



KEYS AND FEATURES

1 PIECE STORAGE COMPARTMENT

On back of unit; slide cover back to reveal handy compartment for piece storage.

2 ACL KEY

On back of unit; used to eliminate static discharge after inserting new batteries.

3 BATTERY COMPARTMENT

On back of unit; cover slides back to reveal battery compartment. Uses 4 alkaline "AA" (Type AM3/R6) batteries.

4 GO/STOP SWITCH

Slide to turn the computer on or off. When pushed to **STOP**, computer remembers current position; resumes game when pushed to **GO**.

5 PLAY KEY

Press to change sides with the computer; press while computer is thinking to force it to move.

6 TAKE BACK KEY

Press to take back 1 ply (a move for either side). Take back up to a maximum of 6 ply.

7 PIECE KEYS

Used to verify board positions. Also used to promote pieces and check piece promotions.

8 LEVEL KEY

Press to select your desired level of play.

9 NON AUTO KEY

Press to switch between Auto Mode (playing against the computer) and Non Auto Mode (playing against another person).

10 NEW GAME KEY

Press to reset for a new game.

11 BOARD LIGHTS

Used to indicate game moves, take back moves, show the side to play, and indicate check, draw, or mate. Also used to verify positions and to display levels of play.

INTRODUCTION

We congratulate you on the purchase of your new Kasparov Sensor Chess! This table-top chess whiz offers a unique combination of exciting chess performance and portability. It is also extremely easy to operate, registering all moves automatically on its built-in sensor board. Intended for beginners and intermediate players, Sensor Chess has 32 different playing combinations, including 7 unique Fun Levels, where the computer makes some very human errors. Playing on these levels will teach you more about chess, and will allow even beginners to win games against the computer! Along with 6 regular playing levels, the computer also offers a Puzzle Level, an Infinite Level, and a Mate Search Level specifically designed for solving mate problems. You can take back up to 3 full moves, and even play against another person while Sensor Chess acts as referee! Plus, switching to **STOP** saves your current game, and you can resume it at any time by switching to **GO**!

You have acquired a wonderful chess opponent and partner in Kasparov Sensor Chess — this chess computer will provide you with a great number of exciting and entertaining games for years to come!

How to Use this Manual

Since you should learn basic operation of the computer before going on to its other features, we recommend that you read Section 1 first.

The Chess Rules

The Sensor Chess knows all the rules of chess, including castling, en passant, and stalemate. The computer may sometimes appear to be playing irregularly, when in fact it is merely obeying the chess rules. In case you are not very familiar with the game, turn to the back of the manual for an overview of the rules of chess. Additional information may be found in your local library, which is sure to have several books on the subject.

GETTING STARTED

1 Battery Installation

Kasparov Sensor Chess runs on 4 "AA" (Type AM3/R6) batteries. Alkaline batteries will give longer battery life (up to 350 hours). Slide the **GO/STOP** switch to **STOP** and switch off. Insert batteries carefully (see diagram at the end of manual). Switch on by sliding the **GO/STOP** switch to **GO**. The computer does an internal self-test, cycling through all the board lights, then a beep signals that the game is ready to play. If the computer fails to respond — static discharge may sometimes cause it to lock up — use a paper clip or another sharp object to depress and hold in the **ACL** key on the back of the unit for one second. This resets the computer.

The Chess Pieces

For those of you who are beginners or fairly new to the game of chess, the chart of Chess Pieces at the front of this manual identifies all the pieces and their symbols.

1.3 How to Move Your Pieces

Once you have inserted the batteries, you are ready for your first game against the computer.

1. Switch the computer on.
2. Press **NEW GAME**, and set up the chess pieces in their starting positions, with the White pieces nearest to you (see diagram).



Initial board set up at the beginning of a game

3. To make a move, lightly press down on the piece you wish to move until you hear a beep. The computer's sensor board registers your move, and the coordinate lights for that piece light up.
4. Take the piece and lightly press it down on the desired square. A second beep sounds and the **8** light begins to flash, indicating the computer is thinking about its move for Black.

Note: At the beginning of a game, the computer's reply is usually instantaneous on Levels 1 through 6, because it is often playing moves which are stored in its book opening library (for details, see Section 3.6).

1.4 How the Computer Moves

When the computer moves, it beeps and turns on two lights on the side of the chessboard, indicating the horizontal row and vertical column of the piece it wants to move. Press this piece down until you hear a beep. The computer then uses the lights to show you where the piece should go. Move the piece to the indicated square and press the piece down to complete the computer's move.



In this case, the computer wants to move its pawn from E7. First, press down on the E7 pawn.



