

**TOMY®**

**i-SOBOT™**

**i-SOBOT™**

**i-SOBOT™**  
**Instruction Manual**

**AGES: 10 +**

TOMY CORPORATION  
3 Imperial Promenade, Suite 950  
Santa Ana, CA 92707  
www.isobotrobot.com

09/2007

i-sobot unit: Uses 3 rechargeable AAA nickel metal hydride rechargeable batteries (included)  
Controller unit: Uses 3 AA alkaline batteries (not included)

※In some cases, photos and illustrations will differ from the actual product.

© 2007 TOMY

# Safety Instructions

## Meaning of warning symbols

The following symbols are used in this document. The details of these symbols should be fully understood before reading the main text.



### Danger

If the important points marked with this symbol are not followed, an accident resulting in death or serious injury due to fire/electrocution/explosion, etc. may occur.



### Warning

If the important points marked with this symbol are not followed, it could lead to an accident resulting in serious injury or death due to fire/electrocution/explosion, etc.



### Caution

If the important points marked with this symbol are not followed, accidents such as electrocution could occur, causing injury or damage to objects in the vicinity.



### Warning

If the following important points are not followed, death or serious injury due to fire/electrocution, etc. will result.

#### ● Do not use in a place that is dirty, damp, dusty, or humid

If used in such a place, fire or electrocution may result. Use away from sinks, showers, and bathtubs.

#### ● Do not put water or foreign objects inside

If water or foreign objects are put inside, fire or electrocution may result. If water or a foreign object does happen to get inside, immediately turn the power switch to OFF and remove the enloop batteries. Upon doing so, please consult with our customer support center.

#### ● Do not disassemble or modify

This may result in fire or electrocution causing injury or malfunction.  
For internal inspections or repair, please consult with our customer support center.

#### ● Do not use near open flame (i.e. kitchen stove)

Do not leave or recharge near a flame or in direct sunlight, etc. Fire or electrocution may result.

#### ● Do not cover with fabric, bedding, etc.

Heat may accumulate inside, causing fire or electrocution.

For good ventilation, comply with the following:

- Do not leave on deep-pile floor coverings (carpets, rugs, etc.)
- Do not wrap in fabric
- Do not dress in clothes

#### ● Keep out of reach of small children

Unexpected accidents, such as trapped fingers, swallowing of removed parts, etc. may result. This product should only be used by children under the supervision of an adult who has read the instruction manual.



### Caution

If the important points below are not followed, bodily injury or damage to objects in the vicinity could occur.

#### ● Do not put hands or fingers into movable parts of the i-SOBOT unit.

Injury may occur due to hands or fingers becoming caught.

#### ● Do not place heavy objects on top of the i-SOBOT unit.

Injury may occur due to breaking or falling.

#### ● Do not place or store in direct sunlight or close to a heater

Fire or malfunction may occur due to an increase in internal temperature.

#### ● Do not use or store in an unstable place

Do not place on an unstable surface, a slope, or anywhere where there is a risk of falling.

Injury or malfunction may occur due to dropping or falling over.

#### ● In the event of repair, stop i-SOBOT's actions by turning the power switch to OFF, remove the enloop batteries.

#### ● Do not put fragile or potentially hazardous items in the vicinity of the i-SOBOT unit.

i-SOBOT sometimes behaves autonomously, so damage to your possessions and unexpected accidents could occur.



### Danger

### Safety precautions regarding batteries

If used incorrectly, there is a danger that the batteries will leak, generate heat, ignite, and explode, leading to serious injury. Please be sure to comply with the following:

#### ● Do not recharge or use batteries in any liquids such as water, sea water, soft drink, or soapy water.

#### ● Do not place in a flame. Do not heat. Do not place near any source of heat. Do not recharge inside a hot car, etc.

#### ● Do not solder. Do not short circuit or disassemble. Do not carry or store together with metal items such as coins or hairpins.

#### ● Do not drop, or throw, or subject the batteries to any kind of strong impact. Do not step on the batteries. Do not pierce the batteries with a nail, etc. Do not deform the batteries.

