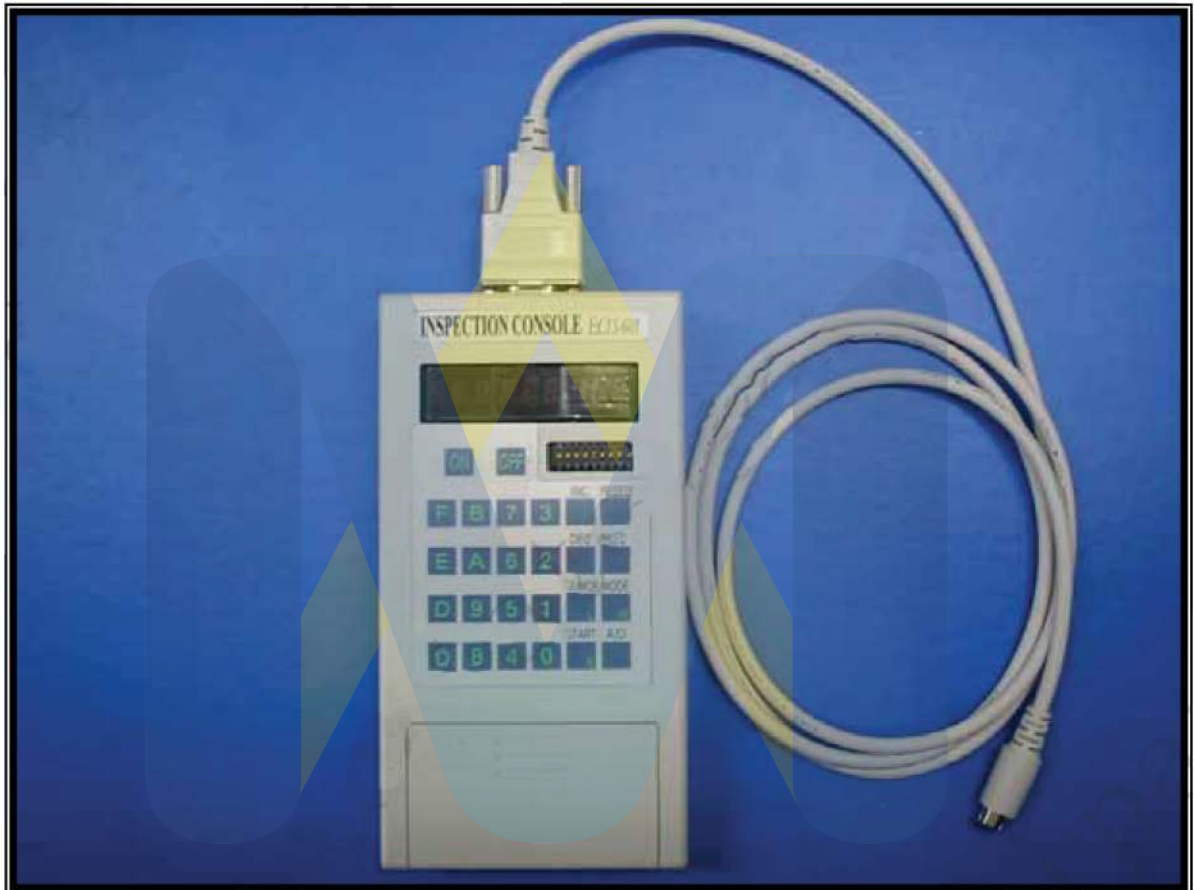


# HITACHI MAINTENANCE CONSOLE INSTRUCTION MANUAL

For Models: EC2-605/EC3-605/EC4-605



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## **About the contents of the Hitachi Maintenance Console Instruction Manual**

1. The "Hitachi Maintenance Console Instruction Manual" describes the handling of "Hitachi Maintenance Console (Models EC2-605/EC3-605/EC4-605).
2. "Hitachi Maintenance Console" is set up individually for each country it serves. It is not for international use for which care should be taken.
3. "Hitachi Maintenance Console" is designed to indicate the conditions of an elevator, escalator and other, and carry out their maintenance work. Hitachi Ltd. shall not be liable to any defect that may occur as the result of operation other than stated in the manual, to which your understanding is requested in advance.



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## 1. Outline of Hitachi Maintenance Console

This manual describes cautions and the method of using Hitachi Maintenance Console (hereinafter referred to as Maintenance Console). Please read this manual carefully before actually carrying on elevator maintenance work by using the maintenance console.

The Maintenance Console you have purchased is a dedicated maintenance terminal. It indicates the following basic state of the elevator and implements adjustment:

- Operating state of the elevator/escalator
- State of trouble generated
- Adjustment function of the elevator/escalator (maintenance work function)

### 1.1 Applicable Models

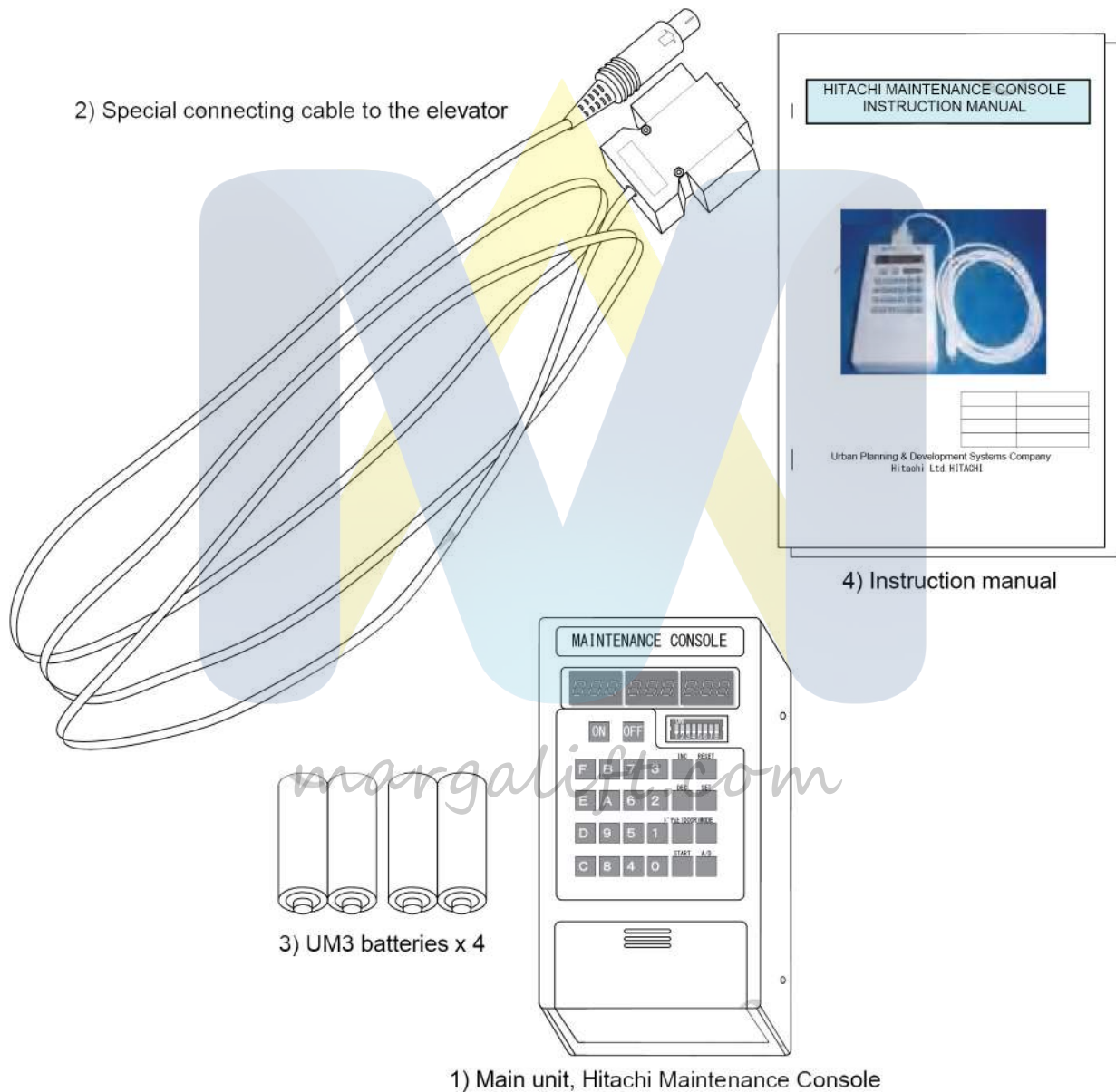
The following types of the Maintenance Console are applicable to the following models of the elevators and escalator and others.

