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 eneloop 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.

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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 drooping or falling over.

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

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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 questions specific to the rechargeable batteries and charger, please contact manufacturer's customer support center.
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 AA high voltage rechargeable batteries). Never use alkaline, zinc-carbon (heavy duty) or high voltage (such as 1.7V Oxide) 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.
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
- Controller — 1
- Rechargeable batteries (nickel metal hydride battery) — 3
- Exclusive hexagonal driver — 1
- Quick Reference Card — 1
- Instruction manual (this document) — 1
- Rechargeable battery charger — 1
- Instruction manual — 1

*Actual product may vary slightly from the illustrations and photographs.*
Part Names

**i-SOBOT**

*Front view*
- Face Light
- Searchlight
- Battery cover (chest plate)
- Battery cover screws

*T² servo motor*
Servo motor (located in 17 pieces over entire body)

*Back view*
- Voice Control microphone
- Infrared receiver
- Power switch
- Channel switch

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

**Controller**

*Front view*
- L button
- R button
- Left joystick
- Infrared transmitter
- LCD Screen
- Right joystick
- P button
- K button
- G button
- Up cursor button
- Down cursor button
- Home position & cancel button
- Mode selector button
- 1~4 button
- A button, B button
- Memory buttons, M1, M2 and M3
- X button
- GO button
- Voice/sound effects selector button

*Back view*
- Battery cover
- Switch
- Battery cover screw
### Part Names

<table>
<thead>
<tr>
<th>Name</th>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>L button</td>
<td><img src="image" alt="L button" /></td>
<td>Records/locks position of arms</td>
</tr>
<tr>
<td>R button</td>
<td><img src="image" alt="R button" /></td>
<td>Switches joystick to arm control (moves arms into home position)</td>
</tr>
<tr>
<td>Left joystick</td>
<td><img src="image" alt="Left joystick" /></td>
<td>Operates walking With R button pressed, operates left arm</td>
</tr>
<tr>
<td>Right joystick</td>
<td><img src="image" alt="Right joystick" /></td>
<td>Operates head and hips With R button pressed, operates right arm</td>
</tr>
<tr>
<td>P button</td>
<td><img src="image" alt="P" /></td>
<td>Used in combination with 1-4 buttons</td>
</tr>
<tr>
<td>K button</td>
<td><img src="image" alt="K" /></td>
<td>Used in combination with 1-4 buttons</td>
</tr>
<tr>
<td>G button</td>
<td><img src="image" alt="G" /></td>
<td>Used in combination with 1-4 buttons</td>
</tr>
<tr>
<td>1 button</td>
<td><img src="image" alt="1" /></td>
<td>Used to input actions</td>
</tr>
<tr>
<td>2 button</td>
<td><img src="image" alt="2" /></td>
<td>Used to input actions</td>
</tr>
<tr>
<td>3 button</td>
<td><img src="image" alt="3" /></td>
<td>Used to input actions</td>
</tr>
<tr>
<td>4 button</td>
<td><img src="image" alt="4" /></td>
<td>Used to input actions</td>
</tr>
<tr>
<td>M1 button</td>
<td><img src="image" alt="M1 button" /></td>
<td>Registers programmed action patterns</td>
</tr>
<tr>
<td>M2 button</td>
<td><img src="image" alt="M2 button" /></td>
<td>Registers programmed action patterns</td>
</tr>
<tr>
<td>M3 button</td>
<td><img src="image" alt="M3 button" /></td>
<td>Registers programmed action patterns</td>
</tr>
<tr>
<td>A button</td>
<td><img src="image" alt="A" /></td>
<td>Used to input actions</td>
</tr>
<tr>
<td>B button</td>
<td><img src="image" alt="B" /></td>
<td>Used to input actions</td>
</tr>
<tr>
<td>GO button</td>
<td><img src="image" alt="GO button" /></td>
<td>Executes special actions and transmits program data and data, repeats the last action in RC-Mode and SA-Mode</td>
</tr>
<tr>
<td>Mode selector button</td>
<td><img src="image" alt="Mode selector button" /></td>
<td>Selects mode</td>
</tr>
<tr>
<td>Up/Down cursor buttons</td>
<td><img src="image" alt="Up/Down cursor buttons" /></td>
<td>Selects block screen in program mode</td>
</tr>
<tr>
<td>X button</td>
<td><img src="image" alt="X button" /></td>
<td>Erases program; returns each mode to its initial state</td>
</tr>
<tr>
<td>Home position &amp; cancel button</td>
<td><img src="image" alt="Home position &amp; cancel button" /></td>
<td>Cancels each action (returns posture to home position)</td>
</tr>
<tr>
<td>Voice/sound effects selector button</td>
<td><img src="image" alt="Voice/sound effects selector button" /></td>
<td>Selects ON/OFF for voice/sound effects</td>
</tr>
<tr>
<td>Searchlight selector button</td>
<td><img src="image" alt="Searchlight selector button" /></td>
<td>Selects AUTO/ON/OFF for searchlight</td>
</tr>
</tbody>
</table>

