

NOVAG® BELUGA

- **INSTRUCTION**
- **ANLEITUNG**
- **MODE D'EMPLOI**
- **INSTRUCCIONES**
- **ISTRUZIONI**
- **INSTRUCTIES**

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I. GENERAL HINTS

Playing with the NOVAG BELUGA is simple compared to other chess computers. However we recommend reading the general instructions before starting to play. The detailed instructions are laid out in such a way that each section is self-contained, so you do not have to read everything at once.

Batteries:

The NOVAG BELUGA runs on six 1,5V UM 3-type alkaline or heavy duty batteries (not included).

Note: Do not use regular batteries as they will result in irregular performance. To insert the batteries, open the "BATTERY DOOR" on the underside of the unit and place the batteries as indicated by the +/- signs. A set of new alkaline batteries runs approx. 150 hours (continuous operation).

Adaptor:

The adaptor for the NOVAG BELUGA has the Art. No. 8210 and is separately available. Before using the adaptor check that the voltage of your electric output is within the range specified on the adaptor label. The adaptor socket is located at the back panel of your computer. Please note, that you must only use the adaptor specified for your computer. The use of any other adaptor automatically invalidates the warranty.

Memory:

The NOVAG BELUGA has a long term memory and will retain the last board position. However, make sure that there are batteries in the chess computer or an adaptor connected otherwise you will lose the memory contents.

II. SHORT INSTRUCTION

1. Before commencing to play set up the chess pieces in the opening position. (White pieces on rank 1 and 2, Black pieces on rank 7 and 8).
2. The power switch is a 2-position switch and located at the back panel. It is marked with ON/OFF. (ON = black switch is pushed towards the power socket). This switch operates both adaptor or batteries. If you use the adaptor it will automatically cut off the batteries.
3. Press NEW GAME and you will hear 3 beeps and you can now make your opening move for White.
4. If you want to increase the level of skill, press the SET LEVEL key. Each time you press this key the level increases by one. On the LCD display you will see a number indicating the desired level.
5. Once you have set the level, press GO to exit the SET LEVEL mode.

After this procedure you may enter your White move. Gently press down the piece you want to move and the two respective rank and file LEDs will light up. Then set the piece on the square you wish to move to and press it down again. Once the computer has registered your move it will make its counter move. When the move has been chosen it remains on the LCD display and at the same time the corresponding LEDs will flash. A captured piece must be removed simply by taking it off without applying pressure.

Should you encounter any problems with your computer, refer to Trouble Shooting list for advice.

III. GAME FEATURES

a) Making a Move

Your NOVAG BELUGA has a SENSOR-chessboard which registers your moves automatically when the appropriate squares are gently pressed. Moves to be executed for the computer are indicated by the 2x8 rank and file LEDs and on the LCD display. Each square of the chess board can be called out by the co-ordinates of each square from a1 to h8. All moves are shown on the LCD display.

The color to move is indicated by the bottom row of the LCD and a white box means that White is to move whereas a solid black box would indicate that it is Black's move.

To start, press NEW GAME and you automatically play White. On the LCD display a white box appears together with " - - -", indicating that it's your move. Gently press down the piece you want to move and set it on the square you wish to move to by pressing it down again.

The LCD will show your completed move and the symbol "COMP" will show on the LCD. The BELUGA will immediately start computing its counter move.

To make a move for the computer - when the counter move has been computed the BELUGA will show on the LCD its move and also light up the rank and file LEDs that correspond to this move. Also the word "COMP" will be erased. Gently press on the square indicated, lift up this piece and complete the move as if making this move for yourself. Put down the piece on the square indicated and please remove any captured pieces for the BELUGA without applying any pressure on that square.

Note: When the BELUGA is computing ("COMP" will show on the LCD) all key presses will be ignored except for the GO key which will interrupt its calculation and force the current move being analyzed to be played at once.

b) Capturing a Piece

If the BELUGA makes a capturing move it will show on the LCD the symbol "x" and in cases of en passant pawn captures it will also show "EP". Please complete this move for the BELUGA and remove the captured piece without applying any pressure. If you wish to make a capture, make the move normally but please remember to remove the captured piece.

c) Impossible and Illegal Moves

The NOVAG BELUGA is programmed in accordance with the International Chess rules and does not accept nor make illegal moves. Corrections of illegal moves or mistakes in executing computer moves are very simple.

If you try to make an illegal move, you hear 3 beeps and on the LCD display the "ERROR" sign is flashing. Retract your move without pressing on any square. You can now make another legal move.