The computer lights now indicate the pawn should move to E5. Press the pawn down on E5 to complete the computer's move.

1.5 Indication of the Side to Move

When the computer plays Black, it flashes the 8 light while it is thinking. After it has moved, the 1 light comes on steadily to show that it is now White's turn to move. Similarly, if the computer plays White, the 1 light flashes during its turn, and the 8 light comes on steadily after it has made its move to show that Black is to move next. You can, therefore, always tell at a glance whether or not the computer is currently thinking, and which side is to move.

Note: When you play Black from the bottom of the board, as described in Section 3.3, the color indicator lights are also switched (i.e., the 1 light indicates Black and the 8 light indicates White).

1.6 Capturing and Special Moves

To make a capturing move, simply press down on the piece you want to move, take the captured piece off the board, and press your piece down on the square of the captured piece.

Capturing En Passant

Many beginners are not familiar with this rule, introduced to chess in the fifteenth century. Capturing en passant is possible when a pawn is on its fifth rank. If an enemy pawn crosses a square attacked by this pawn (because it can move two squares on its first move), the pawn may act as if the enemy pawn had only moved one square, and capture it en passant. This can only be done on the next move.

In an en passant capture, the computer uses the board lights to remind you to remove the captured pawn. Press down on the captured pawn before removing it from the board.

Note: When taking back an en passant move, the computer guides you through the take-back of the move itself, but leaves it up to you to put the captured pawn back on its original square.



In the above position, Black tried to avoid the capture of his pawn by advancing it two squares from E7 to E5.



White can capture the pawn en passant by moving his pawn from F5 to E6. Remember to remove the captured pawn from the board.

Castling

The computer automatically recognizes castling maneuvers after the King is moved. After you have pressed the King down on its *from* and *to* squares, your Sensor Chess uses the board lights to remind you to move the Rook. Press down on the Rook's indicated *from* and *to* squares to finish the castling move.

Note: When taking back a castling maneuver, the computer only indicates the take-back of the King's move, and leaves it up to you to put the Rook back on its original square.



Castling Kingside: Move the King by pressing it down on E1 and then G1. The computer then reminds you to move the Rook from H1 to F1 to complete the castling maneuver.

Pawn Promotion

When you promote a pawn, press your pawn down on its *from* square, as usual. To promote to a Queen, simply press down on the *to* square, and the computer automatically changes your pawn to a Queen. If you wish to *underpromote* (to a Rook, Bishop or Knight), first press your pawn down on its *from* square. Next, before pressing down on the *to* square, press the Piece Symbol key for the desired piece to enter your choice into the computer. Now move your pawn to the 8th rank.

The computer can also promote and underpromote. If it promotes to a Queen, it makes its move as usual. When it underpromotes, it flashes the lights for its *to* square after you have moved its piece to that square. Use the Piece Symbol keys to find out the piece it has chosen for underpromotion.

For an idea of why an underpromotion might sometimes be warranted, consider the following position:



It would be fatal for White to promote his pawn to a Queen. If he did so, Black could immediately deliver mate by moving his Queen to A6. White must instead promote to a Knight, which attacks both the Black King and Queen at the same time (known as a "Knight fork").

7 Illegal Moves

Your Kasparov Sensor Chess never accepts illegal moves. If you attempt such a move, the computer sounds a double beep and the board lights remain on, showing the square the piece came from. Press your piece down on that square to clear the illegal move indication, and then make your next move as usual.

Note: If you do not execute a computer move correctly, you will also hear an error beep. This indicates that you are trying to move the wrong piece, or are moving the computer's piece to the wrong square. Check the board lights, and move the piece correctly.

3 Taking Back Moves

Kasparov Sensor Chess allows you to take back up to 6 moves in any position (a ply is a move for either side). You may, therefore, take back up to 3 moves for both sides.

To retract a move, press **TAKE BACK** when it is your turn. The computer lights the coordinates of the *to* square of the last move. Press down on the indicated

piece, and the computer shows you where that piece came *from*. Press the piece down on that square, and the take-back is complete. Now either make another move, or press **PLAY** to have the computer move next.

1.9 Check, Mate and Draw

When a King is in check, the computer sounds a double beep and flashes the **A** and **B** lights, highlighting **CHECK**. If a game ends in checkmate, the computer flashes the **G** and **H** lights to highlight **MATE**.

Sensor Chess recognizes the following draw situations. In each case, the computer flashes the **D** and **E** lights to highlight **DRAW** when the drawing move is made.