### 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 Oxyride) 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

Figure 1

Figure 2

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 Oxuride 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.

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.

※ 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.

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.

※ 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.

How to Start Up

Setting voice and sound effects

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.

<table>
<thead>
<tr>
<th>Voice/sound effects</th>
<th>LCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>V-ON S-ON Voice and sound effects are emitted according to i-SOBOT’s status.</td>
</tr>
<tr>
<td>OFF, voice OFF</td>
<td>V-OFF S-ON Voice only is emitted according to i-SOBOT’s status.</td>
</tr>
<tr>
<td>OFF, sound OFF</td>
<td>V-ON S-ON Sound effects only are emitted according to i-SOBOT’s status.</td>
</tr>
<tr>
<td>OFF</td>
<td>V-OFF S-OFF Voice and sound effects are not emitted.</td>
</tr>
</tbody>
</table>

※ 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.

<table>
<thead>
<tr>
<th>Searchlight</th>
<th>LCD</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTO</td>
<td>AT  Turns on or blinks according to i-SOBOT’s status.</td>
</tr>
<tr>
<td>ON</td>
<td>ON  Searchlight remains on.</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF Searchlight is off.</td>
</tr>
</tbody>
</table>

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 are emitted during auto-deep will always be emitted.
※ Settings should be made when the initial screen of the respective mode is displayed. If not, while setting is in any mode, the input operation will be canceled.

○ 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 on 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.

<table>
<thead>
<tr>
<th>Status</th>
<th>i-SOBOT's Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not operated for 30 sec</td>
<td>First Pre-Sleep Mode Action</td>
</tr>
<tr>
<td>Not operated for 1 min</td>
<td>Second Pre-Sleep Mode Action</td>
</tr>
<tr>
<td>Not operated for 2 min</td>
<td>Third Pre-Sleep Mode Action</td>
</tr>
<tr>
<td>Not operated for 4 min</td>
<td>Fourth Pre-Sleep Mode Action</td>
</tr>
<tr>
<td>Not operated for 6 min</td>
<td>i-SOBOT Pre-Sleep Mode Action then enter auto-sleep and power-saving state. To stay again, turn the power switch once to OFF and then back to ON. If not playing, turn the power switch OFF.</td>
</tr>
</tbody>
</table>

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 lain 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 onboard batteries. Even though it may appear to function normally again temporarily after being turned OFF and ON, this could over-drain the onboard batteries and irreparably damage them.

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.

Program Mode

Actions can be combined and programmed.

Special Action Mode

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

Voice Control Mode

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

In remote control mode, i-SOBOT is operated using the controller’s joysticks and buttons. If a program has been input using program mode (see P21), that program can be executed.

Note: i-SOBOT may not always move in precisely the directions indicated below. For example, for “Walk Forward” i-SOBOT may not walk in a perfectly straight line.