Type	Application	Applicable machine models
EC2-605	For maintenance 1	Elevator B95 or later models
EC3-605	For maintenance 2	Elevator B95 or later models
EC4-605	For quality assurance	Elevator B95 or later models/Escalator E98 or later models/Groups/doors

## 1.2 Accessories

Check that the following 4 items illustrated are included in the accessory package:

- (1) Main unit, Hitachi Maintenance Console
- (2) Special connecting cable to the elevator
- (3) Four (4) UM3 dry batteries (including 2 spare batteries)
- (4) Instruction manual (this manual)



### 1.3 Initialization

- Enter the name of the service country, etc. to the name plate on the back of the console.

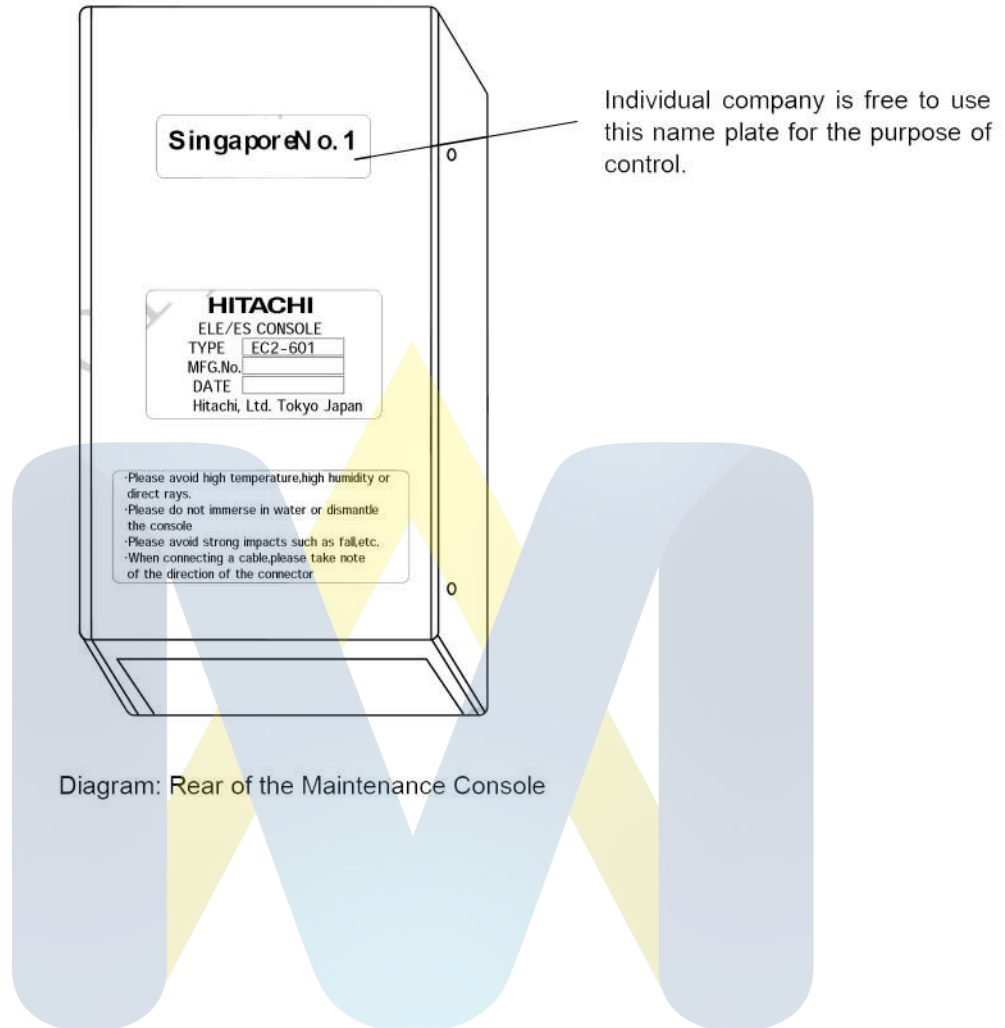


Diagram: Rear of the Maintenance Console

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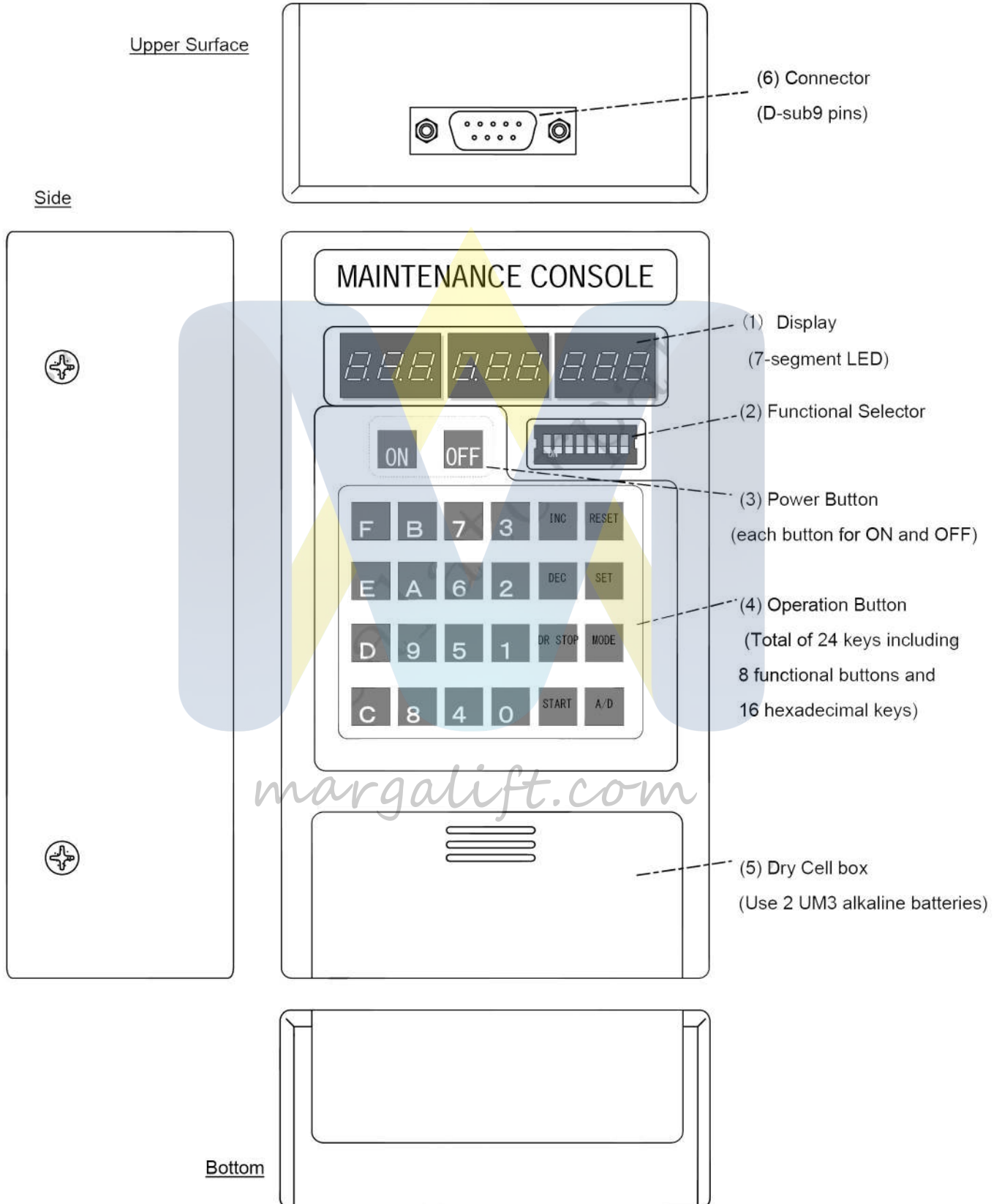
## 1.4 Cautions

Care should be taken for the following matters:

- Avoid using the Maintenance Console under extremely high-or low-temperature environment, in the direct rays of the sun or near any heat-emitting devices.
- Keep the main unit of the console and the connecting cable dry. Avoid giving impact to them by falling, etc. or it may cause a failure.
- When not using for an extended period of time, remove batteries from the battery box. Remove low batteries from the battery box promptly or leakage, etc. may cause a failure.
- Never disassemble or modify the console. Hitachi Ltd. is not liable to a failure caused by the disassembly by user.
- Avoid irregular, unnecessary operation during the use.  
Do not change the functional switch selection or press two buttons or more simultaneously while in use, or it may cause a failure or abnormal elevator operation.
- When connecting the cable, be careful for the direction of the connector on both the Maintenance Console and the elevator. To give a longer life to the special connecting cable, user is recommended to keep the cable connected to the Maintenance Console during storage.
- Please use the console, keeping as far away from noise source such as motor and machine base, as possible, because it causes console malfunction or emergency stop of an elevator.
- Please turn off the console when the malfunction or the emergency stop occurs during use of console. Remove the cable from elevator side, and refer to Installation and Maintenance Manual (the trouble shooting for each devices).
- It will cause the failure and break if the polarity of a dry cell is mistaken.  
Please set a battery to a console according to the polar display of a battery holder.
- Please keep it security at a set place after use, because the dust may cause the trouble.
- Warranty period : A Warranty period is for one year after product delivery.
- Guarantee range : The failure caused by you is not included in the warranty.

