installed in a hall and a cage by DCS is as follows

○: Basic, △: Optional, ×: Not applicable

Item (Note 1)			Application	
			FULL DCS	HYBRID DCS
Hall	HDC	Button type (HDC2-B series)	○	○
		Touch panel type (HDC2-T series)	△	△
	HDI (HDI2 series)		△	△
	HCI		○	○
Cage	CDI	Horizontal type (CDI2-H series)	△	×
		Vertical type (CDI2-V series)	△	×

Note 1 : Display which identifies the assigned car in Hall Car Indicator (HCI) should be arranged by other works.
Note 2 : Please refer to the "DESIGN SELECTION" catalog for "Hall lantern", "Hall button", and other designs.

About the installation position of HDC and HCI

The recommendation installation position of HDC in the case 3 to 6 cars is shown below. "▲" "▼" in a figure shows HDC.

		In the case of 3 car	In the case of 4 car
In-line arrangement	Through passage		

		In the case of 5 car	In the case of 6 car
In-line arrangement	Through passage		

Note 3 : If the number of installation position is greater than the above 6 cars. Please consult our local distributor.

Security System Linkage Function

A security system linkage function is making it not receive operation of hall destination controller (following “HDC”), and receiving only operation of a card reader (Image of Pattern 1) or a flapper gate (Image of Pattern 2) by operating the switch installed in the supervisory panel etc., and raises the security in a building.

■ Image of pattern 1

Registration operation image



Applicable device of HDC



■ Image of pattern 2

Linkage flapper gate system



Memo