Initial screen in remote control mode

Basic operation using joysticks

The joysticks ordinarily operate the head, hips and walking action. However, while the R button is pressed, the joysticks operate both arms.

- Normal (R button not pressed): Head, hips and walking action can be operated.
- R button pressed: Both arms can be operated.

Pressing the R button switches from standing home position to arm home position.

Martial arts type actions

i-SOBOT is capable of a wide variety of martial arts actions. Inputting combinations of 1–4 buttons and G button

Inputting combinations of 1–4 buttons and P button

Return to standing position from a prone position

If i-SOBOT is lying down or has fallen over, press A button or B button.

Caution: Do not press if i-SOBOT has not fallen over.

Zero Position

The zero position will be held until the user inputs the next action. To release, press the HP/Cancel button.

This is i-SOBOT's tuning and adjustment position. It is not normally used. For details, refer to P29 "How to Make Adjustments..."
Remote Control Mode

Common Phrases & Greetings
These actions are input with a combination of 1-4 buttons and the A buttons.

<table>
<thead>
<tr>
<th>Action name</th>
<th>Input</th>
<th>Action name</th>
<th>Input</th>
<th>Action name</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affirm</td>
<td>1 A</td>
<td>Gree 4</td>
<td>2 3 A</td>
<td>Respect</td>
<td>1 1 A</td>
</tr>
<tr>
<td>Disagree</td>
<td>4 A</td>
<td>Bye 1</td>
<td>3 1 A</td>
<td>Thanks 1</td>
<td>4 1 A</td>
</tr>
<tr>
<td>Good Morning</td>
<td>1 2 A</td>
<td>Bye 2</td>
<td>3 2 A</td>
<td>Thanks 2</td>
<td>4 2 A</td>
</tr>
<tr>
<td>Greet 1</td>
<td>1 3 A</td>
<td>Bye 3</td>
<td>3 3 A</td>
<td>Love 1</td>
<td>1 1 1 A</td>
</tr>
<tr>
<td>Greet 2</td>
<td>2 1 A</td>
<td>Bye 4</td>
<td>3 4 A</td>
<td>Love 2</td>
<td>2 2 2 A</td>
</tr>
<tr>
<td>Greet 3</td>
<td>2 2 A</td>
<td>Bye 5</td>
<td>1 4 A</td>
<td>Love 3</td>
<td>3 3 3 A</td>
</tr>
</tbody>
</table>

Emotional Actions
These actions are input with a combination of 1-4 buttons and the B button.

<table>
<thead>
<tr>
<th>Action name</th>
<th>Input</th>
<th>Action name</th>
<th>Input</th>
<th>Action name</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excited 1</td>
<td>1 4 B</td>
<td>Regret 1</td>
<td>2 4 B</td>
<td>Beg 1</td>
<td>4 1 B</td>
</tr>
<tr>
<td>Excited 2</td>
<td>2 1 B</td>
<td>Regret 2</td>
<td>3 3 B</td>
<td>Beg 2</td>
<td>1 1 3 B</td>
</tr>
<tr>
<td>Excited 3</td>
<td>2 2 B</td>
<td>Regret 3</td>
<td>3 4 B</td>
<td>Merry</td>
<td>1 2 1 B</td>
</tr>
<tr>
<td>Excited 4</td>
<td>1 2 2 B</td>
<td>Worry</td>
<td>3 3 B</td>
<td>Hilarious</td>
<td>1 3 4 B</td>
</tr>
<tr>
<td>Party</td>
<td>1 3 B</td>
<td>Pan 1</td>
<td>4 3 B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amazed</td>
<td>1 2 4 B</td>
<td>Pan 2</td>
<td>4 4 B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Showcase Actions
These actions are input with a combination of 1-4 buttons and the A, B and K buttons.