## 2. Name of the Sections and their Functions

The diagram below shows the configuration of the Maintenance Console. This Section describes the names of the sections and their main functions.

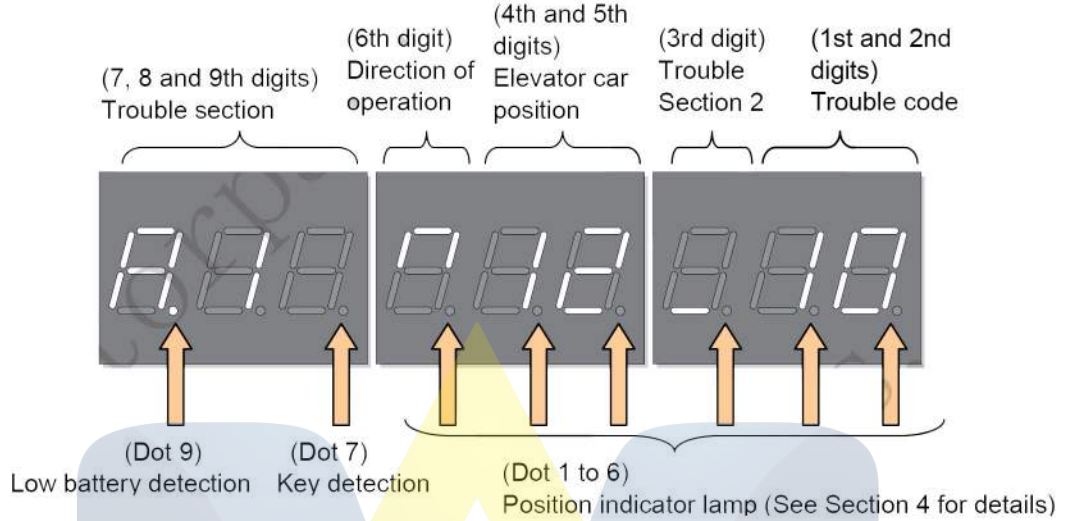




### 2.1 (1) Display

A 9-digit display for the elevator state of operation and the address/data during implementation of various adjustments

Example of display – Operating state of the elevator



**Note) About low battery detection (Dot 9)**  
 Flashing Dot 9 indicates that the remaining capacity of the batteries (alkaline cells) has reached below 10%. Replace them with new alkaline batteries as soon as possible. (New batteries last about 7 hours in continuous operation mode.)

### 2.2 Functional Selector Switch

Switches for selecting function. Set up functions according to the function to be used and the machine type to be connected to before turning the power ON. The switches become invalid after the power is ON. For the method of setting, read Sections 4 and 5.

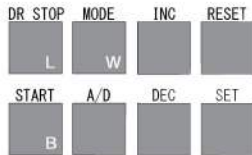


No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8
Function 1	Function 2	Function 3	Speed 1	Speed 2	Spare	Spare	Spare

### 2.3 (3) Power Button/(4) Operation Button



Power ON-OFF button. Pressing ON button for about 1 second or longer turns the Maintenance Console ON. Pressing OFF button while the power is ON, the console is turned OFF.



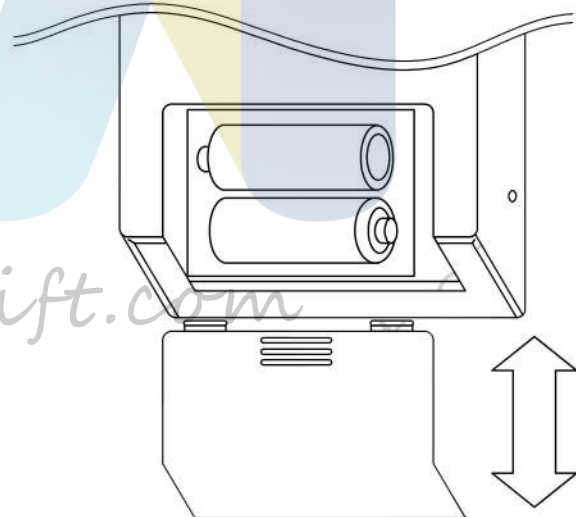
Functional buttons. Used for setting and resetting data, selecting function (Mode), increasing/decreasing value (INC/DEC), stopping door, starting the elevator and so forth.



Hexadecimal buttons. Used for entering adjustment and other values and address.

### 2.4 (5) Battery Box

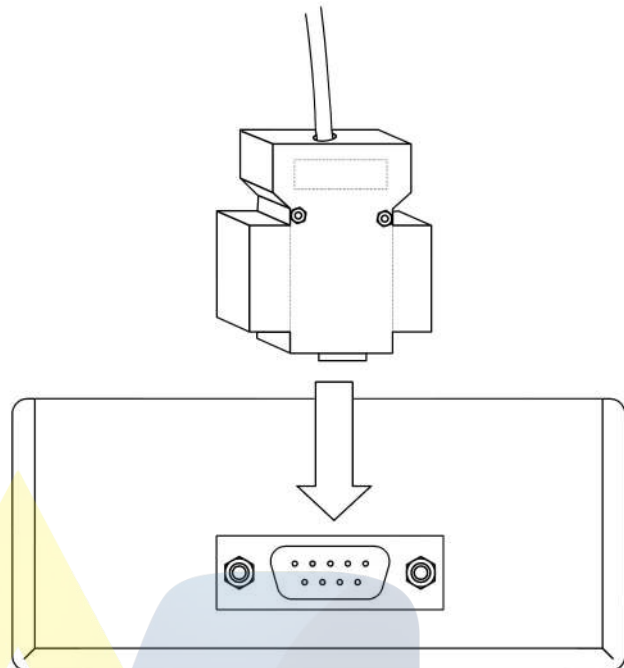
Slide the battery box cover downward to open. Set 2 batteries attached in the direction shown in the diagram. To close the box, fully slide the cover upward until it clicks.



## 2.5 (6) Connector

Connect D-sub9 pin connector (female side) of the attached special connecting cable to the connector on top of the Console. Care should be taken for the direction of the pin connector.

Connect the round 8-pin connector on the other end of the special cable to the elevator. For further details, read Section 3.



### **About the special cable:**

The connectors of the attached special cable are made of material prone to degradation after repeated insertion. When the console is not in use, user is recommended to store the console with the special cable connected to the D-sub9 pin connector.