- **Draw by Stalemate:** Occurs when the side waiting to move is not in check, but has no legal moves.
- **Draw by 3-Fold Repetition (consecutive):** Comes about when the same board position has occurred 3 times in the game, and the same side is on the move. *Note: The Sensor Chess only recognizes 3-fold repetition if the moves are made consecutively.*

1.10 Starting a New Game

Press **NEW GAME** to start a new game at any time. The new game beep signifies that the computer is ready for another game, using the currently set level. The **1** light is on, indicating that it is White's turn to move first.

IMPORTANT: Pressing **NEW GAME** clears the current game, so be careful not to press this key by mistake!

1.11 Game Memory

You may interrupt a game at any time by sliding the **GO/STOP** switch to **STOP**. Play is suspended, and the computer "remembers" the current position for up to 2 years (with fresh alkaline batteries). When you switch on again, the computer is ready to resume your game.

To conserve battery power, you should switch off when you interrupt your game for more than a few minutes.

Note: If you switch off while the computer is thinking, when you switch on, the Sensor Chess will continue its search for that move.

2. LEVELS OF SKILL

The Kasparov Sensor Chess has 16 levels of skill. They include levels for casual play, an infinite level, a level for solving mate problems, several "fun" (handicap) levels for beginners, and a special puzzle level. When you set the level, keep in mind that when the computer has more time to think about its moves, it becomes stronger and plays better — just like a human chess player!

2.1 Setting a Playing Level

Press **LEVEL**, and the computer beeps and flashes the board light for the current level. If you are on **Level 6**, for example, the **6** light will turn on for as long as you hold **LEVEL** down. Pressing **LEVEL** repeatedly cycles

through all 16 playing levels. When you start the game, the computer is set to the last displayed level.

If you turn the computer off in the middle of a game, or if you press **NEW GAME**, Sensor Chess retains the level currently selected. You may change the playing level at any time during a game, whenever it is your turn.

2.2 Levels for Casual Play (Board Lights 1-6)

LEVEL	AVERAGE TIME	LIGHT
Level 1	2 seconds per move	1
Level 2	4 seconds per move	2
Level 3	10 seconds per move	3
Level 4	20 seconds per move	4
Level 5	90 seconds per move	5
Level 6	140 seconds per move	6

These times are averaged over a large number of moves. In the opening and endgame, the computer will tend to play faster, but in complicated middlegame positions, it may take considerably longer to move.

2.3 Infinite Level (Board Light 7): Press **LEVEL** until the 7 light flashes briefly, then press **PLAY**, and the computer starts thinking. Sensor Chess continues thinking indefinitely, until you interrupt it by pressing **PLAY**. It then makes the move it currently considers best. Use this level to have the computer analyze complicated positions for hours or even days.

Note: On the Infinite Level, the computer may come back with a move if it runs out of memory. This will typically be after hours or days, but may occur faster in very simple positions.

2.4 Mate Search Level (Board Light 8): If you have a position where there may be a mate and you want the computer to find it, press **LEVEL** until the 8 board light flashes. On this level, the computer searches for a forced mate and only plays a move if it sees a mate. It can solve up to a mate in 4. If the computer cannot find a mate in 1, 2, 3, or 4, it beeps and stops. Switch to another level to continue the game.

*Note: To interrupt the computer on this level, press **PLAY**. The computer sounds an error beep, indicating that its search was interrupted before it found a mate.*

2.5 Fun Levels (Board Lights A-G): The Sensor Chess has 7 unique "Fun Levels" — especially for beginners and very young players. These levels allow those who might otherwise never win a game of chess to come up on the winning side for a change! On these levels, Sensor Chess is much more "human" than most chess computers — it gives everyone a chance to win, in a world where chess machines are typically relentless and often difficult to beat. Although the general consensus is that "computers never make mistakes", on the Fun Levels, this computer actually does!

Various handicaps are built into the levels, with each one demonstrating different types of common mistakes made by beginners. Chess books often advise of basic rules — warning not to give away material, not to bring the Queen out too early, and advising development of pieces before starting an attack. Yet players see their opponents breaking these rules and getting away with it! The Fun Levels provide a way of practicing the punishment of these typical mistakes — thus enabling the beginner to strengthen his game against the human opponents he is likely to face.

Even after a player has mastered all the Fun Levels, they can still be a valuable training tool. A game can be started on a Fun Level, for example, and, when the computer makes a bad move, the player can switch to a normal level and try to convert his advantage to a win, playing against the stiffer opposition of a higher level.