<table>
<thead>
<tr>
<th>Action name</th>
<th>Input</th>
<th>Action name</th>
<th>Input</th>
<th>Action name</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hide N Seek</td>
<td>3 1 A</td>
<td>Too Sexy</td>
<td>2 1 2 B</td>
<td>Show Off 3</td>
<td>2 3 4 B</td>
</tr>
<tr>
<td>You Like?</td>
<td>1 2 4 A</td>
<td>Cling</td>
<td>2 1 3 B</td>
<td>Show Off 4</td>
<td>2 4 1 B</td>
</tr>
<tr>
<td>Mystery 5</td>
<td>1 3 A</td>
<td>Relax</td>
<td>2 2 1 B</td>
<td>Core Through</td>
<td>2 4 2 B</td>
</tr>
<tr>
<td>Tipsy</td>
<td>1 3 B</td>
<td>Soccer 1</td>
<td>2 2 3 B</td>
<td>Catch</td>
<td>2 3 B</td>
</tr>
<tr>
<td>Talk to Me</td>
<td>1 4 1 B</td>
<td>Soccer 2</td>
<td>4 2 K</td>
<td>Pose 1</td>
<td>4 1 1 A</td>
</tr>
<tr>
<td>Tired Feet</td>
<td>1 4 2 B</td>
<td>Soccer 3</td>
<td>3 1 K</td>
<td>Pose 2</td>
<td>4 1 2 A</td>
</tr>
<tr>
<td>Need a Break</td>
<td>1 4 3 B</td>
<td>Lift</td>
<td>2 2 2 B</td>
<td>Pose 3</td>
<td>4 1 3 A</td>
</tr>
<tr>
<td>Wave 1</td>
<td>1 4 4 B</td>
<td>Count On Me</td>
<td>2 2 4 B</td>
<td>Mystery 1</td>
<td>1 2 3 B</td>
</tr>
<tr>
<td>Wave 2</td>
<td>2 1 1 B</td>
<td>Articulation</td>
<td>2 3 1 B</td>
<td>Mystery 2</td>
<td>1 3 1 B</td>
</tr>
<tr>
<td>Applause</td>
<td>1 3 3 B</td>
<td>Show Off 1</td>
<td>2 3 2 B</td>
<td>Mystery 3</td>
<td>1 3 2 B</td>
</tr>
<tr>
<td>I'm So Excit</td>
<td>1 1 4 B</td>
<td>Show Off 2</td>
<td>2 3 3 B</td>
<td>Mystery 4</td>
<td>4 3 B</td>
</tr>
</tbody>
</table>

Note: Some commands have multiple actions so the same command may not elicit the same response every time.

Remote Control Mode

Locking the position of the arms
When operating the arms using the joysticks, pressing the L button will record the position of the arms and lock them in place. If a walking position is performed using the left joystick, i-SOBOT is able to walk while maintaining the arm position. To release the arms, press the R button once and then press the L button.

Walking with arms locked in preferred position.
Here is one example of operation with the arms in a locked position using the L button.

1. While pressing the R button, move the arms using the joysticks.
Ordinarily, the joysticks control walking actions and movement of the head and hips. However, while the R button is pressed, the joysticks can be used to operate the arms.

2. Lock the arms in the preferred position.
When the arms are in the preferred position, press the L button to lock the arms in position.

3. Walk using the left joystick while maintaining the arm position.
After releasing the R button, use the joystick to walk in whichever direction you like.

4. Afterwards, press the R button and the arms will be in Control state. At this stage, the position of the arms is still locked.

5. Press the L button and the arms will be released and will return to their home position.
Program Mode

In program mode, action patterns can be inputted and combined from remote control mode (except for some actions) and special action mode, allowing for more complicated action patterns to be programmed. One action sequence can be programmed into each of the three memories, designated by the M1–M3 buttons. Each memory is made up of 80 memory blocks, with each block usually equivalent to one action, except for arm actions, which require two blocks per arm movement. The three memories can be combined for a total of up to 240 actions (less if arm movements are programmed).