### 3. Connection Method. How to Turn the Power ON-OFF

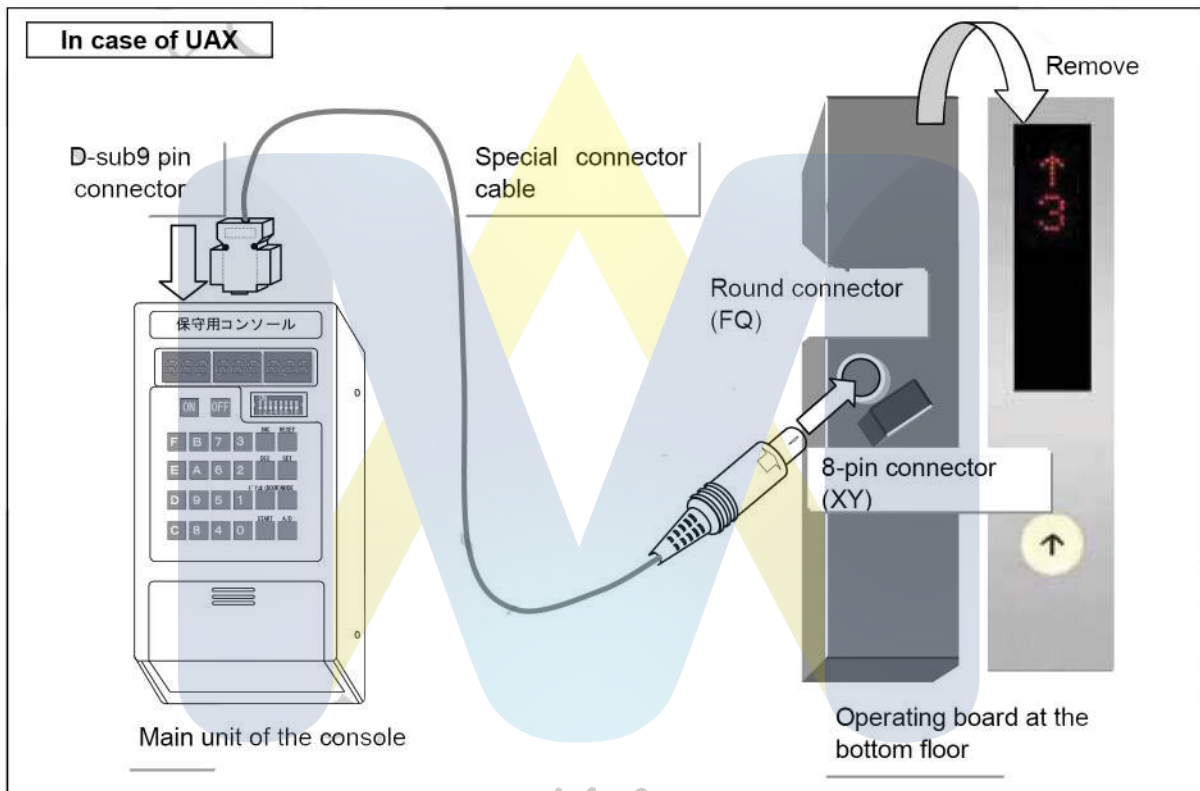
This section describes how to use the Maintenance Console.

#### (1) Connect the Console with the elevator.

##### (a) In case of UAX Machine room less elevators

Remove the cover of the elevator car operating board on the bottom floor to find the terminal for the special round connector FQ (8 pins). Connect the round connector of the special cable to this terminal.

For other machine room less elevator, please consult with Hitachi, engineer.



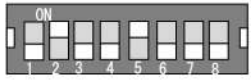



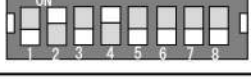

##### (b) In case of other types

Connect the round connector of the special cable to the special round connector (described as FQ, PC or FG, etc.) packaged to the printed board in the control panel.


#### (2) Set the functional selector switch.

Set the functional selector switch as indicated in the table according to the machine type to be connected, section, etc. Note that Group/Door mode is the setting only to EC4-605.


**Table1: Setting of the functional selector switch (Basic setting)**

Machine type/Mode set	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	Diagram
UA-03/UA-04/UAG OUG/OUG-10T ※Exclusion setting Table2	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	
HVF5/UVF5S/VFI-2 ※Exclusion setting Table3	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	
Other Elevator Type (Including UAX)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Door PCB	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
Group Control (MPU Type : SGC-MPU,WMPU)	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	
Group Control (Other MPU Type)	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	

**Table2: Setting of the functional selector switch (MODE9,38,39,3C,3D)**

Machine type/Mode set	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	Diagram
UA-03/UA-04/UAG OUG/OUG-10T	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	

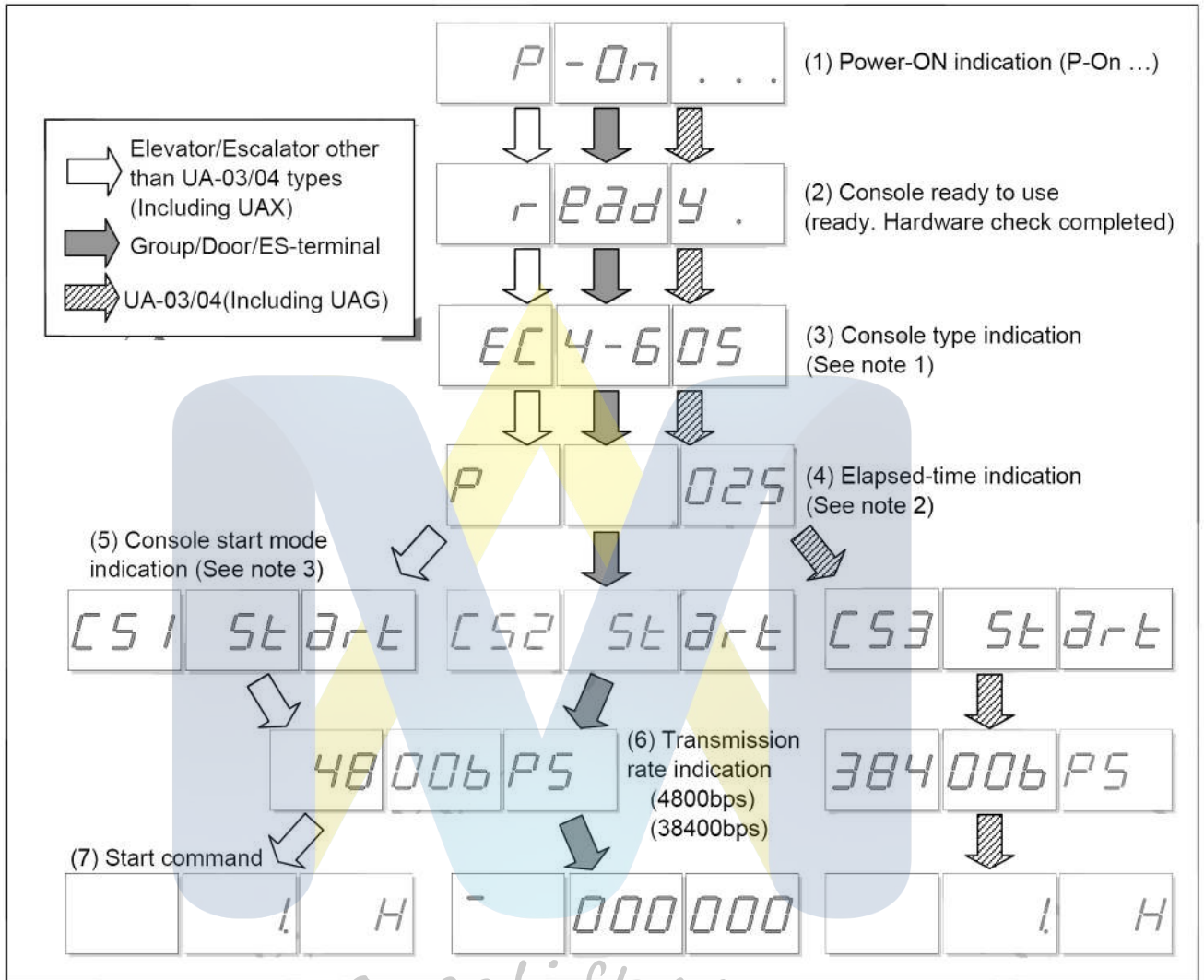
**Table3: Setting of the functional selector switch (MODE76,78)**

Machine type/Mode set	No.1	No.2	No.3	No.4	No.5	No.6	No.7	No.8	Diagram
HVF5/UVF5S/VFI-2	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	

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**(3) Turn the power ON.**

Depress the console Power Button **ON** 1 second or longer. The Display will indicate as shown in the figure and the console is ready to use. Be sure to depress the button until the display indicates Power-On (P-On). (Don't press other button than Power Button when tuning the console ON, or the console may not start normally.)



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If error is indicated during the starting process, refer to Attachment 3 Maintenance Console Error Code List.  
(If Error10 is indicated as shown in the future, press any key to restart the process.)



Error 10

**Note 1)**

(3) Console type indication

Indicates the type of the console in use. (EC4-605 for example)

**Note 2)**

(4) Elapsed time indication

Indicates the total length of hours the console has been used in terms of percentage (%) to a maximum operation time available. When the reading reached 100, the console operation will be disabled. Please request your maintenance company to run a clearance work in advance. With the factory setting at shipment, the console will reach 100% used level after about 500 hours in total of power-ON time.

**Note 3)**

(5) Console start mode indication

Indicates operation mode of the console at start.

CS1 START : Elevator Maintenance mode

CS2 START : Group/Door mode

CS3 START : UA-03/04 mode

#### (4) Turn the power OFF

Depress the console Power-OFF button  to turn the console OFF.

**Note)** In the case the power is automatically turned OFF

In the following cases, the power is automatically turned OFF to save on battery life:

- Longer than 10 minutes (initial value) have elapsed without operation.
- When error 03/error 05 occur (see Attachment 3).
- If self-diagnosis immediately after power-ON turns to be an error. (Failure)

(Indication for automatic power-OFF)



P-OFF ..

