Manuals+ — User Manuals Simplified.

eX MARS AI Robot and Smart Cube Instruction Manual

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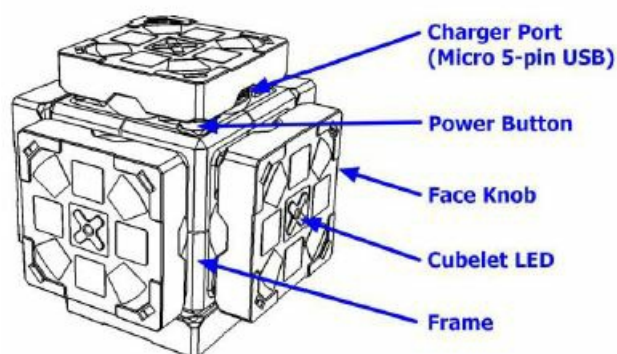
eX MARS AI Robot and Smart Cube

GETTING STARTED

About eX-Mars
eX-Mars is the world's first and only intelligent robot with features including auto-scrambling, time-recording, solutionrecording, and step-by-step solving instruction for 3x3x3 cube.

Device layout

Turning eX-Mars on and off

- Press the power button briefly to turn on eX-Mars.

- Press and hold the power button for 4 seconds to turn off eX-Mars.

Battery indicator
When the power is turned on by pressing the power button, the battery level of 0 (low) to 4 (high) is displayed on all six sides of the cube.

Charging the battery
Plug the small end of the charging cable (included in the box) into the charger port of eX-Mars and plug the large end of the cable into a power outlet.

MODES, FUNCTIONS

Selecting a mode
Users can play eX-Mars without a mobile device. When you turn on eX-Mars and press the power button briefly (less than 4 seconds), the cube turns to the home menu state. ① Turn the purple face knob to change the number on the yellow face ② then rotate the yellow face knob 90 degrees to select the upper digit of the mode, and ③ turn the purple face to change the number on green face ④ then rotate the green face knob to select the lower digit of the mode.
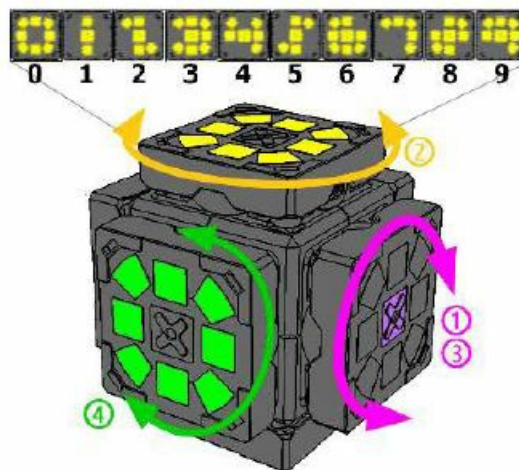
Mode Map (Orange area is for mobile application only)

- Download mobile application for android OS phones
- Google Playstore searching keyword 'ex-mars'
- Download mobile application for iOS phones
- App Store searching keyword 'ex-mars'

Mode Name	Mode Yellow Green		Descriptions
Learn basics	0	0	Scramble and solve manually
"	0	1	Short move game (sequential)

"	0	2	Short move game (random)
Learn solving algorithm	1	0	Stage 1) Learn solving 8th algorithm for beginner
"	1	1	Stage 2) Learn solving 7th algorithm for beginner
"	1	2	Stage 3) Learn solving 6th algorithm for beginner
"	1	3	Stage 4) Learn solving 5th algorithm for beginner
"	1	4	Stage 5) Learn solving 4th algorithm for beginner
"	1	5	Stage 6) Learn solving 3rd algorithm for beginner
"	1	6	Stage 7) Learn solving 2nd algorithm for beginner
"	1	7	Stage 8) Learn solving 1st algorithm for beginner
Beginner solving	2	0	Solve scramble of beginner stage 1