• Actions "Stand up 1" and "Stand up 2" in remote control mode are for use when i-SOBOT has fallen over and cannot be used in program mode.

Programming procedure

1. Select program mode using the mode selector button.

2. Input the first action. The inputted action will appear in block "P 01" in the LCD screen.

3. Press the down cursor button to store the action.

4. Input the next action using the controller. The inputted action will appear in block "P 02" in the LCD Screen.

5. Repeat steps 3-4 until you are finished programming.
   A maximum of 80 actions per sequence may be inputted.

6. Use the GO button to confirm the inputted program's operation and transmit the program to i-SOBOT.

   • Transmitting programmed data from the controller to i-SOBOT takes about 5 seconds per memory sequence.

   • To modify a program, use the up/down cursor buttons to display the action being changed and input a new action or press the "X" button to cancel the action.

7. Storing an action sequence into memory:
   When programming is complete select and press the desired memory button (M1–M3) to store the program. Any previously stored programs will be overwritten.

Example Programming the i-SOBOT to Walk

1. Input using left joystick.
   When the empty block screen is displayed, move the left joystick in the direction i-SOBOT should walk. The number of steps will be shown on the LCD screen. As the joystick is held down the number of steps increases. A maximum of 20 steps can be set in one block.

2. Confirm program status
   The type of "walking" and the number of steps performed are displayed on the LCD.

3. Record program
   Press the down cursor button to add the action to the sequence and proceed to the next empty block. To change the action, input a new command and the previous command will be erased.

Example Programming the i-SOBOT to move its head

1. Left-Right input using right joystick.
   When the empty block screen is displayed, move the right joystick left or right to input the direction and degree of the "head position". The position of the head can be changed in 20° intervals by moving the right joystick in the direction that you wish to face.

2. Confirm program status
   The direction and degree of the inputted "head position" are displayed on the LCD.

3. Record program
   Press the down cursor button to add the action to the sequence and proceed to the next empty block. To change the action, input a new command and the previous command will be erased.
Program Mode

[Example] Programming i-SOBOT for “forward lean” and “backward lean”

1 Up-down input using right joystick.
   When the empty block screen is displayed, move the right joystick up to program a “forward lean” or down to program a “backward lean”. i-SOBOT has 3 different “forward lean” settings. The “backward lean” has just 1 setting.

2 Confirm program status
   The inputted action and angle are displayed on the LCD.

3 Record program
   Press the down cursor button to add the action to the sequence and proceed to the next empty block. To change the action, input a new command and the previous command will be erased, and the new command will be inputted.

[Example] Programming i-SOBOT to move arms using the L button

1 While pressing the R button (“ARMS” is displayed in the empty block screen) move the arms to the desired position and record position by pressing the L button.
   The shortest action to reach that locked position will be inputted.

2 Confirm program status
   The L button icon is displayed on the LCD.

3 Record program
   Press the down cursor button add the action to the sequence and proceed to the next empty block. To change the action, input a new command and the previous command will be erased.

Note
   II Arm programs use up 2 blocks of memory, reducing the total number of action blocks available.

[Example] Programming “Other Remote Control Remote control Actions and Special Actions”

1 Input the button sequence
   When the empty block screen is displayed, input the code (button sequence) for the desired action as shown in this manual or the Quick Reference sheet.

Note
   II For Special Actions, “GO” is part of the code and should be included when inputting the button sequence for programming.

2 Confirm program status
   The type of action corresponding to the inputted button operation is displayed on the LCD screen.

3 Record program
   Press the down cursor button to add the action to the sequence and proceed to the next empty block. To change the action, input a new command and the previous command will be erased.
Program Mode

Executing Programmed Sequences

To execute an action sequence programmed in memory, press the desired M (1-3) button. Press the GO button to transmit the stored program data to i-SOBOT. i-SOBOT will confirm reception of the memory data with a beep.

To execute several memory sequences stored in several M buttons successively, press the M (1-3) buttons in the desired order of performance, then press GO.