#### ● Do not use or store within the reach of infants.

※ Information regarding rechargeable batteries and charger is given separately in the instruction manual for the charger. For question specific to the rechargeable batteries and charger, please contact manufacturer's customer support center.

# Safety Instructions

## CAUTION ELECTRIC TOY

NOT RECOMMENDED FOR CHILDREN UNDER TEN YEARS OF AGE. AS WITH ALL ELECTRIC PRODUCTS, PRECAUTIONS SHOULD BE OBSERVED DURING HANDLING AND USE TO PREVENT ELECTRIC SHOCK FOR INDOOR USE ONLY

INPUT: 100-120 VAC, 50-60 Hz, 8VA.

OUTPUT: 1.2VDC, 150mA x 4

### Battery Safety Information

- Only adults should install and replace batteries.
- Switch off i-Sobot before opening battery compartment.
- Insure that battery polarity is correct, observing (+) and (-) marks on battery and product.
- Use only batteries of the type recommended (or equivalent).
- Do not mix old and new batteries.
- Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.
- Remove used batteries immediately. Remove batteries if i-SOBOT will not be used for a long period of time to prevent possible leakage.
- Do not short circuit terminals.
- Dispose of batteries safely. Do not dispose of batteries (or products containing non-replaceable batteries) in fire, as batteries may explode or leak.
- Periodically examine product for signs of damage to electrical parts and do not play with until damage has been properly examined.
- Only use batteries of the same or equivalent type to those recommended.
- Please retain the above information for future reference.

### Rechargeable Battery Information

- Removal and recharging of rechargeable batteries should be carried out by an adult or under adult supervision.
- Remove rechargeable batteries from product before recharging.
- Do not recharge non-rechargeable batteries.
- Do not disassemble the battery pack.
- Battery cells and charger will become hot during use and charging – take care when handling. Allow heat to disperse when charging. DO NOT COVER.
- If cells or charger become wet, dry before recharging. Take care when handling charger and batteries to avoid electric shock.
- Not intended for children under 3 years old. The batteries & charger are not toys. Check the charger and batteries regularly for hazards such as damage to the casing, cable, plug or other parts. If any damage is found, do not use until it has been replaced.
- Do not attempt to power battery products by the introduction of main supply or separate power supplies, and do not attempt to plug any part of this product into the main supply.
- To prevent a shock hazard, please disconnect from power supply before cleaning.
- Do not overcharge the battery. Use only the charger provided. Do not use other chargers to charge battery. Like any other rechargeable battery, explosion may occur, if improperly charged.
- Do not attempt to recharge the batteries by using any other method than the one recommended/supplied.
- When exhausted remove batteries from toy. This product uses a NiMH batteries, which should be recycled at the end of its life.

Charge before use and according to the charger instructions provided. Only use the rechargeable batteries supplied. The charger supplied is for use only with the 1.2V AAA/HR03 NiMH rechargeable batteries supplied. Do not attempt to charge any other type or brand of battery than those supplied. Remove the batteries from the charger once they are charged and disconnect the charger from the power outlet.

### FCC Statement

This equipment complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- 1) This equipment may not cause harmful interference, and
- 2) This equipment must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

# Precautions for Use

To avoid malfunction or damage to i-SOBOT and its controller, please take note of the following points:

- Do not use on an unstable or uneven surface where there is a risk of falling.
  - Do not apply force by resting your hands or elbows on the unit.
  - Do not drop or subject the unit to strong impacts.
  - Do not lift, swing, or twist the unit using its head, arms, or legs.
  - Do not put the unit in a place that could get extremely hot, such as direct sunlight or inside a car with the windows closed.
  - Do not insert foreign objects such as paper clips inside i-SOBOT or into i-SOBOT's joints.
  - Do not use outdoors.
  - Do not use on highly abrasive surfaces such as rough concrete.  
Damage to i-SOBOT could occur.
  - Do not use on wet or slippery floors or deep-pile carpets, etc. If i-SOBOT falls over on carpet, the fibers can easily get caught in its joints, disabling or damaging i-SOBOT.
  - Do not put the unit in water.
  - Do not apply excessive force that prevents i-SOBOT from moving.
  - Do not apply oil to movable parts (joints, etc.).
  - Do not restrict the movement of movable parts by affixing stickers, tying on ribbons, or inserting items.
  - Do not disassemble or modify i-SOBOT.
  - Transport i-SOBOT in its original packaging or similarly shock absorbing packaging.
  - When i-SOBOT will not be used for a long period, such as while traveling, remove the batteries from the i-SOBOT unit.
  - Do not use where there are strong electromagnetic waves or X-rays.
  - i-SOBOT may function abnormally in sunlight or directly next to fluorescent light.
  - If there are barriers between i-SOBOT and the controller, normal transmission may not be possible.
  - There may be times when malfunction might occur due to the effect of infrared remote controls belonging to other devices, such as television remote controls. And, conversely, i-SOBOT's controller may affect infrared receivers on televisions, etc.
  - For optimal performance the i-SOBOT robot should be operated using the rechargeable batteries included or the equivalent (NiMH 1.2V AAA high voltage rechargeable batteries).  
Never use alkaline, zinc-carbon (heavy duty) or high voltage (such as 1.7V Oxyride) batteries in the i-SOBOT robot. (Alkaline batteries may be used in the remote control unit.)
- ※ Information regarding rechargeable batteries and charger is given separately in the instruction manual for the charger.  
For questions specific to the rechargeable batteries and charger, please contact the manufacturer's customer supportcenter.

# Table of Contents

■ Safety Instructions .....	01
■ Precautions for Use .....	04
■ Table of Contents .....	05
■ Introducing i-SOBOT .....	06
■ Contents of Set .....	06
■ Part Names .....	07
■ Before Operating i-SOBOT .....	10
■ How to Start Up .....	13
■ The Four Modes .....	15
■ Remote Control Mode .....	17
■ Program Mode .....	21
■ Special Action Mode .....	26
■ Voice Control Mode .....	27
■ How to Make Adjustments .....	29
■ Troubleshooting .....	32
■ Main Specifications .....	34

# Introducing i-SOBOT

## What is i-SOBOT?

i-SOBOT is the smallest fully bipedal humanoid robot ever mass produced. It is endowed with 17 custom developed servo-motors, 19 integrated circuit chips, a built in gyro-sensor, voice command recognition, and a speaking vocabulary of over 200 words and phrases. It is capable of smooth and sophisticated bipedal movement which includes forward, backward or side-to-side walking, as well as dancing, standing up from a prone position, calisthenics and many other actions requiring human-like self-powered articulation. The robot can be controlled in multiple ways, either by preprogrammed actions, user programmed actions, real-time remote control or voice commands.