"	2	1	Solve scramble of beginner stage 2
"	2	2	Solve scramble of beginner stage 3
"	2	3	Solve scramble of beginner stage 4
"	2	4	Solve scramble of beginner stage 5
"	2	5	Solve scramble of beginner stage 6
"	2	6	Solve scramble of beginner stage 7
"	2	7	Solve scramble of beginner stage 8
Master solving	3	0	Solve motored scramble in normal mode
"	3	1	Solve scramble in normal mode
"	3	2	Solve scramble in 5 relay mode
"	3	3	Solve scramble in half blind mode
"	3	4	Solve scramble in full blind mode
"	3	5	Solve scramble in time penalty mode
"	3	6	Solve scramble in crazy time penalty mode
	3	7	Solve scramble in fewest moves mode
	3	8	Solve scramble in reverse rotation mode

Review	4	0	Replay recent solving in mode 2x
"	4	1	Replay recent solving in mode 3x
Leaderboard	–	–	My rankings
Accessories	–	–	Coding Joypad
"	–	–	Shaking and Solving

"	8	0	Intelligent Dice	
	8	2	10's Complement Game – Math	
"	8	3	Jingle Bell -Music	
	8	4	Random Multiplication Table Game – Math	
	8	5	Happy Birth day to You – Music	
	8	6	Congratulations1	– Music
	8	7	Congratulations2	– Music
"	–	–	Robot Sound Equalizer (Android only)	
"	–	–	Clone Mode	
"	7	2	User scrambles, robot solves	
"	7	3	2x2x2 Puzzle Cube Mode	
"	7	4	2x2x2 Puzzle Cube Solving Mode	
"	7	5	Plus Puzzle Mode	

"	7	6	Plus Puzzle Solving Mode
"	7	7	Diamond Puzzle Mode
"	7	8	Diamond Puzzle Solving Mode
"	7	9	X Puzzle Mode
Statistics	–	–	
Settings	–	–	Firmware Version
"	9	5~6	Sound off(5), on(6)
"	9	0~2	LED Brightness : low(0), mid(1), high(2)
"	–	–	Replay Speed
"	9	7~8	Replay Motor off(7), on(8)
"	–	–	eX-Mars Time Update
"	–	–	Shutdown
"	–	–	Shutdown timer[sec]
"	9	3~4	Break Mode : active(3), passive(4)

Connecting eX-Mars to a mobile device

eX-Mars
Turn on eX-Mars

Mobile device

1. Launch the eX-Mars application
2. Tap the 'Disconnected' button
3. Press the same SSID with eX-Mars serial number

How to read the time record

- Yellow ten's digit of minutes
- White unit of minutes
- Red ten's digit of seconds
- Green unit of seconds
- Purple ten's digit of milliseconds
- Blue unit of milliseconds

For example, '01:43.79' means '1 minutes and 43.79 seconds'
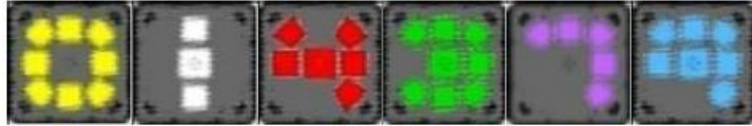
TROUBLE SHOOTING

Auto snapping function is not working

- Try setting mode 93. (Brake Mode Active)

There is no sound when rotating any side

- Try setting mode 96. (Sound On)

It doesn't work well when rotating a face

- After selecting the mode, turn any side after the beep sound comes out.

It does not respond to any input and cannot be charged

- Wait at least 3 minutes and try again.

Motor does not move when jingle bell is executed

- Try setting mode 98. (Replay Motor On)
- If the above method does not work, please contact us
- via the email below; **contact@exmarscube.com**

SAFETY PRECAUTIONS

- Protect against electric shock, water, high humidity, fire, and explosion.
- Prevent small children from playing with this device.
- Do not throw. Do not throw it at people or animals.
- Do not drop your device or impact it with sharp or heavy objects.
- Do not disassemble it.
- Do not place heavy objects.