Fun Level **A** is the weakest level, and the others get progressively stronger. On Levels **A** through **E**, the computer does not even use an opening library. All the Fun Levels play at 2 seconds a move except **F** and **G**, where the computer may move immediately if it sees a check or a mate.

Fun Level A (Board Light A): The value of material is set so that the computer will not only "hang" pieces (leave pieces unguarded), but will also actually try to lose material. Watching the computer throw away its Queen would not even be uncommon on this level!

Fun Level B (Board Light B): The computer plays "pure" positional chess — it does not even take the material value of pieces into consideration, and may also give away a Queen quite willingly! Level **B** can be instructive for the beginner who wants to train himself to take advantage of another's tendency to hang material.

Fun Level C (Board Light C): Level **C** is very similar to **B**, but the computer will not consistently give away material. It randomly considers material worth part of the time, and thus acts much more like a beginning human player who may have frequent lapses, where he hangs pieces. Here, the computer may still, however, give away as much as a Queen on one move.

Fun Level D (Board Light D): Here, the computer gives away material occasionally, but only as much as a Rook on one move. This level continues to teach a player to recognize when his opponent hangs a piece — and to take full advantage by capturing that piece!

Fun Level E (Board Light E): This is the first level which does not give away material. It is like a beginner who has won some games and has just discovered the power of the Queen. As such, the computer makes the mistake of playing the Queen out too early in the game. The player can learn to recognize this mistake, and take full advantage of the situation to beat his opponent.

Fun Level F (Board Light F): This is the first Fun Level to use an opening book. The computer will secure a fairly even position in the opening, even against experienced players. Then, however, it will occasionally hang pieces, like the beginner who has learned some openings, knows how to develop his position before charging out with the Queen, but still sometimes leaves pieces unguarded. Check threats are ignored here, and the computer is vulnerable to one-move mating threats.

Fun Level G (Board Light G): Also uses an opening book, and is the strongest of the Fun Levels. Here, the computer will never hang a piece, but it is still very vulnerable to check and checkmate threats. This level is similar to the beginner who has learned that the game is usually won or lost over material — and who dwells so much on this that he can forget to defend his King!

Puzzle Level (Board Light H): Used for solving "mate or a large win of material" problems, here the computer looks for the shortest forced win of 2 pawns or more, and displays the solution if it finds one. If it comes to its search depth limit without finding a solution, it sounds an error beep. Change levels to continue play.

Note: When you play Black from the bottom of the board, the color indicator lights are also switched (the 1 light indicates Black and the 8 light indicates White).



Board set-up with Black playing from the bottom of the board

ADDITIONAL FEATURES

The features covered so far are enough to provide you hours of pleasure and entertainment with your Sparov Sensor Chess. You have learned how to play games against the computer, how to correct your mistakes, and how to adjust the level of playing skill to match your own individual needs. There are, however, many other features which make your Sensor Chess even more fun to use!

Changing Sides with the Computer

To change sides with the computer, press **PLAY** when it's your turn to move. This forces the computer to make the next move for your side. You may change sides as often as you wish during a game.

*Note: As described in Section 3.3, pressing **PLAY** at the beginning of a new game causes the computer to change sides with you and make the first move for White, playing from the top of the board.*

The Computer Plays Against Itself

To see the computer play a game of chess against itself, press **PLAY** repeatedly. Watch as your Sensor Chess plays moves for both sides, one after the other.

Playing Black from the Bottom of the Board

To play with the Black pieces and let the computer play White, press **NEW GAME** and **PLAY**. The computer reverses sides, and makes the first move for White from the top of the board. The following diagram shows the initial piece set-up when Black plays from the bottom of the board. Notice, in particular, that the Kings and Queens are positioned differently in this board set-up.

3.4 Interrupting the Computer's Thought Process

To interrupt the computer while it is thinking, press **PLAY**. This forces the computer to play the best move it has found so far. This feature can be very useful on the higher levels, especially on the Infinite Level, where the computer thinks indefinitely unless you stop it.

*Note: On the Mate Search and Puzzle Levels, pressing **PLAY** does not cause Sensor Chess to make a move. Instead, the computer sounds an error beep to indicate that it was interrupted before it found a solution or a mate. Switch to another level to continue your game.*

3.5 Non Auto Mode

Playing Against Another Person

Press **NON AUTO** to let the computer act as a referee between two people. A double beep will sound. Now make a move as usual. After the move has been made, instead of starting to think, the computer waits for another move to be entered. You and a friend can play chess against one another in this manner. As in a normal game, Sensor Chess allows only legal moves.

If either side needs help, press **PLAY**, and Sensor Chess will make the next move. If you don't like the move the computer makes, take it back. Whether you take the move back or accept it as your own, you will remain in Non Auto mode, and can continue your game.