- **Note**: A maximum of three memory sequences (3 M buttons of any combination) can be executed at once.

- **Input example**: For single action pattern (M1 button)
  
  M1 button → GO button → Performance

- **Input example**: For a combination of multiple action patterns
  
  M1 button → M2 button → GO button → Actions performed in order of input
  
  M3 button → M3 button → M2 button → GO button → Actions performed in order of input

- **Important Note**: Transmitting programmed data from the controller to i-SOBOT takes about 6 seconds per memory sequence. Therefore, if one, two or three memory sequences are transmitted, the total transmission time will be about 6, 10 and 15 seconds, respectively. During the entire transmission time it is important to keep the controller in proximity of i-SOBOT and aimed at the i receptor until i-SOBOT confirms reception with a beep.

Program confirmation, revision and copying

The content of a memory sequence that has been stored to an M button can be confirmed/revised and copied to another M button.

- **Confirming and revising a memory sequence**
  1. Press the M button in which the sequence is registered.
  2. Press the up cursor button and the stored sequence's block screen will be displayed.
  3. Use the up/down cursor buttons to move to a different memory block.
  4. To change the action of a program block, display that block's screen and press the X button. The action inputted in that block will be erased.
  5. After erasing the block, input a new action.

- **Copying a memory sequence**
  1. Press the M button in which the sequence is registered.
  2. Press the up cursor button and the registered sequence's block screen will be displayed.
  3. Press the M button in which you wish to register the copy and the sequence will be copied.

Special Action Mode

Special Action Mode allows i-SOBOT to perform various preprogrammed actions. These actions can also be incorporated into action patterns (blocks) in program mode (see P21).

Performing special actions

Input the A and / or B button sequence for the desired action, then press the GO button.

<table>
<thead>
<tr>
<th>Action name</th>
<th>Input</th>
<th>Action name</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward Somersall</td>
<td></td>
<td>Random Animal Imitations:</td>
<td></td>
</tr>
<tr>
<td>Headstand Exercises</td>
<td></td>
<td>Dog, Cat, Eagle, Rooster, Gorgie</td>
<td></td>
</tr>
<tr>
<td>Exercises</td>
<td></td>
<td>Air Drum</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Air Guitar</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Random Performance 1:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Random Performance 2:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tai Chi/Kung Fu</td>
<td></td>
</tr>
</tbody>
</table>

If the A / B button sequence is input incorrectly

Press the X button and you can erase the button operation that has been inputted so far. Input A button/B button again.

Repeating the same special action

After completing the special action, if you wish to repeat the same action, press the GO button. The command will be transmitted to i-SOBOT again.

**Note**: The previous button input displayed on the LCD will be sent. In the case of actions performed at random, the same action may not necessarily be performed again.
Voice Control Mode

In voice control mode, the controller is not used. Instead, i-SOBOT is operated using 10 voice commands.

### Operating by voice

In voice control mode, i-SOBOT’s searchlight indicates the status. When i-SOBOT is first changed to voice control mode, he needs a moment to prepare to receive the voice command. When i-SOBOT is ready to receive a voice command, the searchlight will turn on. After the searchlight indicator turns on, within 3 feet of i-SOBOT speak in a moderately loud, clear voice. If your voice is too loud or too soft, i-SOBOT will be unable to understand your command.

<table>
<thead>
<tr>
<th>Control words</th>
<th>Action</th>
<th>Control words</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go forward</td>
<td>Walks forward</td>
<td>How are you?</td>
<td>Responds appropriately</td>
</tr>
<tr>
<td>Turn left</td>
<td>Rotates left</td>
<td>What’s up?</td>
<td>Responds appropriately</td>
</tr>
<tr>
<td>Turn right</td>
<td>Rotates right</td>
<td>i-SOBOT</td>
<td>Responds appropriately</td>
</tr>
<tr>
<td>Back up</td>
<td>Steps back</td>
<td>Look out!</td>
<td>Responds appropriately</td>
</tr>
<tr>
<td>Action, start</td>
<td>Performs either one of the special actions at random or one of 2 secret actions.</td>
<td>Make me laugh</td>
<td>Responds appropriately</td>
</tr>
</tbody>
</table>