## 4. Elevator/Escalator Mode

When the power is ON by setting the functional selector switch to other than Group/Door mode according to Section 3 How to Turn the Power ON, the display will indicate the operation state of the elevator/escalator. This section describes the operation state indication. Please don't use the console other than EC4-605 for the escalator.

### 4.1 Segment Indication of the Elevator

When indicating the operating state of the elevator, the 9-digit segment sections indicate trouble code and the position of the elevator car. This section describes the contents of the segment indication. For escalator, read Section 4.3 and onward.

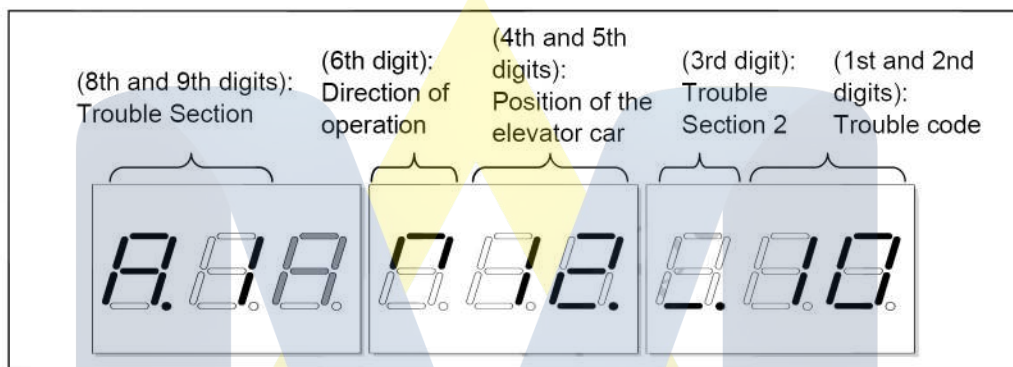









Table of the contents of operating state indicated in the segment sections of the display (Elevator)

Item	Segment indication	Descriptions
(6th digit): Direction of operation	  Upward      Downward	Indicates that the direction of operation is in two ways, upward and downward.
(4th and 5th digits): Position of the elevator car	 In the case of 12 floor operation without the basement floor	Indicates the floor the car is positioned at. Irrespective of the presence of the basement floor, the indicator always indicates the lowest floor as 1. (Example: For a building having the basement floor, 6th floor of the building is indicated as 7.)
(3rd digit): Trouble section 2	  Operation control system (Master Microcomputer)      Speed control system (Slave Microcomputer)	Operating system: Failure detected in the operation control system Speed system: Failure detected in the speed control system Indicates the section of trouble code when abnormality occurs. (Refer to the Attachment: List of Table of Trouble Codes)
(8th, 9th, 1st and 2nd digits): Trouble section and trouble code	  Trouble section      Trouble code	Indicates the section and code of the trouble in the operation or speed control system. If trouble should occur simultaneously to both the operation and speed control systems, indication appears alternately. The 7th digit is for the escalator and not concerned with the elevator. (Refer to the Attachment: List of Trouble Codes)



### 4.2 Dot Indication for the Elevator

This sub-section describes the dot section (position lamp) in the indication of the elevator state of operation using the following diagram and table:

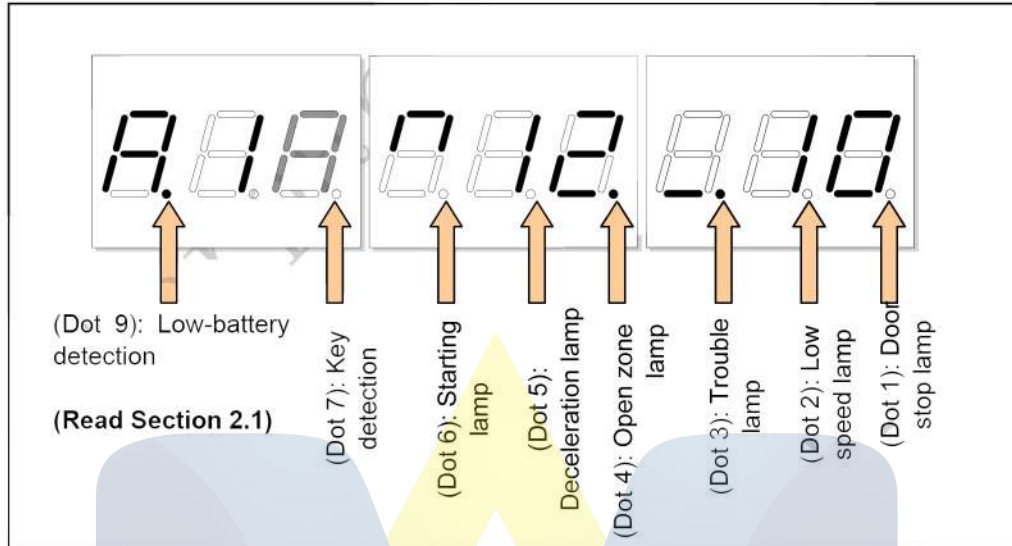


Table of the contents of operating state indicated with the dot section in the display

Dot	Name	Content
Dot 1	Door stop lamp	Lights up when Door Stop Button is depressed on the Maintenance Console. Then the door is set to stop condition. Depressing the same button again resets the setting and the lamp turns out.
Dot 2	Low speed lamp	Lights up during low-speed operation. The followings are included in the low-speed operation: <ul style="list-style-type: none"> <li>• Maintenance operation</li> <li>• Rescue operation (operation to the nearest floor)</li> <li>• Operation to the nearest floor during a power failure with the automatic operation system (ALP)</li> <li>• Operation for measuring the height of a story</li> </ul>
Dot 3	Trouble lamp	When ON, it indicates that trouble has occurred.
Dot 4	Open zone lamp	Indicates that the car is at the position that enables the door opening.
Dot 5	Deceleration lamp	Lights up during deceleration of the car
Dot 6	Starting lamp	Lights up when start command is received (immediately before the car actually starts)
Dot 7	Key detection	Lights up when a key is depressed.
Dot 9	Low-battery detection	Flashes when the battery (UM-3 cells) power becomes low. When flashing steadily, the remaining battery power is about 10%.

### 4.3 Segment Indication of the Escalator

The segmented 9 digits in the display of the escalator state of operation indicate the trouble code and speed command value. This section describes them. Types other than EC4-605 are not applicable to the escalator.

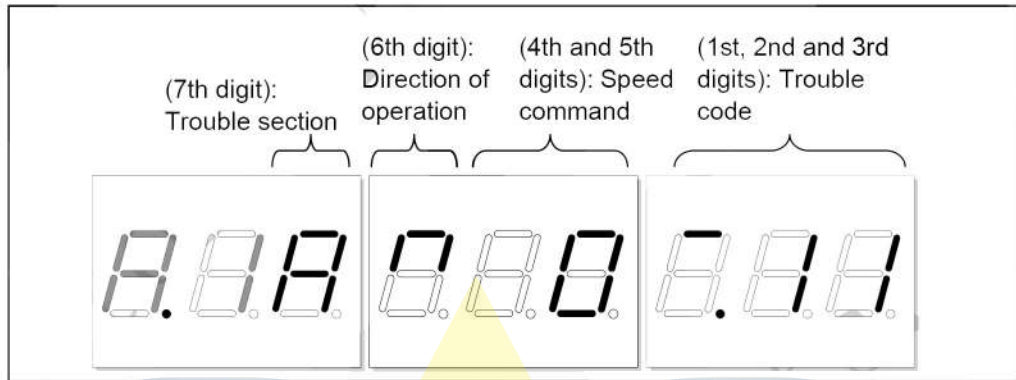





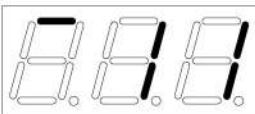


Table of the contents of operating state indicated in the segment sections of the display (Escalator)

Item	Segment indication	Descriptions
(6th digit): Direction lamp	  Upward    Downward	Indicates that the direction of operation is either upward or downward.
(6th digit): Local adjustment area write enabled	 Write enabled	Mode 73 indicates that the writing of local adjustment area is enabled. (Applicable to the Technical Comment for Installation and Maintenance ESK2001-06, Sections 13/14 E00 and E03 only)
(4th and 5th digits): Speed command	 In the case of 30m/min	Indicates speed command hexadically.
(7th, 1st, 2nd, and 3rd digits): Trouble section and code	  Trouble section    Trouble code	Indicates the trouble section and the code. The 8th and 9th digits are set for the trouble section of the elevator, hence not concerned with the escalator. (Refer to the List of Trouble Codes in the Attachment)