*Note: Pressing **NON AUTO** once more sounds a single beep and returns you to normal game mode, playing against the computer.*

Practicing Openings

Non Auto mode can also be a valuable study aid, since it allows you to practice different openings. Press **NON AUTO**, and enter an opening by making the moves for both sides. After you reach the desired position, press **NON AUTO** again. Now continue to play your game against the computer, using your forced opening!

Playing Through Master Games

Another interesting use of Non Auto mode is to study master games. Play through the World Championship games or famous games you find in chess books! You can even play through your games against friends or the computer. Press **NON AUTO**, and start making the moves on the board. If you reach an interesting position and want the computer to analyze it, press **PLAY**, and Sensor Chess will start thinking about the next move.

3.6 Book Openings

At the beginning of a game, the computer's reply is usually instantaneous on Levels 1 through 6, because the computer is playing moves which are stored in its *book opening library*. The Sensor Chess's opening library consists of about 250 opening moves from grandmaster play. If the current board position is in its opening book, the computer plays a response to that position from its collection of moves, instead of thinking about the move.

3.7 Verifying Piece Positions

If you upset the chess pieces, or if you think the board position is incorrect, the computer will show you the proper location for each piece. When it is your turn, press one of the Piece Symbol keys. The computer uses the board lights to show you where the first piece of that type is located on the board. Steadily lit board lights indicate a White piece, and flashing board lights indicate a Black piece. Press the same Piece Symbol key again to see the locations of more pieces of that same type. When there are no more pieces of that type, you hear a double beep. Repeat this procedure using the other Piece Symbol keys, verifying the entire board if desired.

TROUBLESHOOTING GUIDE

SYMPTOMS	POSSIBLE CAUSES	ACTION TO TAKE
1. The computer does not react, behaves erratically, or "freezes" during a game.	Batteries not inserted properly.	See instructions for installing batteries in Section 1.1.
	Batteries weak or bad.	Replace the batteries (see Section 1.1).
	Static discharge or an electrical disturbance has caused the computer to lock up.	Press the ACL key (see Section 4.1).
2. The computer will not accept moves or key presses, and keeps sounding error beep.	Is it your turn? (look at the 1 and 8 color indication lights) Is your King in check? Will your move put your King into check? Are you trying to castle incorrectly? Did you move the Rook first when castling?	Make sure you are familiar with the chess rules. Use the piece keys to confirm the board position, use TAKE BACK to reconstruct the last move.
	The computer is still thinking (1 or 8 light flashing).	To interrupt the computer's thought process, press PLAY .
3. The computer seems to be cheating or making illegal moves.	The computer has made a special move, such as en passant, castling, or pawn promotion/underpromotion.	Review the chess rules. Use the piece keys to confirm the board position, use TAKE BACK to reconstruct last move.
	Your board position is not correct (pieces have been moved).	Verify the board position (see Section 3.7).
	Batteries are running out.	Replace the batteries.
4. The computer will not play a move.	Non Auto mode is in effect.	Press NON AUTO to get back to normal game mode.
	You may be on a level which causes the computer to think for a long time (Infinite, Mate Search, or Puzzle Levels).	To interrupt the computer's thought process on any of these levels, press PLAY .
5. The computer makes instant or irrational moves.	The computer may be set on one of the Fun Levels, where it deliberately makes common chess mistakes so that the beginner may study them and learn from them.	Press LEVEL to check which level is currently selected (see Section 2.1).

4. TECHNICAL DETAILS

4.1 The ACL Key

Computers sometimes "lock up" due to static discharge or other electrical disturbances. If this happens, take out the batteries and use a pin or a sharp object to press the **ACL** key in the base of the set for one second. This resets the computer and clears its memory.

4.2 Care and Maintenance

Your Kasparov Sensor Chess chess computer is a precision electronic device, and should not be subjected to rough handling or exposed to extreme temperatures or moisture. Do not use chemical agents to clean the set, as these may damage the plastic.

4.3 Technical Specifications

Processor Speed:	1 MHz
Program Memory:	7740 bytes ROM (internal)
RAM Memory:	176 bytes (internal)
Keys:	11
LED Lamps:	16
Sound:	Piezo-electric buzzer
Current:	20mA maximum
Batteries:	4 AA cells (AM3/R6) for up to 350 hours of operation
Dimensions:	308 x 230 x 29mm
Playing Strength:	For beginners and casual players.

Do not use rechargeable batteries.



Saitek reserves the right to make technical changes without notice in the interest of progress.