- Protect outer surface from any damage or contact with liquid.
- Prevent small objects and liquid from falling into holes.
- Do not place on soil or sand.
- Do not change the battery yourself. Use authorized service if needed.
- Never dispose of batteries or devices in fire.
- Follow all local regulations when disposing of used batteries or devices.
- Never place devices on or in heating devices, such as microwave ovens, stoves, radiators or on an extremely hot surface. Batteries may explode when overheated.
- Avoid exposing the device to high external pressure, which can lead to an internal short circuit and overheating.
- Avoid exposing your device to very cold or very hot temperatures.
- Extreme temperatures can cause the deformation of the device and reduce the charging capacity and life of your device and batteries.
- Turn off your device where its use is prohibited.
- Turn off your device when in an aircraft.
- Humidity and all types of liquids may damage device parts or electronic circuits.
- Your device can explode if left inside a closed vehicle, as the inside temperature can go up very high.
- Do not bite or put any part of device in your mouth.
- Do not use if you are visually uncomfortable.
- Any changes or modifications to your device can void your manufacturer's warranty.

Warning ! Choking hazard:Contains small parts. Not suitable for children under 36 months

www.exmarscube.com e-mail : contact@exmarscube.com

BASIC KNOWLEDGE OF THE 3X3X3 PUZZLE CUBE

Types and features of blocks

- 3x3x3 puzzle cube consists of 3 types of blocks : Center
- Block, Edge Block, and Corner Block.
- The six center blocks are immobilized.
- The 12 edge blocks have two cells each, and when moved, only the edge blocks will change their position.
- The eight corner blocks have three cells each, and when moved, only the corner blocks will change their

position.

| Center Blocks | Edge Blocks | Corner Blocks |
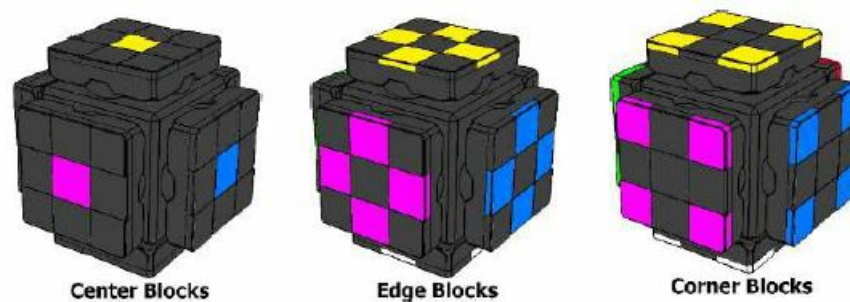
Scramble and solving
Mixing blocks is called 'scramble' and restoring the mixed blocks is called 'solving'. To do scramble or solving, you have to rotate one or two of the six sides to change the position of the edge blocks and corner blocks.

The meaning of 'fit'
If a cell's color is the same as that of a center block cell on the side where the cell is located, the cell is said to have been 'fit'.

Posture and direction of rotation
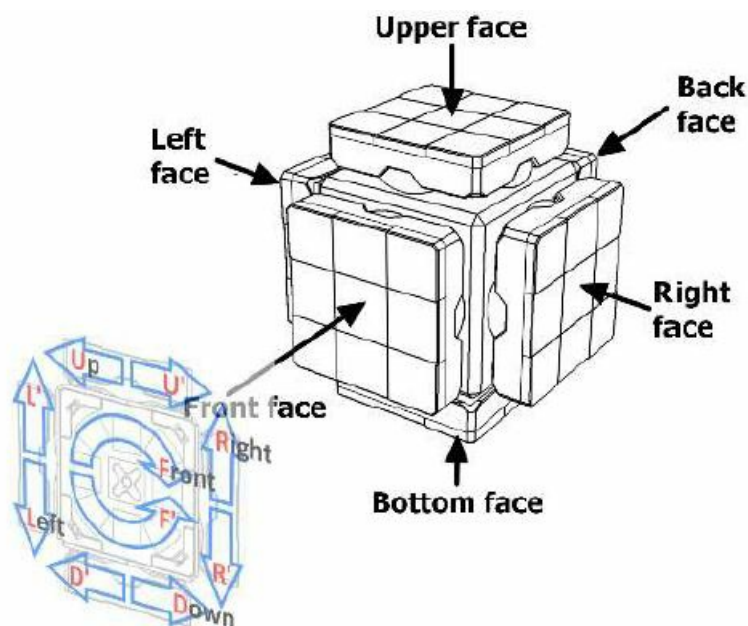
To explain the solution for the solving of the puzzle cube, define the posture of the puzzle cube, the direction of rotation of each side, and the name of the area for the location of the cell as follows: The posture of the puzzle cube is intended to explain the relative perspective of the user looking at the puzzle cube. When the user looks at the puzzle cube, the face that shows all nine cells is called the front face, the face where three cells are on the right is called the right face, the face where three cells are on the top is called the upper face, the face where three cells are on the left is called the left face, the face where three cells are on the bottom is called the bottom face, and the last invisible face is called the back face.