### 4.4 Dot Indication of the Escalator

This sub-section describes the dot section (position lamp) in the indication of the escalator state of operation using the following diagram and table:

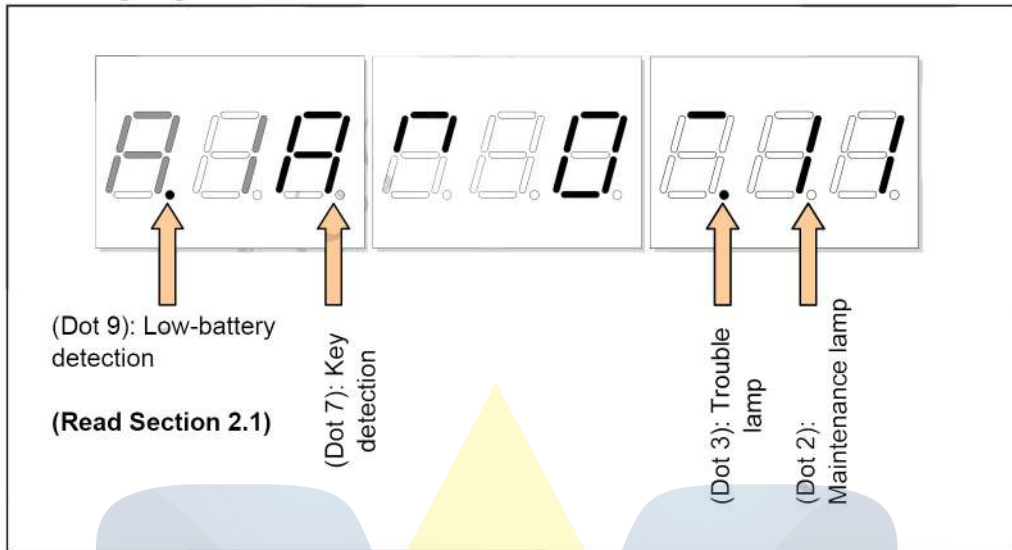




Table of the contents of operating state indicated with the dot section in the display

Dot	Name	Content
Dot 2	Maintenance lamp	Lights up when in maintenance mode.
Dot 3	Trouble lamp	When lighted, the lamp indicates that trouble has occurred.
Dot 7	Key detection	Lights up when a key is depressed.
Dot 9	Low-battery detection	Flashes when the battery (UM-3 cells) power becomes low. When flashing steadily, the remaining battery power is about 10%.

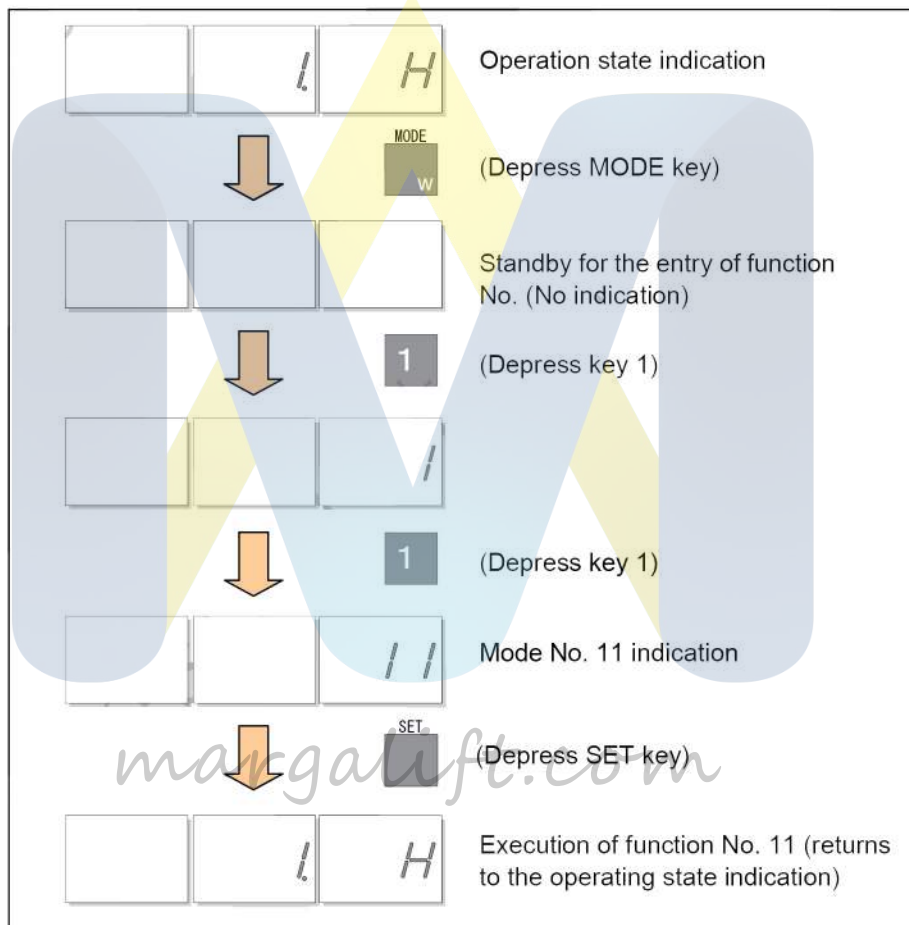
### 4.5 Basic Method of Operation

This subsection describes the basic operating method of maintenance work.

Execute various types of maintenance work by depressing  (mode key), then entering a corresponding mode No. and depressing  (set key).

To end the ongoing maintenance work, depress  key, enter the corresponding mode No. and depress  (reset key). For functions, refer to the attached List of Mode Functions and the Technical Comment for Installation and Maintenance for respective machine types.

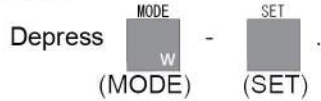
Example) Entry procedures for the operation for measuring the height of a story (MODE – 11 – SET)



### 4.6 Examples of Maintenance Work Function Operation

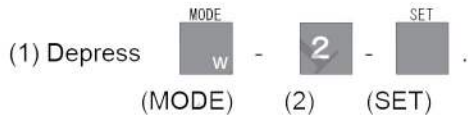
- Return to the operating state indication (for elevator/escalator)

Use this step for returning to the operating state indication by interrupting the entry of various maintenance operations.

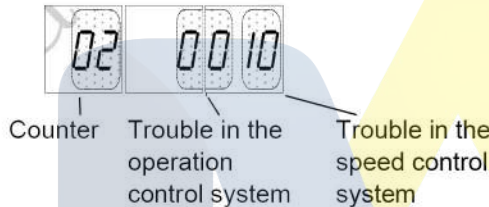



- Trouble history all clear (for elevator/escalator)


Run this process after eliminating the causes of trouble at the end of troubleshooting.



- (2) The display indicates the counter and the trouble code history.




- (3) Depressing  (INC) until the counter stops increasing (counter indication of 8A or 92)

- (4) Keep depressing  (RESET) until the display returns to the operating state indication (car position and the direction of operation).

- Door stop (for elevator only)

Stops the opening/closing operation of the elevator door.

- (1) In the case of stopping the door operation

Depress  (Door Stop). Check that the door stop lamp is lit. (Read Section 4.2)

- (2) Recovering normal state

Depressing the same button again resets the door stop operation. Check that the door stop lamp is out.

**About the door stop function**

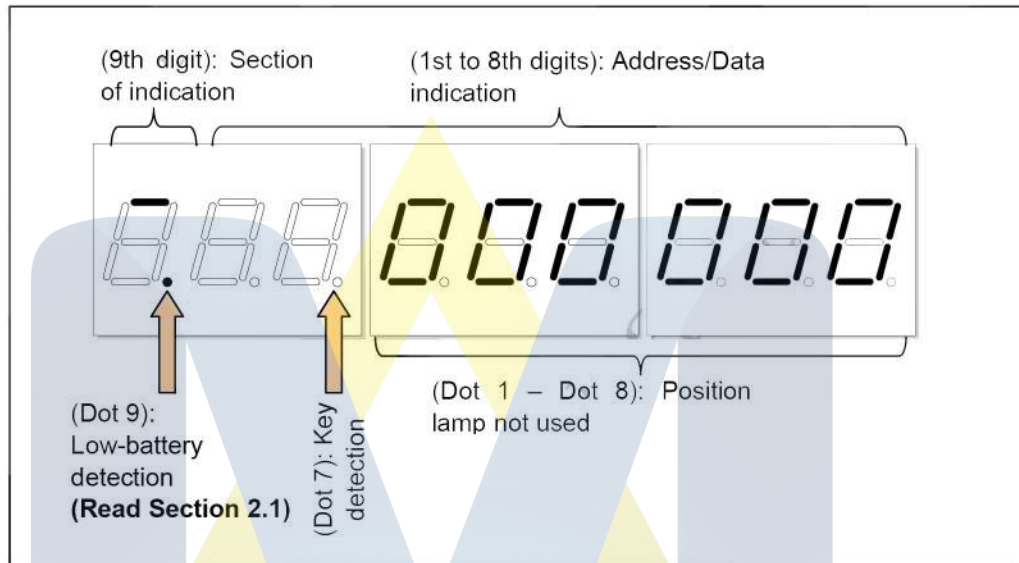
The door stop function differs in operation depending on the state of the door when this function is executed.