## Contents of Set

● i-SOBOT (robot unit) ...1



● Rechargeable battery charger  
Instruction manual...1

● Controller...1



● Exclusive hexagonal driver ...1



● Quick Reference Card ...1

● Instruction manual  
(this document)...1

● Rechargeable batteries  
(nickel metal  
hydride battery)...3



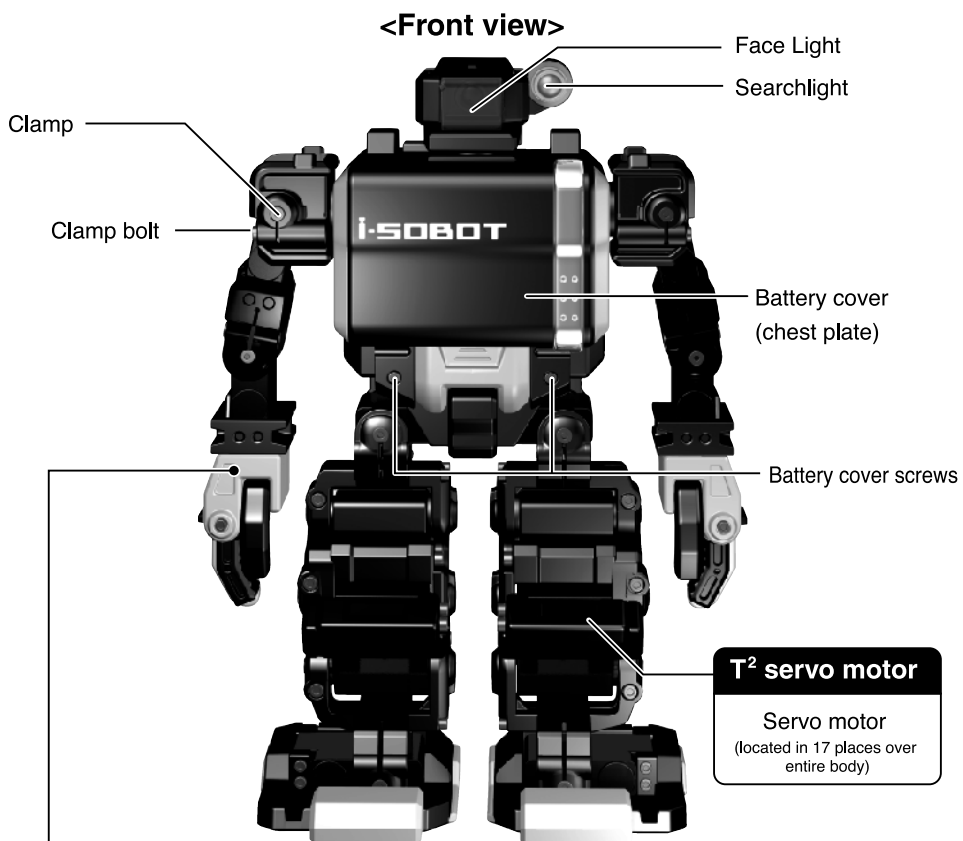
● Rechargeable battery  
charger ...1



※Actual product may vary slightly from the illustrations and photographs.

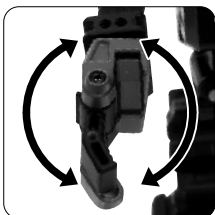
# Part Names

## i-SOBOT



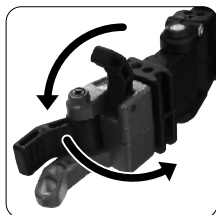
Wrist and fingers are not controlled by the controller, but may be moved manually.

Wrist



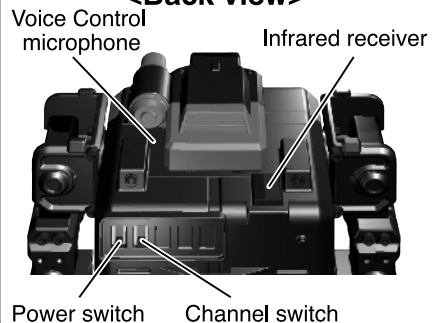
Capable of 90° rotation in each direction.

Thumb/Middle finger



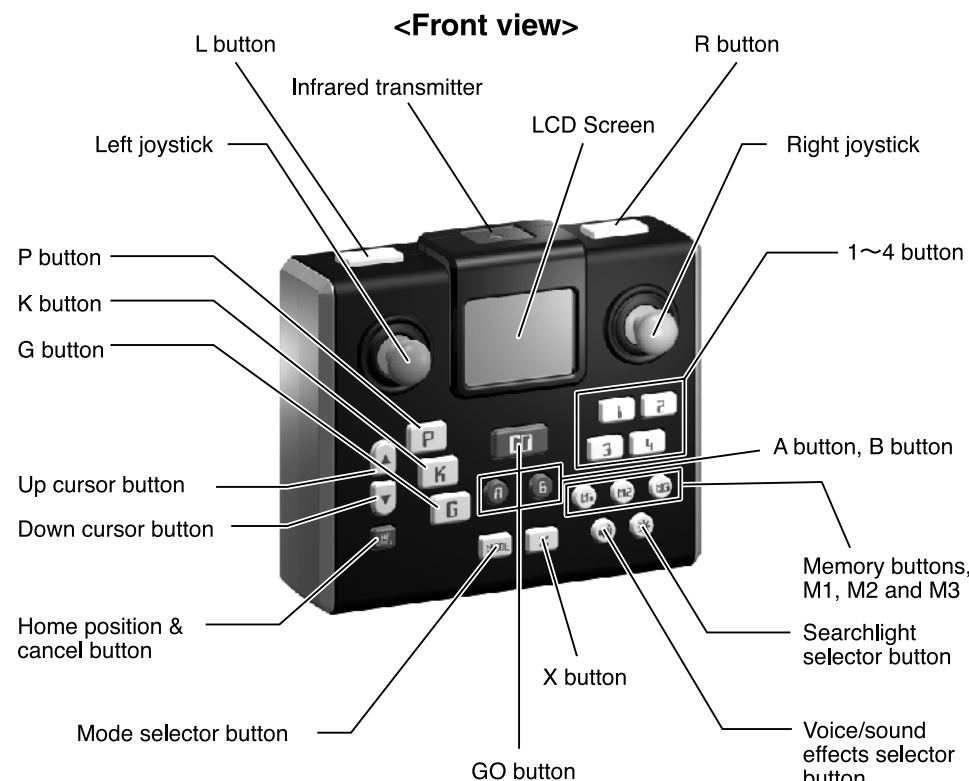
Approximately 90°movable range.