Floor
In order to indicate the location of the cell, layers of 1st floor, 2nd floor, and 3rd floor were defined as shown in the figure.
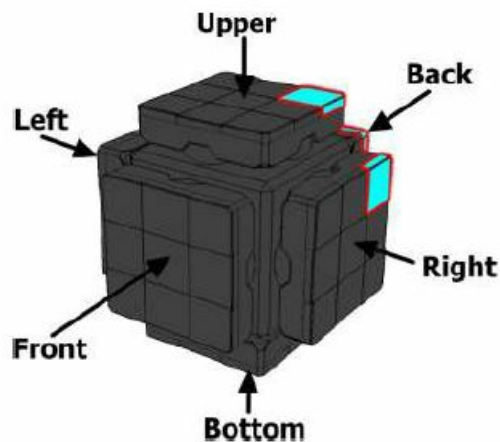
3rd floor
2nd floor
1st floor
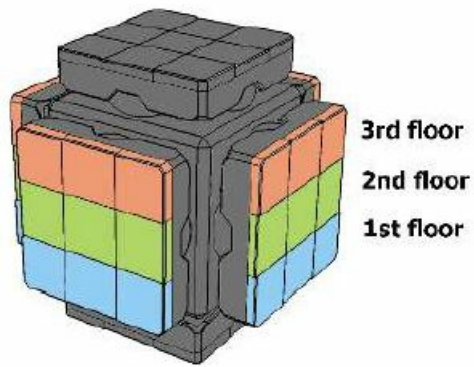
EXMARS BEGINNER'S SOLUTION

STAGE	ALGORITHM	FORMULA
Stage 1	8th algorithm	**FR'FLL F'RFLL FF**
Stage 2	7th algorithm	**R'F'L'F RF'LF**
Stage 3	6th algorithm	**LUL'U LUUL' (U)**
Stage 4	5th algorithm	**F RUR'U' F'**
Stage 5	4th right algorithm	**U' RU'R' U'U' RU'R'**
	4th left algorithm	**U L'UL UU L'UL**
Stage 6	3rd right algorithm	**RU'R'**
	3rd left algorithm	**L'UL**
Stage 7	2nd algorithm	–
Stage 8	1st algorithm	–

This algorithm does not change the position of the upper and bottom faces. So it's simple and only uses 4 different postures.

It is recommended to practice each algorithm stage in the order of Mode 1x(Learning)->Mode 2x(Solving). After learning all the beginner algorithms, it is recommended to practice with Master solving in Mode 3x.