If you try to move the wrong color piece when executing a computer move, the rank and file LEDs of the correct square will flash at intervals. To execute this move correctly, press gently on the square indicated.

d) Castling

According to the rules, when castling, first move the King and then the Rook. Both pieces are moved by pressing them down gently like in any other move. The computer will indicate the squares that you will need to press.

The NOVAG BELUGA accepts and executes castlings in set-up board positions.

e) En Passant

If you make this special pawn capture you only have to enter the FROM and TO squares of this move as in a normal move. Please remember to remove the captured pawn from the board and to gently press that square. When the BELUGA makes an en passant capture it will show the words "EP" on the LCD.

f) Pawn Promotion / Underpromotion

If one of your pawns reaches the opposite side of the board, the chess computer will allow you to promote or underpromote it to any desired piece.

As soon as this happens, the rank and file LEDs of the square flashes and the word "Pro?" will be shown on the display. You can now choose the pieces you want to promote/underpromote to by pressing the respective Piece Symbol Key. The LEDs will disappear and the computer will start computing its counter move.

If a computer pawn reaches the opposite side of the board, the computer indicates on the LCD display into which piece the pawn will be promoted/underpromoted.

The computer also accepts/executes pawn promotions in set-up board positions.

g) Stalemate / Draw

A stalemate or draw is announced by the word "dSt" on display and at the upper right hand corner the sign "=" will appear. The NOVAG BELUGA can recognize the different draw conditions, as specified by the World Chess Federation.

Some of the draw conditions are:

- Draw due to insufficient material
- 50 moves without a capture or a pawn move
- 3 times repetition of the position

d_in =
d_50 =
d_3 =

b) Check and Checkmate

Check announcements will be shown on the LCD display by a cross sign " + " at the right hand corner. In a checkmate situation the word "MAtc" and a double cross sign " ‡ " together with the losing color will appear on display.

i) Resignation

If the computer figures out that his game is lost, it will resign. On display you will see the word "rESn". If you want to finish the game, you may continue playing.

IV. SPECIAL FUNCTIONS

1. NEW GAME Key

Pressing NEW GAME will start a new game. The previous game is cancelled and in the computer's memory all pieces are now in the opening position.

Press NEW GAME every time you switch the computer on, or whenever you wish to commence a new game. This key is effective even while in the special modes like SET UP, VERIFY and SET LEVEL. The playing level set will be retained.

2. SET LEVEL Key

Your NOVAG BELUGA has 44 levels to adjust its strength to everybody's individual skill of play. Playing strength depends on the amount of time allocated. Check the tables below for a level that suits your playing requirements. The strongest level is the level 8, because computing time is the highest.

To set the computer to any of the 44 levels, press the SET LEVEL key. Each pressing of the SET LEVEL key increases the level by one. A better alternative in setting the playing level is by pressing any square corresponding to the desired level. For example if you wish to set level 12, press SET LEVEL and the square B4. On the LCD display you will see "LE 12", indicating the level which is set up. (Please see the board below for reference).

Once you have set the desired level press GO to enter the computer. You can always check or change the skill level during a game, however not whilst the computer is calculating.

Note: If you start a new game the previously set skill level will be retained, provided you have batteries in your computer or it is connected to the adaptor.

Numbering system for the selection of playing levels on the chessboard.

8	8	16	24	32	40			
7	7	15	23	31	39			
6	6	14	22	30	38			
5	5	13	21	29	37			
4	4	12	20	28	36	44		
3	3	11	19	27	35	43		
2	2	10	18	26	34	42		
1	1	9	17	25	33	41		
	A	B	C	D	E	F	G	H

LEVEL			TABLE		
Level	Moves	Time	Level	Moves	Time
1	60	5 min	23	Game in	90 min
2	60	30 min	24	Game in	120min
3	60	60 min	25	Search only	1 half moves
4	45	90 min	26	Search only	2 half moves
5	40	90 min	27	Search only	3 half moves
6	40	100min	28	Search only	4 half moves
7	40	120min	29	Search only	5 half moves
8	40	150min	30	Search only	6 half moves
9	1	2 sec	31	Search only	7 half moves
10	1	5 sec	32	Search only	8 half moves
11	1	10 sec	33	Search only	9 half moves
12	1	15 sec	34	Search only	10 half moves
13	1	30 sec	35	Search only	11 half moves
14	1	1 min	36	Search only	12 half moves
15	1	2 min	37	Search only	13 half moves
16	1	3 min	38	Search only	14 half moves
17	Game in	3 min	39	Search only	15 half moves
18	Game in	5 min	40	Search only	16 half moves
19	Game in	10 min	41	Search only	17 half moves
20	Game in	15 min	42	Search only	18 half moves
21	Game in	30 min	43	Search only	19 half moves
22	Game in	60 min	44	Search only	20 half moves

Level 1-8: Tournament level.