### <Back view>

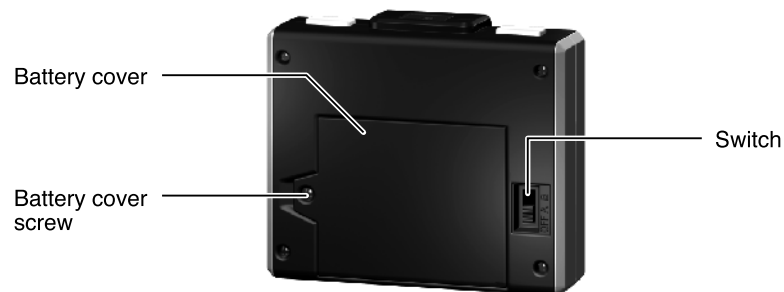


# Part Names



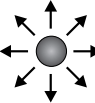
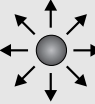










## Controller



### <Back view>



# Part Names

Name	Icon	Function
L button		Records/locks position of arms
R button		Switches joystick to arm control (moves arms into home position)
Left joystick		Operates walking With R button pressed, operates left arm
Right joystick		Operates head and hips With R button pressed, operates right arm
P button		Used in combination with 1~4 buttons
K button		Used in combination with 1~4 buttons
G button		Used in combination with 1~4 buttons
1 button		Used to input actions
2 button		
3 button		
4 button		
M1 button	—	Registers programmed action patterns
M 2button	—	
M 3button	—	
A button		Used to input actions
B button		
GO button		Executes special actions and transmits program decisions and data; Repeats the last action in RC-Mode and SA-Mode
Mode selector button	—	Selects mode
Up/down cursor buttons	—	Selects block screen in program mode
X button	—	Erases program; returns each mode to its initial state
Home position & cancel button	—	Cancels each action (returns posture to home position)
Voice/sound effects selector button	—	Selects ON/OFF for voice/sound effects
Searchlight selector button	—	Selects AUTO/ON/OFF for searchlight

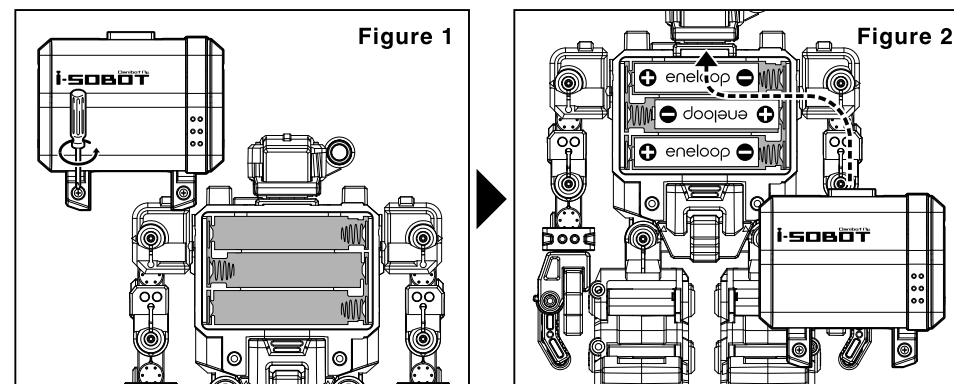
# Before Operating i-SOBOT

## Preparing i-SOBOT

### ● How to install rechargeable batteries

Loosen the screws affixing the battery cover to i-SOBOT's chest using a Phillips screwdriver and remove the battery cover. (Figure 1)