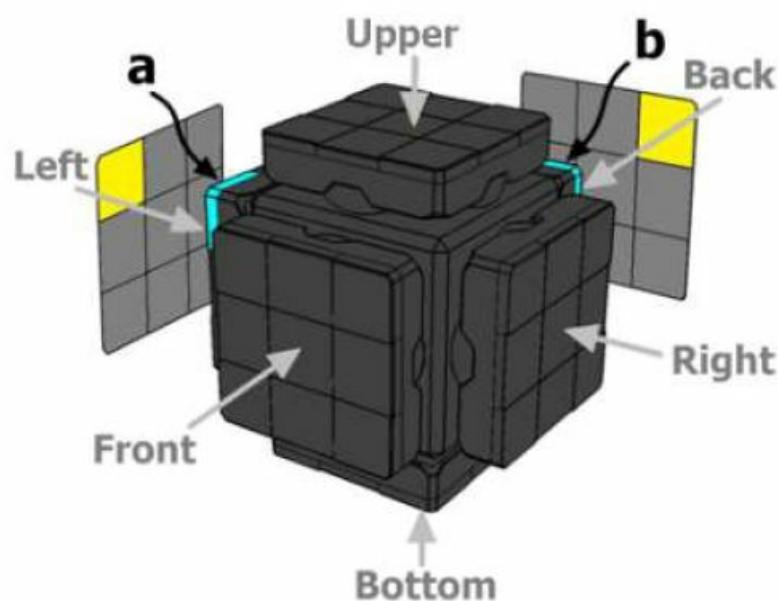**Stage 1 – Learning : Mode 10* / Solving practice : Mode 20**

- 'Mode 10' means that user select the mode 10.
- The goal of stage 1 is to fit all cells and complete the solving.

1. If there is at least one corner block that has been fit, place that corner block on the right back of the third floor and if there is no cornerblock that has been fit, place that corner block on the 3rd floor and use the formula FR'FLL F'RFLL FF.
2. Repeat 1) to complete the goal.

Stage 2 – Learning : Mode 11 / Solving practice : Mode 21
The goal of stage 2 is to fit all yellow sides in addition to the goal of stage 3.

1. Position the yellow cell on the third floor in position a and b. The priority is in the order a > b.
2. Use the stage 2 formula R'F'L'F RF'LF.
3. Repeat 1)~2) to complete the goal of stage 2.

Stage 3 – Learning : Mode 12 / Solving practice : Mode 22

The goal of stage 3 is to fit 4 cells in the middle of the 3rd floor in addition to the goal of stage 4.

1. In stage 3, turn the upper side so that there are two sides to which the mid cell on the 3rd floor is fit. At this time, there are two cases, when the plane on which the mid cell of the third floor is aligned is at an angle of 180 degrees and a case at 90 degrees.
2. In the case of 180 degrees, position one of the two sides on which the mid cell on the 3rd floor is fit, and change it to 90 degrees using the stage 3 formula LUL'U LUUL'.
3. In the case of 90 degrees, position one of the two sides where the mid cell on the 3rd floor is fit, one to the front and the other to the left, and then execute the stage 3 formula LUL'U LUUL' and U once.

Stage 4 – Learning : Mode 13 / Solving practice : Mode 23
The goal of stage 4 is to fit 4 yellow edge blocks in addition to the goal of stage 5.
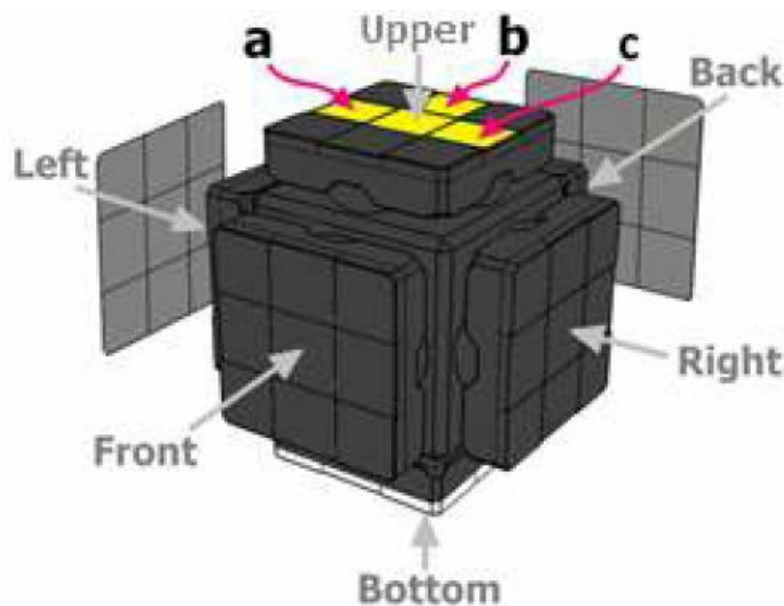
1. The posture setting places the yellow cell of the edge block on the top with the following priority: Priority is in the order left, right, and top of the edge block on the top. The priority is a > c > b.
2. Use the stage 4 formula F RUR'U' F'.
3. Repeat 1)~2) to complete the stage 4 goal.