All moves are pre-set which have to be played within a fixed time, e.g. 40 moves in 120 min.

Level 9-16: Fixed computing time per move.

Level 17-24: Blitz-and play to finish level (sudden death).

Level 25-44: Levels with fixed computing depth. The higher levels are suitable for the analysis of set-up board positions.

3. GO Key

The GO key is used to enter a command or to exit from a Special Function. These functions are explained in their respective paragraphs.

The main functions of the GO key:

- To make the BELUGA compute for the side to move.
- To terminate the move search (only while the BELUGA is computing) and call-off a computer move it currently considers the best. Please allow the BELUGA at least 5 seconds of search time before pressing this key so that it has time to compute a reasonable move. The evaluation of these moves does not correspond with the evaluation of the set-up level.
- To exit from the SET UP mode.
- To exit from the VERIFY mode.
- To exit from the SET LEVEL mode.
- To terminate the AUTOPLAY mode.
- To start the SOLVE MATE search.

It may be of special interest at a certain point during a game, or for learning purposes, to let the computer play against itself. Every time you press GO the computer calculates for the side to move. All moves will be computed according to the set skill level.

4. **RANDOM Key**

Every time you switch the computer on, automatically the move with the highest rating is chosen, based on the depth of the search which is determined by the skill level. However, this may not always provide the desired variety. If you press the RANDOM key you will hear 2 beeps and the word "rAn =" will appear on display. The computer will now choose a move at random out of several ones with high ratings. If you press RANDOM again ("rAn") you exit the RANDOM Mode position and the computer will only choose the best move.

5. **REFEREE Key**

In REFEREE Mode you disable the computing of moves by the computer so you may make moves for white and black, while the computer still checks their legality. This feature may be used to enter particular book openings or to allow 2 players to play on the board.

You may enter into the REFEREE Mode at the beginning or during a game before you make your next move. Press the REFEREE key. (ON = 2 beeps and "Ref =" on display; OFF = 2 beeps and "Re" on display).

Apart from being able to enter moves for both sides, the following features are available: TAKE BACK, CHANGE COLOR, HINT, SET UP, VERIFY, SOUND ON/OFF

You can terminate this mode at any time by pressing REFEREE. Depending which color you wish to play, make your next move or call off one for the computer by pressing GO.

6. **HINT Key**

The NOVAG BELUGA can suggest moves, if you are not sure how to continue your game, which is a great tutoring feature.

When it is your turn press the HINT key and the FROM and TO squares come up on display. You can accept any suggested move or may make a move of your choice even while a hint is being displayed.

7. **TRACE BACK Key**

The BELUGA allows you to take back up to 100 half moves to enable you to rectify any earlier mistakes or to play a different variation. Please note that if you select CHANGE COLOR or SET UP to alter the position of any of the pieces, all prior moves will be deleted and no more TRACE BACKs or TRACE FORWARDs will be allowed of the moves prior to the change of color or position.

Wait until you have executed the computer's move and proceed as follows:

Press TRACE BACK and the rank and file LEDs will show the last move in reverse, e.g. first the TO square and then the FROM square (In addition you will see the move displayed on the LCD). Execute this move as any other ordinary one, e.g. applying pressure on both squares as indicated.

Everytime you press TRACE BACK the computer will reverse the last move. If a captured piece has to be replaced, the Piece Symbol and the square position appear on display. Place the captured piece on that square by applying gently pressure and the display will disappear. When you have taken back right up to the start of the game the LCD will show "BEG". To exit this Mode make your next move or ask for the computer's next move by pressing GO.

8. **COLOR Key**

The computer is generally set to play Black and you White. If you want to play Black in a new game, set up the black pieces on rank 1 and 2 and the white ones on rank 7 and 8, in that case disregard the notations along the chess board.

Now press:

NEW GAME - COLOR - GO. The computer will make its opening move for White from the top of the board, while you have your black pieces in front of you.

To change color during the game use the GO Key or press the COLOR key and the color to move will be reversed. Any moves made prior to pressing the COLOR key will be erased and the game history will begin with this position. To take back moves from this position will not be possible and the LCD will show "BEG".