### Status of LED

<table>
<thead>
<tr>
<th>Face</th>
<th>Searchlight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation</td>
<td>Blinking</td>
</tr>
<tr>
<td>Cannot receive / understand command</td>
<td>Blinking</td>
</tr>
<tr>
<td>Command received / understood</td>
<td>Immediately performs action</td>
</tr>
</tbody>
</table>
How to Make Adjustments

It is normal that over time i-SOBO T's joints (servo hinges) will slowly slip out of alignment or they might suddenly become out of alignment if i-SOBO T is dropped or subject to other shocks. When joints are out of alignment, i-SOBO T may not be able to perform actions correctly. This can be corrected by adjusting the clamps on i-SOBO T's joints.

Clamp Adjustment

Zero Position
In order to check joint alignment, i-SOBO T must be put into the "zero position." Do this by turning i-SOBO T's switch to ON and inputting "4, 4, 4, B" while in remote control mode. This position puts i-SOBO T into a standing "T" posture, with arms and legs aligned as shown in the diagram below.

Guide marks
In zero position, small guide marks, shown in the diagram, can be examined and, if any are out of place, can be adjusted using the adjustment method, as shown.

Guide marks are small raised triangles (on the joint clamps) and raised lines (on servo-motors) molded onto i-SOBO T's parts. The guide marks are the same color as the molded parts and can be difficult to see at certain angles and in poor lighting. To spot them, examine i-SOBO T under good lighting, up-close from the perspectives of the schematic diagrams.

* Diagram 1 shows an example of a guide mark triangle and line being out of alignment.
* Diagram 2 shows what the guide marks should look like if properly aligned.


Schematic Diagram Notes

Arms: Notice how the servo-motor axles in the arms should form a straight line, as shown in the top diagram and expanded Diagram A show.

Legs: Notice how the servo-motor axles in the legs should form a straight line as shown in Diagram B and how the guide marks in the legs should be aligned, as shown in the middle diagrams.

Feet: Notice how the feet should be aligned when viewed from the front, side and bottom and how the guide marks on the bottom of the feet should be aligned, as shown in the middle and bottom diagrams.
# How to Make Adjustments

## Clamp adjustment
1. Turn i-SOBOT's power switch to ON, and put i-SOBOT into zero-position. At this time, check that i-SOBOT has assumed the correct cross-shaped position (zero-position) and all servo joints are aligned in a straight line.
2. By observing the guide marks, check to see that each joint is in alignment. If one is not aligned, use the included 1.5mm (L-15) Allen wrench to loosen the joint clamp’s bolt.
3. Adjust the alignment of the parts until the guide marks align as shown in Figure 2.
4. Check that the guide marks align when i-SOBOT assumes the O-position and tighten the clamp bolt using the Allen wrench.
5. When all adjustment is completed, use the HP/Cancel button to return i-SOBOT to home position and resume normal operation or turn i-SOBOT’s power switch to OFF.

## Neck adjustment
1. Turn i-SOBOT’s power switch to ON, and put i-SOBOT into zero-position.
2. Loosen the cap bolt below the searchlight.
3. With i-SOBOT still in the zero-position, turn the neck to the center.
4. Lightly tighten the cap bolt using the Allen wrench.
5. Use the HP/Cancel button to return i-SOBOT to home position to resume normal operation or turn i-SOBOT’s power switch to OFF.