Insert the three rechargeable AAA batteries (included), ensuring the "+" and "-" are correctly aligned. Replace the battery cover and tighten the screws firmly using a Phillips screwdriver (Figure 2)



#### Caution

※ The 3 rechargeable AAA batteries provided are not charged.  
Before using the batteries for the first time, fully charge them using the charger provided.



#### Important Note

※ Never use alkaline, zinc-carbon (heavy duty) or high voltage (such as 1.7V Oxryde) batteries.

### ● How to use the batteries charger

For details, please refer to the separate charger instruction manual (Nickel Metal Hydride Battery Charger Instruction Manual).

### ● About Auto-sleep

If i-SOBOT is not operated for six minutes, the main light and searchlight on the head will automatically turn off and i-SOBOT will automatically enter "Sleep Mode" meaning it will stop functioning to conserve power. Since the power switch is ON when this happens, in order to "wake up" i-SOBOT, turn the power switch once to OFF and then again to ON.

In voice control mode, auto-sleep may not work depending on the surrounding environment.



#### Important Note

※ A small amount of power is consumed during auto-sleep mode.  
Please ensure that the power switch is OFF when not in use.

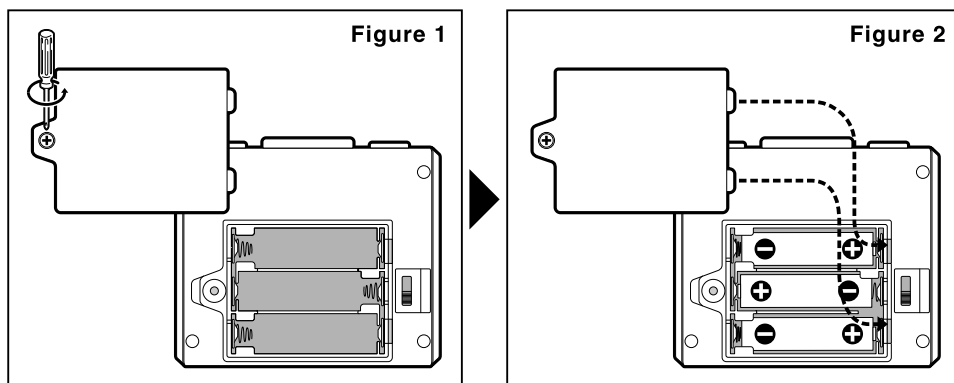
## Before Operating i-SOBOT

### Installing the batteries

Loosen the screws holding the battery cover to the back of the controller using a Phillips screwdriver and remove the battery cover. (Figure 1)

Insert 3 alkaline AA batteries (not included), ensuring the "+" and "-" are correctly aligned. Replace the battery cover and tighten the screws firmly using a Phillips screwdriver. (Figure 2)

#### ● How to install batteries



#### ⚠ Caution

※ When dead batteries are replaced, all memory programmed into the controller will be lost.

#### ⚠ Note

※ Never use batteries other than alkaline batteries such as Oxryde batteries and rechargeable batteries.

#### ● Power-saving mode

The controller goes into power-saving mode if it has not been operated for 1 hour. Press any button and the previous screen will be restored.

#### ⚠ Note

※ A small amount of power is consumed during power-saving mode. Please ensure that the power switch is OFF when not in use.

## Before Operating i-SOBOT

### Operating conditions

- i-SOBOT's walking and actions are easily affected by the condition of the operating surface. i-SOBOT may not walk or perform actions correctly due to poor condition of the operating surface.