9) VERIFY Key

This key has a double function:

- a) On the first press you will enter the VERIFY Mode. "VEr" appears on the LCD display.
- b) On the second press you will enter the SET UP Mode. "SEt" appears on the LCD display.
- c) To exit either of these modes press the GO key.

VERIFY Mode:

At any point in a game or after entering a board position you can check the position of any number of pieces. You can also check each square to see if it is occupied and by which piece.

Note: To enter this Mode, wait until it is your turn to move and proceed as follows:

- a) Press VERIFY once, so that "VEr" comes on display.
If necessary change color of the piece(s) to be verified by pressing the COLOR key.
Choose the piece(s) to be verified via the Piece Symbol Key one after the other and as often as needed. The piece symbol and its square position appears on display and the rank and file LEDs of the corresponding square will blink additionally. If there are no pieces or no more pieces (to be verified) on the board the message "no nE" will be displayed.

OR

- b) Press each piece on its square and check the flashing information on display. With the piece symbol and square position on display, the rank and file LEDs of the corresponding square will blink additionally. If the square should be empty, you only see the square position but not the piece symbol and its color on display.
To end this Mode press GO. You can now enter your next move.

10. SET UP Key

This Mode is designed to enable you to set up board positions to solve chess problems or to set handicaps by removing or entering a piece, as well as changing the positions of pieces. In SET UP Mode the computer's legality check as to the movement of pieces is disabled and you can enter, remove or change positions of any piece. However you cannot set up incorrect position, e.g. play without both kings or with more than one king for each color.... etc.

If the position is illegal, the word "Err" comes on display and automatically you will be set back to the VERIFY Mode, so you may correct the mistake.

The computer will accept and execute castlings, pawn promotions and en passant captures if you play from a set up board position.

Note: All previously stored moves are cancelled as soon as you enter the SET UP Mode.

a) Removing a Piece:

If you wish to remove one or more pieces, proceed as follows:

- Press SET UP twice, so that "SEt" comes on display.
- Remove the piece(s) one by one by applying gentle pressure. The Piece Symbol and the position of each square appear on display.
- To end this mode, press GO.
- If necessary change color via the COLOR key, then enter your next move or call off a computer move.

b) Entering a Piece:

If you wish to enter one or more pieces, proceed as follows:

- Press SET UP twice, so the "SEt" comes on display.
- You can change the color of the piece(s) to be entered with the COLOR key.
- Select the piece to be entered via the Piece Symbol Key and the respective Piece Symbol comes on display.
- Enter the piece by gently pressing it on the desired square and the respective rank and file LEDs will flash.

- Subsequent pieces of the same kind and same color can be entered without using any further function keys.
- Only change color or use the Piece Symbol Key if the piece varies from the preceding piece.
- To end this Mode, press GO.

c) Moving a Piece to another Square:

If you wish to change the position of one or more pieces whilst the game is in progress, proceed as follows:

- Press SET UP twice, so the "SEt" comes on display.
- Move the piece(s) by proceeding as you would in a normal move (The rank and file LEDs light up and on display you will see this move).
- To end this Mode, press GO.

11. CLEAR / CLEAR BOARD Key

If you want to set up a board position, it is best to clear the entire chess board before entering the desired position. First remove all pieces from the board and set up your new position without pressing down on any square; then enter this position as follows:

- Press the VERIFY/SET UP key twice.
- Now press CLEAR BOARD to cancel all pieces from the computer's memory (On the LCD display first "CLr" and immediately after "SEt" will appear).
- Now enter your position piece by piece into the computer as described above. (see IV.10. b).
- To end this Mode, press GO.
- The color to move can be changed via the COLOR key.

12. RESTORE Key

This function of the NOVAG BELUGA restores the board position to the starting position. It can be very helpful to you, if you are in a set up board position to have a specific problem solved. If you wish to have the same board position analysed on a higher skill level, press the RESTORE key and the board position is set back to the beginning.

On display "BEG" comes up. To continue from the starting position, press GO or AUTOPLAY (see IV.18) and the computer makes its calculations which are shown on display.

13. TRACE FORWARD Key

This key is mainly used for tracing forward all the moves of a game after the RESTORE mode has been activated and to reset the board position back to the start of the current game in memory. Every press of the TRACE FORWARD key will replay a move of the current game. When all moves in memory have been replayed the display will show "END".