- (1) Door is in fully open state  
The door stops in "open" state as it is. Elevator will not run unless the function is reset.
- (2) Door in the middle of opening or closing  
The door stops at the position when the door stop function is executed. Elevator will not run unless the function is reset.
- (3) Door is in closed state or while the car is traveling  
The door remains closed. The elevator can continue to travel.

## 5. Group/Door Mode

Group/Door mode is used for adjusting the group control panel or the door. When the power is ON with the functional selector switch set to the group/door mode according to How to Turn the Power On in Section 3, the display changes to the address entry indication. The Group/Door mode cannot be used for other types than EC4-605.

### 5.1 Screen Indication



- (1st to 8th digits): Address/Data indication

Indicates the access address and the data. Data will be indicated right-justified. Nothing will be indicated to a digit not in use.

Section of indication	Number of digit for indication
Indication of address	6 digits
Indication of data (in byte)	2 digit
Indication of data (in word)	4 digits
Indication of data (in long word)	8 digits

- (9th digit): Section of indication

Indicates the section of data currently indicated by 1st to 8th digits.



(Address indication mode): Indicates that the address is indicated to 1st -6th digits.



(Data indication mode): Indicates that data corresponding to the address entered to 1st to 8th digit is being indicated.



(Data rewrite mode): Indicate the state where rewriting data is being entered for rewriting the data for the entered address.

## 5.2 Basic Method of Operation

- (1)  reset button

Depressing the reset button returns the display to the address indication mode irrespective of the current indication section/mode. At this time, data access size, address, etc. will be all reset simultaneously.

- (2)  set button



Depress this button when confirming the rewriting data in the data rewrite mode. This causes the data to be actually written. This button is invalid in other mode.

- (3)  data indication buttons (L/W/B, DOOR/MODE/START buttons)

Depressing the data indication button during the address indication mode changes to the data indication mode. At this time, B (START button) will be for byte size access (2 digits), W (MODE button) for word size (4 digits) and L (DOOR button) for long word size access (8 digits).

- (4)  address/data selector button

Selects the address indication mode and data indication mode alternately. This button is invalid when the access size is in undefined state before (3) data indication button is depressed. If this button is depressed during the data rewrite mode, the data under the entry process will be dumped and the mode returns to the address indication.

- (5)   increment button/decrement button
- Increases or decreases the address value according to the current access size in the address indication and data indication modes. (Increment button is for an increase, decrement button for a decrease, +/-1 for byte access, +/-2 for word access and +/-4 for long word access.) This button is invalid when the access size is in undefined state before (3) data indication button is depressed. If this button is depressed during the data rewrite mode, the data under the entry process will be dumped and the mode returns to the address indication.

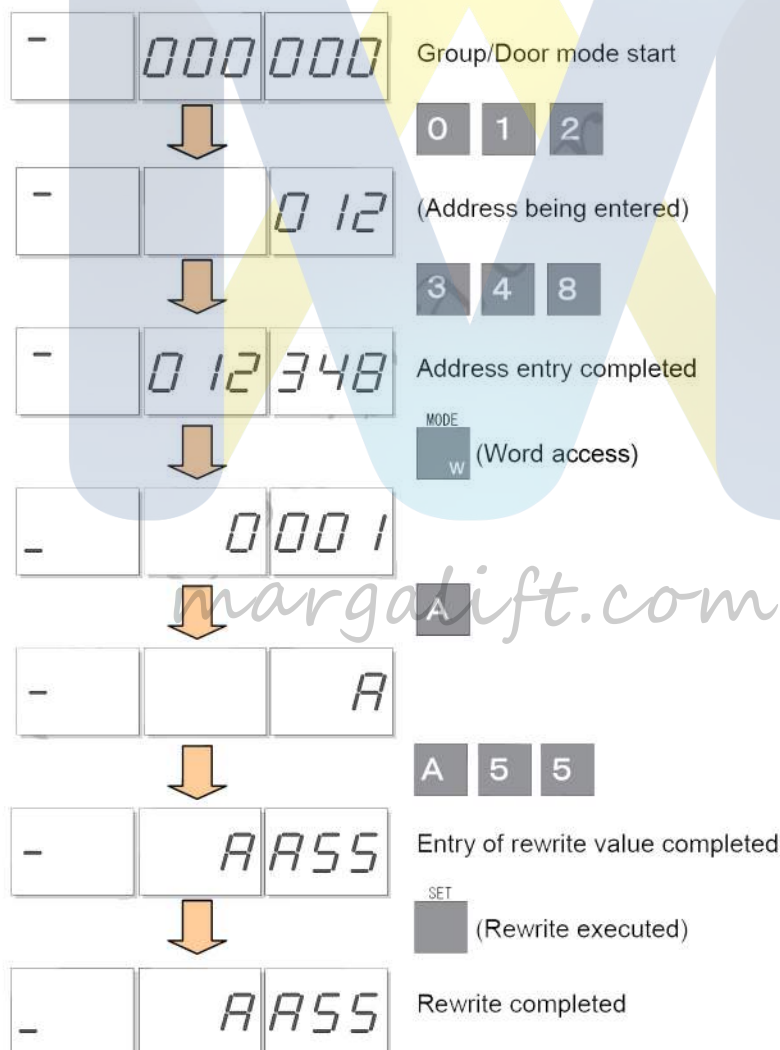
- (6) 

0	1	2	3	4	5	6	7
8	9	A	B	C	D	E	F

 hexadecimal button
- Used for entering the address value and the rewriting data.

• Example of operation

To rewrite data 0001 at address 012348 to AA55:





## Attachment 1 List of Mode Functions

### • List of elevator mode functions

MODE	Function	(1)	(2)	(3)	MODE	Function	(1)	(2)	(3)
0	(Return to normal indication)	○	○	○	33	Start compensation UP bias adjust	○	○	○
1	Hour meter indication	○	○	○	34	Start compensation DN bias adjust	○	○	○
2	Trouble monitor	○	○	○	35	Load detection 100% setting	○	○	○
3	Low speed operation in the machine room		○	○	36	Start compensation UP gain adjust	○	○	○
4	Registers a car call for the button floor		○	○	37	Start compensation DN gain adjust	○	○	○
5	Registers a car call for the middle floor		○	○	38	Confined load detection value setting (UP)			○
6	Registers a car call for the any floor		○	○	39	Confined load detection value setting (DN)			○
7	Registers a car call for the top floor		○	○	3C	20% load torque value setting			○
9	Data Tracer supplementary data indication, clear			○	3D	80% load torque value setting			○
B	Earthquake control operation simulation		○	○	3E	High speed travel frequency indication		○	○
C	Fire control operation simulation		○	○	40	Operating system code indication	○	○	○
D	Flood evacuation operation simulation		○	○	42	Earthquake emergency operation reset (UA2)		○	○
E	110%-loaded operation simulation		○	○	43	Compensates the micro-running speed gain (HVF)		○	○
F	110%-loaded buzzer enabled operation		○	○	44	Maximum speed limit			○
11	Operation for measuring the height of a story	○	○	○	45	Compensates the deceleration of the rescue operation speed (HVF)		○	○
12	Digital Indicator checking		○	○	46	Start compensation rope weight correction		○	○
13	100% loading detection cut, based on the Labor Safety and Health Law	○	○	○	4C	Stop position correction		○	○
14	SDS test			○	4D	Micro-running speed adjust (UA2)		○	○
15	Independent operation		○	○	52	One-story running level adjust	○	○	○
16	Micro-leveling operation cut		○	○	53	Stop position adjust data change (UP)	○	○	○
17	Test of instantaneous roll type safeties for government (torque up)			○	54	Stop position adjust data change (DN)	○	○	○
18	Slave constant INV microcomputer transmission		○	○	57	Brake torque test mode		○	○
19	Regenerative PAM separation mode (UA03)		○	○	58	Magnetic pole offset auto-tuning			○
1B	Digital display under inspection indication		○	○	62	Group control admission monitor		○	○
1C	ALP abnormal reset	○	○	○	65	Stationary motor current indication			○
1D	SDS (D) ON failure cut			○	66	Motor current indication			○
1E	Micro-leveling operation set		○	○	67	Motor current gain set			○
1F	Common spec. master/slave transfer (UA1)			○	68	Magnetic pole sensor offset adjust (UA2)			○
20	Trouble indication selection		○	○	69	Motor current detect offset adjust, UA2			○
21	Car call hold type selection		○	○	6A	Motor current detect gain adjust, UA2			○
22	Master microcomputer memory R/W (1W)		○	○	70	Master microcomputer memory R/W (DPRAM, 1B)			○
23	Slave microcomputer memory R/W (1W)		○	○	71	Slave microcomputer memory R/W (DPRAM, 1B)			○
24	Hour meter rewrite		○	○	72	Master microcomputer memory R/W (DPRAM, 1W)			○
26	Load indication (%)	○	○	○	73	Slave microcomputer memory R/W (DPRAM, 1W)			○
27	Speed indication (m/min)	○	○	○	74	Master microcomputer memory R/W (DPRAM, 1L)			○
28	Adjusts the very low speed time on the bottom floor		○	○	75	Slave microcomputer memory R/W (DPRAM, 1L)			○
2A	Main circuit voltage indication (HVF)		○	○	76	Master microcomputer memory R/W (1L), CPU reset		○	○
30	Master microcomputer memory R/W (1 byte, bit)		○	○	77	Slave microcomputer memory R/W (1L)			○
31	Slave microcomputer memory R/W (1 byte, bit)		○	○	7E	Microcomputer loading rate indication (%)			○
32	Load detection zero-point setting	○	○	○					