#### ⚠ Note

※ Operate i-SOBOT on a smooth, flat surface with no variations in level. i-SOBOT may be unable to operate normally on uneven carpet, rugs, tile, etc.

- i-SOBOT's actions can be unpredictable. When operating i-SOBOT on a table, ensure that i-SOBOT is at a safe distance from the edge of the table at all times.
- Do not operate in direct sunlight.
- Through normal operation, the clamps on the servos may slip out of alignment over time. Refer to P.29 "How to Make Adjustments", and adjust the clamps before operating, if needed.

### About the infrared controller

Point the controller's infrared transmitter at i-SOBOT's infrared receiver to operate.

The infrared controller has a range of approximately 4.5ft at an angle of 30°.

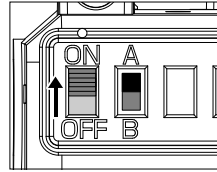
i-SOBOT may function abnormally in sunlight or directly next to fluorescent light.

Normal operation may not be possible if there are objects between i-SOBOT and the controller. Other infrared controllers, such as those used by televisions, may cause i-SOBOT to function abnormally. Conversely, i-SOBOT's controller may affect infrared receivers on televisions, DVD players, radio, etc.

# How to Start Up

## Switching i-SOBOT On

Turn the power switch to ON and set the channel to either A or B. Upon start up the main light and searchlight on i-SOBOT's head will turn on and a demo action will be performed.



Power switch and channel switch on i-SOBOT's back

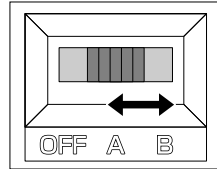
※When the power switch is ON, i-SOBOT will immediately move into the home position. Stand i-SOBOT on a flat surface before turning the power switch ON.



**Caution**

## Switching the Controller On

Select either A or B to match i-SOBOT's channel. When switched on, the title screen will be displayed on the LCD.



Switch on reverse of controller (Power switch)

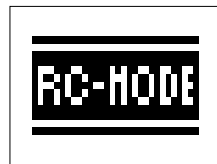
※Ensure that i-SOBOT and the controller are set to the same channel. If i-SOBOT and the controller are set to different channels, i-SOBOT will not respond.



**Caution**



Title screen



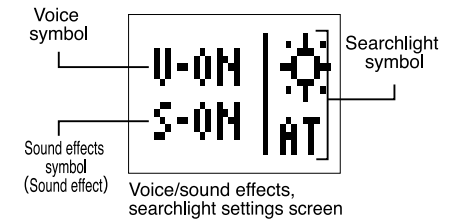
Remote control mode screen

When the controller is first switched to ON, it will start remote control mode. To change modes, refer to page 16 "Changing Mode"

# How to Start Up

## How to set voice/sound effects and searchlight

Initially the searchlight is set to AUTO and voice/sound effects are set to ON. To change settings, press the voice/sound effects selector button or the searchlight selector button.



### ● Setting voice and sound effects

When the settings screen is displayed, you can select voice and sound effects by pressing the voice/sound effects selector button.

	LCD		
Voice/sound effects ON	V-ON	S-ON	Voice and sound effects are emitted according to i-SOBOT's status.
Voice ON, sound effects OFF	V-ON	S-OFF	Voice only is emitted according to i-SOBOT's status.
Voice OFF, sound effects ON	V-OFF	S-ON	Sound effects only are emitted according to i-SOBOT's status.
Voice/sound effects OFF	V-OFF	S-OFF	Voice and sound effects are not emitted.

※ Some sound effects are embedded in i-SOBOT's voice programming. In such cases, sound effects will be emitted, even if sound effects are set to OFF.

### ● Setting searchlight

When the settings screen is displayed, you can select the searchlight by pressing the searchlight selector button.

	LCD		
Searchlight AUTO	AT		Turns on or blinks according to i-SOBOT's status.
Searchlight ON	ON		Searchlight remains on.
Searchlight OFF	OFF		Searchlight is off.

Once various settings have been selected point the controller's transmitter at i-SOBOT's receiver and press the GO button. Settings will be finalized and transmitted to i-SOBOT.