Execute each move as you would do for any ordinary move by pressing all the squares indicated by the corresponding rank and file LEDs. Captured pieces must be removed from the board without applying pressure. (For en passant captures and pawn promotions/underpromotions see III. e, f)

14. SOUND Key

The different acoustic signals and beeps can be switched on and off with the SOUND key. (ON = 2 beeps and "Snd =" is displayed / OFF = 2 beeps and "Snd" is displayed). You will always hear 2 beeps when the computer has finished the computing of its counter move. That sound cannot be switched off.

15. SOLVE MATE Key

The NOVAG BELUGA can solve most chess problems as well as mate problems up to Mate-in-9 even those that require castlings, en passant captures or pawn promotions/underpromotions. Press NEW GAME and set up the required board position as described under IV.10.

To start the mate search make sure that the color to move is correct, if not change this by pressing the COLOR key.

The depth of the mate search is set with the SOLVE MATE key and is indicated on display. For example: "n 5" indicates a mate-in-5. Every pressing of the SOLVE MATE key increases the mate search by one move. (You may also use the alternate method of pressing any square corresponding to the mate level.) To finish, press GO and the computer begins with the mate search. If there is no solution, you will see "no nE" on the LCD.

16. EASY Key

The NOVAG BELUGA always uses the opponent's time to compute its best response, since it has predicted your move and completed the assessment of your move. To disable this advantage you may use the EASY key. When this mode is activated you will see the message "ESy =" on the LCD display and if turned off you will see "ESy".

17. INFO Key

With this key you can call off a series of interesting game information. The various displays change every time you press the key again.

a) The first key press-

Shows the evaluation of the current position adjusted to the numbers of pawns advantage or disadvantage. The LCD display shows "SCr" and after approx. 1 second the evaluation, for example "0 05" which means a pawns advantage of 0,05 for the side to move. (Pawns disadvantage are indicated by a "-" sign in front of the evaluation).

b) The second key press-

Shows the total time used by White. The LCD display shows "to t" and then the time in minutes and seconds, for example "08:13".

3) The third key press-

Shows the total time used by Black. (see format as above).

4) The forth key press-

Shows the number of moves made so far. The display shows "CN r" then after 1 second the number of moves made so far.

Note: Press the CLEAR key if you wish to clear the LCD display. Now you can make your next move or obtain the computer's move by pressing GO.

18. AUTOPLAY Key

The NOVAG BELUGA may be set to play against itself offering the possibility to watch an interesting game or to analyze a problem position overnight. This mode will use the current level setting and if you wish to change levels you may do so before activating AUTOPLAY.

To set your BELUGA to autoplay mode, press the SET LEVEL key first and then the key marked AUTOPLAY. This will immediately start the BELUGA computing, all moves and game informations will be indicated via the rank and file LEDs and the LCD display.

You do not need to press any squares at all nor do you need to follow the game in progress. At any time you may stop AUTOPLAY and use RESTORE (see VI. 12), or TRACE BACK (see IV. 7) and TRACE FORWARD (see IV. 13).

Press SET LEVEL - AUTOPLAY:

This immediately starts the NOVAG BELUGA playing against itself at the current level setting. All moves are executed automatically by the computer and you may keep track of the game by making the moves on the board according to the blinking rank and file LEDs and the LCD display.

Note: You do NOT need to press any square at all.

This feature is useful and educational and provides the best instructional aid to a beginner. To exit this Mode, press GO. The move currently being computed will be executed before the computer exits this Mode.

19. NEXT BEST Key

It may be of interest to you to know which move in a given position is the next best choice with its evaluation equal to or just less than the move played by the BELUGA.

- a) To activate this function press SET LEVEL then NEXT BEST. The LCD display will show "Al t" and the previous made move will be shown in reverse order on the LCD and via the corresponding rank and file LEDs. Please execute this TRACE BACK for the BELUGA and remember to replace any captured pieces. The moment that you have completed this TRACE BACK the BELUGA will immediately compute the best alternative move in the current position and if there is none then the same move will be played.
- b) NEXT BEST MODE for solve mate problems:
If there are more possibilities to solve the mate problem you can ask the NOVAG BELUGA to find a second solution to solve the mate problems. Execute first the move you wish, to get a second evaluation and then press SET LEVEL - NEXT BEST. Please execute the following as explained under a).