## Shoulder adjustment
1. Turn i-SOBOT's power switch ON, and put i-SOBOT in the zero-position.
2. If the angle of either shoulder has slipped from the zero-position, loosen the two front and rear shoulder cap bolts. Both bolts are in curved slots. (The front shoulder cap bolt is shown in the diagram.)
3. When both bolts are loosened, the angle of the shoulder can be adjusted to the normal zero-position as shown in the zero position diagram.
4. When the shoulder angle is correct, re-tighten both cap bolts.
5. Use the HP/Cancel button to return i-SOBOT to home position to resume normal operation or turn i-SOBOT’s power switch to OFF.

### Important Note
- Tighten the clamp bolts and cap bolts only as much as necessary to create a proper hold. DO NOT over-tighten them or this could damage the parts.

---

# Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Initial setting</th>
<th>Steps</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not move</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special action mode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice control mode</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program mode</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

Trouble shooting

1. Install new batteries (9 x AAA), checking that the polarities are correct.
2. Turn the switch to A or B, to match the i-SOBOT unit.
3. Replace the depleted batteries. Do not use a mixture of old and new batteries or batteries of different properties. When the batteries are removed, memory erased.
4. Connect to the charger using the included charger instruction manual.
5. Correctly install the charged rechargeable batteries (9 x AAA) (included).
6. Turn the i-SOBOT unit switch ON.
7. Turn the switch to A or B, to match the controller.
8. Press in the control key.
9. Infrared cannot be received in direct sunlight. Use in a shaded area.
10. Or assume position. i-SOBOT can be activated with infrared via the infrared receiver or i-SOBOT unit.
11. To make i-SOBOT perform an action, press the button in the set order. Refer to the instruction in this manual to make the necessary adjustments and press the button accordingly.
12. Match the modes of the i-SOBOT unit and the controller.

---

Trouble shooting

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**Troubleshooting**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Steps</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller malfunction</td>
<td>Replace batteries with new AA batteries. Do not use a mix of old and new batteries or batteries of different properties.</td>
<td>P11</td>
</tr>
<tr>
<td></td>
<td>Check if there are foreign objects caught in the buttons or joysticks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If more than two AIS band transmitters are used simultaneously, they may cause interference.</td>
<td>P13</td>
</tr>
<tr>
<td></td>
<td>If another infrared transmitter (TV remote control, etc.) is used simultaneously, it may cause interference. Do not use simultaneously.</td>
<td>P12</td>
</tr>
<tr>
<td>i-SOBOT unit not moving properly</td>
<td>In the zero position, if the guide marks are out of alignment, i-SOBOT may be unable to move correctly. Follow instructions in order to make adjustments as necessary.</td>
<td>P29</td>
</tr>
</tbody>
</table>

---

**Important Battery Information**

For best performance with the i-SOBOT robot, use the rechargeable batteries included.

DO NOT use alkaline, zinc-carbon (heavy duty) or high voltage (such as 1.7V Oxide) batteries in the i-SOBOT robot. (Alkaline batteries may be used in the remote control unit.)

The robot unit will not function properly with alkaline, zinc-carbon or high voltage batteries and in some cases these batteries may damage some components.

If an additional set of batteries is needed, TOMY recommends purchasing AAA rechargeable batteries with the following specifications:

**NIMH 1.2V AAA (HR03) Rechargeable Batteries**

**Note:** Follow the full battery use and safety instructions in this Instruction Manual and always follow the manufacturer's instructions for rechargeable batteries.

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**Main Specifications**

- **i-SOBOT (unit)**
  - Total height: 6.5"
  - Total width: 3.94"
  - Depth: 2.64"
  - Weight: 0.77 lbs
  - Rotational speed of motor (rpm): 22.4
  - Uses 17 servo motors
  - Equipped with gyro-sensor

- **Servo motor**
  - Total height: 21.86"
  - Total width: 21.73"
  - Depth: 8.33"
  - Rotational speed of servo (rpm): 31

- **Controller**
  - Total height: 3.39"
  - Total width: 3.94"
  - Depth: 1.57"
  - Equipped with liquid crystal monitor: 16 x 32 pixel
  - Infrared control (simultaneous control of 2 units possible)
  - Maximum memory: 240