※To ensure settings are transmitted properly, point the controller's transmitter at i-SOBOT's receiver. If the settings are not transmitted or received properly, i-SOBOT's status may differ from the screen display on the controller.

※Voice and sound effects settings are only valid in remote control mode, program mode, and special action mode. In voice control mode, settings are invalid. Also, voice and sound effects urging caution during auto-sleep will always be emitted.

※Settings should be made when the initial screen of the respective mode is displayed. If done while inputting in any mode, the input operation will be cancelled.

- When you want to check the current setting status, press the voice/sound effects selector button or the searchlight selector button.
- When i-SOBOT's power switch is turned off, i-SOBOT will return to its initial settings. Also, when the controller is turned off, the display will return to its initial setting.

※If the controller is turned off and then on again while i-SOBOT's power switch is in the ON position, or, conversely, if i-SOBOT is turned off and then on again while the controller is turned on, i-SOBOT's status will differ from the display on the controller.



# The Four Modes

## Auto Movements

If given no commands, i-SOBOT will automatically perform the following pre-sleep mode actions in all four modes.

Status	i-SOBOT's Action
Not operated for 30 seconds	First Pre-Sleep Mode Action
Not operated for 1 minute	Second Pre-Sleep Mode Action
Not operated for 2 minutes	Third Pre-Sleep Mode Action
Not operated for 4 minutes	Fourth Pre-Sleep Mode Action
Not operated for 6 minutes	Fifth Pre-Sleep Mode Action then enter auto-sleep and power-saving state. To play again, turn the power switch once to OFF and then back to ON. If not playing, turn the power switch OFF.

## About the home position / cancel button

In all modes, the home position / cancel button will override any commands that have already been sent by canceling the action and returning i-SOBOT to the home position.

Please be aware the home position / cancel button will return i-SOBOT to the home position using the shortest movement. Therefore, if home position / cancel button is pressed while i-SOBOT is in certain positions such as standing on one leg, performing a fast movement, or performing an action in a prone position i-SOBOT may fall over or otherwise be unable to assume the home position.

Do not press the home position / cancel button if i-SOBOT has fallen over or has been intentionally laid on its side by the user.

## Indicators of Low Batteries

Nickel metal hydride (NiMH) batteries should never be completely exhausted.

If they are over-drained they will not recharge to full capacity. Since even in sleep mode, i-SOBOT uses a small amount of power, if i-SOBOT goes into sleep mode with low batteries this could over-drain the batteries.

To prevent the batteries from being over-drained, take note of the indicators that batteries are becoming low and should be recharged:

- One of the first indicators of low batteries is a reduction in quality and / or distortion of i-SOBOT's sound, particularly during actions requiring use of many servo-motors at once.
- As the batteries become weaker, i-SOBOT's motors will not function properly and may not be able to perform some actions normally.

### Low Battery Sleep Mode

- Finally i-SOBOT will prepare to enter low battery sleep mode by flashing the face light, slumping forward and emitting a beeping warning sound three times, then enters sleep mode. When this happens, turn i-SOBOT OFF immediately and recharge the batteries before operating i-SOBOT again.



### Important Note

Do not operate i-SOBOT again after the low battery warning or after it goes into forced sleep mode without recharging the eneloop batteries. Even though it may appear to function normally again temporarily after being turned OFF and ON, this could over-drain the eneloop batteries and irreparably damage them.

# The Four Modes

## Changing mode

i-SOBOT has four modes of control, providing a wide variety of operation.

Point the controller at i-SOBOT and press the mode selector button. Each time the mode selector button is pressed, the mode will change in the order shown below, and the LCD will show which mode is currently selected. When i-SOBOT receives a mode selection it will indicate the current mode using voice and pose.



### Note

※ If voice sound effects are turned off, the mode will be indicated using pose only.

## Remote Control Mode



i-SOBOT is operated using the controller's joysticks and buttons.

Details on P12

## Program Mode



Actions can be combined and programmed.

Details on P16

## Special Action Mode



Performance type actions, such as dancing and imitating animals, are executed.

Details on P19

## Voice Control Mode



i-SOBOT is operated using words (voice) instead of the controller.

Details on P20