(1): EC2-605, (2): EC3-605, (3): EC4-605

### • List of escalator mode functions (Applicable to EC4-605 only)

MODE	Function	MODE	Function	MODE	Function
0	(Return to normal indication)	22	Master microcomputer memory R/W (1W)	40	Operation system code indication
1	Hour meter indication	23	Slave microcomputer memory R/W (1W)	51	Low-speed operation length of time for considerate operation
2	Trouble monitor	24	Hour meter rewrite	52	Automatic operation time R/W
6	Maintenance operation speed set	27	Speed indication (m/min)	53	Lower stop position adjust spec. write
8	Starting frequency indication	28	Hand rail travel speed (L)	54	Automatic lubricate interval time R/W
9	Tracer supplementary data indication, clear	29	Hand rail travel speed	55	Y-Δ connection spec. select time R/W
10	Clock data acquisition (HERIOS)	2A	Starting frequency rewrite	56	Unloaded crawling operation time R/W
11	Switch pitch measuring operation	2E	Speed indication (Motor R. E.)	60	Meitetsu-spec. automatic operation timer adjust
12	Lubrication pump operation	2F	Speed indication (Decelerator R. E.)	61	Meitetsu-spec. automatic operation timer adjust
13	Electric operation reset	30	Master microcomputer memory R/W (1 byte, bit)	62	Meitetsu-spec. automatic operation timer adjust
14	Start enabled check	31	Slave microcomputer memory R/W (1 byte, bit)	63	Meitetsu-spec. automatic operation timer adjust
15	Wheel chair startup maintenance enabled	36	Wheel chair operation frequency	70	Master microcomputer memory R/W (DPRAM, 1B)
18	Constant INV microcomputer transmission	37	Operation frequency (for Lonworks)	71	Slave microcomputer memory R/W (DPRAM, 1B)
19	Reflex type sensor adjust mode	38	UP operation frequency (for Lonworks)	73	Writing of local adjustment area enable
20	Trouble indication select	39	DN operation frequency (for Lonworks)	75	Program ROM rewrite

For further details, refer to the Technical Comment for Installation and Maintenance of respective machine types.

## Attachment 2 List of Trouble Codes

### • List of Main Trouble Codes for the Elevator

Section	Code	Trouble code for operation control system	Trouble code for speed control system
A1	10	Taking-in circuit reference voltage error	Same to the left
	15	48V power supply trouble (one phase open)	-
	20	#50B ON fault	Same to the left
	22	#10T ON fault	Same to the left
	24	Safety device activated	-
	25	—	#15BW ON fault
	27	—	Repeated failure (12 times/10 min.)
A2	33	—	Rotary encoder fault
	39	—	Abnormal inverter data
	3C	—	Magnetic pole offset value zero detection
	40	—	Short voltage detection
	42	#40G ON fault	#50B OFF fault
	43	#40D ON fault	—
	44	#10T OFF fault	#15B OFF fault
	46	—	#15BW OFF fault
	51	—	INV overvoltage detection
	54	—	Brake dragging detection
56	—	Terminal floor stop when a height-of-a-story table error occurs	
B1	61	—	Error in measuring the height of a story
B2	72	—	Height of a story table sum error
C2	90	—	Abnormal load detect circuit
	91	—	Repeated failure (6 times/10 min.)
	96	—	Overvoltage occurred 10 times
	A7	—	Frequent safety drive
E	C6	Abnormal Automatic Landing device for Power failure (trouble when in "ALP" operation)	—

### •List of Trouble Codes for the Escalator

Section	Code	Trouble code	Section	Code	Trouble code
A	11	Travel contactor ON fault	B	40	TIS short-circuit relay ON fault
	13	MGS activated		41	Terminal power supply not established
	14	#15B ON fault		42	MGS short-circuit relay ON fault
	15	STS activated		43	MGS short-circuit relay OFF fault
	17	Travel contactor OFF fault		71	Overspeed
	18	#15B OFF fault		72	Underspeed
	1A	#10X ON fault		73	#13 OFF fault
	28	Solenoid activated		74	#20 OFF fault
2F	Repeated failure	75	#22 OFF fault		
B	30	Abnormal communication terminal transmission	80	ROM sum error	
	31	Handrail stop	91	Starting SW ON fault	
	32	Control CPU down detection	E	C0	#10X OFF fault
	33	Rotary encoder		C2	Safety device entry buffer fault
	34	#13 ON fault		C4	2-speed selector switch ON fault
	35	#20 ON fault		C5	Safety switch activated
36	#22 ON fault	C6	TIS short-circuit relay OFF fault		



## Attachment 3

### • List of Maintenance Console Error Codes

Indication	Error content	Action
Error 01	Illegal modification of the console detected or fault	This console cannot be used.
Error 02	Abnormal key intake	Faulty console. Contact this company for repair.
Error 03	ID error of connected machine type (EC1-602 only)	Not applicable to other types of elevator.
Error 04	Internal error (ROM)	Abnormal ROM access. Contact this company for repair.
Error 05	Abnormal ID detection (EC1-602 only)	Not applicable to this elevator.
Error 06	Internal error (sum error)	Abnormal ROM data. Contact this company for repair.
Error 07	Area code abnormality 1	Connection disabled to the machine types for operation in Japan.
Error 08	Area code abnormality 2	Connection disabled to the machine types for foreign countries.
Error 10	Transmission timeout error, see Note 1	Check if the special cable is correctly connected.
Error 11	Transmission error (Parity error), see Note 1	Check if the special cable is correctly connected.
Error 1F	Internal error	Internal abnormality of the console. Contact this company for repair.
Error 20	Functional selector switch setup error (Machine type selection error), see Note 2	Check the setting of the functional selector switch.
Error 21	Functional selector switch setup error (Transmission rate setup error), see Note 2	Check the setting of the functional selector switch.

Note 1) Transmission error:

Console may be restarted by depressing an optional key.

Note 2) Functional selector switch set error:

If this error occurs, check the setting of the functional selector switch. (This error indication will disappear within several seconds.)

## Attachment 4 Hardware Specifications

- Hardware specifications

Item	Specification	Remarks
Processor	Hitachi 16-bit CPU	
Memory	ROM/RAM 128KB	No retention function
Input I/F	26 points of pushbutton switches	
	8 points of sliding SW	
Output I/F	9 digits of 7-segment LED	
Transmission I/F	Start-stop synchronization RS-232C	
Power supply	UM-3 alkaline battery x 2	
Operation time	About 7 hours in continuous operation	Note)
Outside dimensions	89 × 170 × 34	
Weight	Approx. 500 g	

Note)

UM-3 cells included with the Maintenance Console are trial sample. They do not assure the operation time of 7 hours. For spare parts, purchase UM-3 alkaline batteries for your console.