Stage 5 – Learning : Mode 14 / Solving practice : Mode 24
The goal of stage 5 is to fit all 1st floors in addition to the goal of stage 6. You need to find the white cell that is not fit. The first priority is when the white cell is located on the 3rd floor, the second priority is when the white cell is located on the side of the 1st floor, and the last third priority is when the white cell is located on the top. Players need to repeat the formula until there are no unfit white cells. It doesn't matter which side you run first.

1. If the white cell is on the 3rd floor, turn the top to match the other cell in the edge block to which the white cell belongs. Then put the white cell on the front face, and if the white cell is on the right, use U' RU'R' U'U' RU'R', the right formula in stage 5, and if it is on the left, use U L'UL UU L'UL, the left formula in stage 5.
2. If the white cell is on the first floor, put the white cell on the front face, and if the white cell is on the right, use the right formula in stage 5, U' RU'R' U'U' RU'R', and if it is on the left, use the left formula in stage 5, U L'UL UU L'UL.
3. If the white cell is on the top, turn the white cell so that it is close to the front of the top, and if the white cell is on

the right, use the right formula in stage 5, U' RU'R' U'U' RU'R', and if it is on the left, use the formula on the left in stage 5, U L'UL UU L'UL.

4. Repeat 1)~3) to complete the goal of stage 5.

Stage 6 – Learning : Mode 15 / Solving practice : Mode 25
The goal of stage 6 is to fit all 2nd floors in addition to the goal of stage 7.

1. To set the posture in stage 6, find the edge block on the 3rd floor that does not contain the yellow cell, set the posture so that the center block of the same color as the top color of the edge block is on the front side, and then the center block is the same color as the middle cell on the 3rd floor. If it is on the right, it uses the third-level right formula RU'R', and if it is on the left, it uses the third-level left formula L'UL.

2. If there is no edge block on the 3rd floor that does not contain yellow cells, find an unaligned cell on the 2nd floor. If the cell is on the right, use the stage 6 right formula RU'R'. If it is on the left, use the stage 6 left formula L'UL.

3. Repeat 1)~2) to complete the goal of stage 6.

Stage 7 – Learning : Mode 16 / Solving practice : Mode 26
The goal of stage 7 is to fit 4 mid cells of the 1st floor in addition to the goal of stage 8.

1. On the 3rd floor, find the edge block containing a white cell and turn the top as necessary to fit the other cells of the edge block.

2. Turn the side containing the cell fitted in 1) 180 degrees.

3. Repeat 1)~2) to complete the goal of stage 7.

Stage 8 – Learning : Mode 17 / Solving practice : Mode 27
The goal of stage 8 is to place white cells in place of the 4 edgeblock cells on the yellow side.

1. Find an edge block containing a white cell.

2. If the white cell of an edge block is on the bottom, and if there is a white cell in the position after turning the side containing the edge block 180 degrees, then turn the top to make the white cell not pushed out, and turn the side containing the edge block to 180 degrees.

3. If the lower cell of the edge block is on the side (Front, Right, Back, Left), and if there is a lower cell at the position after turning the side including the edge block by 90 degrees, turn the top and the lower cell. Leave it empty so that it does not get pushed out, then turn the side containing the edge block 90 degrees.

4. Repeat 1)~2) to complete the goal of stage 8.

Please refer to Learning guide for solving algorithm for detail. **http://www.exmarscube.com->support->No.3**

Documents / Resources

eX MARS AI Robot and Smart Cube [pdf] Instruction Manual
AI Robot and Smart Cube, Robot and Smart Cube, Smart Cube, Cube

References

- ✗ **eX-Mars – the world's first and only AI Robot Cube**

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