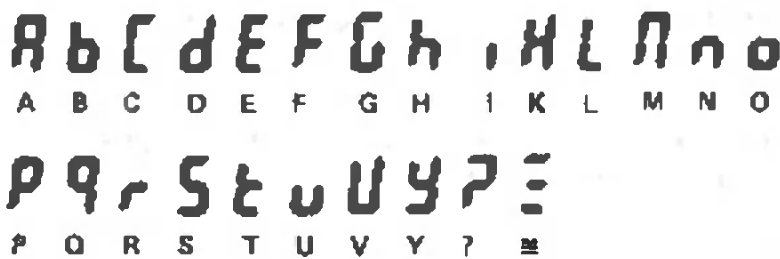
V. EXAMPLES OF THE DISPLAY

The LCD display for the NOVAG BELUGA has a four character alphanumeric display. The listed symbols below are used on the display:

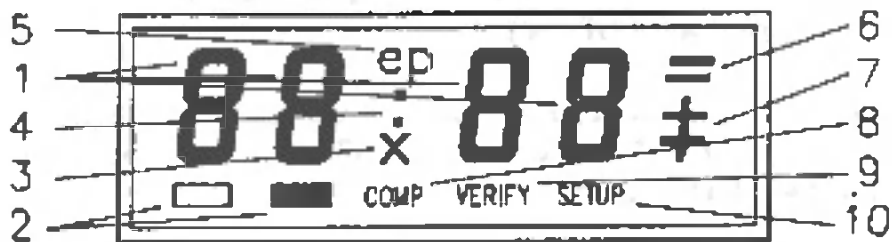
1. Figures



2. Letters and symbols



THE DISPLAY



- | | |
|--------------------------------------|-------------------------------------|
| 1 = 4 character alphanumeric display | 6 = Symbol for Stalemate / Draw |
| 2 = Indication for the color | 7 = Symbol for Check / Checkmate |
| 3 = Symbol for captured figures | 8 = The computer is computing |
| 4 = Separation for time indication | 9 = Symbol for the VERIFY-Function |
| 5 = Symbol for En Passant | 10 = Symbol for the SET UP-Function |

Symbols for the chess pieces on the display:

K	King
Q	Queen
b	Bishop
n	Knight
r	Rook
p	Pawn

EXAMPLES OF THE DISPLAY:

The following are examples of the most important displays of the BELUGA.

This display indicates that the BELUGA is ready and its your move.

Display after input of the first half move, the location where you wish to move FROM.

Display after input of the destination square that you wish to play TO.

Display of the computer's counter-move.

INFO-Display: Shows the total time used so far for Black, while the computer is computing.

INFO-Display: The computer's counter move.

INFO-Display: The computer expects this move after the previous b8 c6.

INFO-Display: On c1 e3 this would be the computer's reply.

INFO-Display: Score for Black currently being computed.

INFO-Display: Number of half moves the BELUGA has searched so far.

INFO-Display: Out of 43 variations there are still 39 to compute.

The computer shows that its set on level 4.

INFO-Display: The display for the scoring is selected and will appear after 1 second.

INFO-Display: Move evaluation for White, which is presently making its move.

INFO-Display: Shows that the total time for White is selected and will appear after 1 second on the display.

INFO-Display: Shows the total time used so far by White.

INFO-Display: Shows that the total time for Black is selected and will appear after 1 second on the display.

INFO-Display: Shows the total time used so far for Black.

[n t

INFO-Display: The display for the number of moves is selected and will appear after 1 second.

12

INFO-Display: Shows the total number of moves made so far.

[5 x d4

The piece on square d4 gets captured during Black's moves c5 x d4.

E r r

Any illegal move will be indicated by the ERROR sign.

r E 5 n

The computer resigns.

d 5 t =

Shows the announcement for a draw, due to insufficient material.

d 3 =

Shows a draw with 3 time move repetition.

d 50 =

Shows a draw according to 50th move-rule.

n R t E +

The announcement of a checkmate.

U E c

The VERIFY-Function to verify the board position is selected.

5 E t

The SET UP-Function when selected, enters, removes or moves a piece to another square.

[L r

The use of the CLEAR BOARD Key is confirmed.

r 8

A black rook is set up on square a8 by using the SET UP-Function.

n 4

A mate-in-4 is entered by using the solve MATE-Function.

R u t =

The AUTOPLAY-Function is on (the 3 dashes means "on").

r E F =

The referee function is activated by pressing the REFREE-Key.

5 n d

The SOUND is switched off.

r R n =

The RANDOM-Function is activated.

E 5 y =

The EASY-Mode is activated.

P r o ?

The computer asks into which piece your pawn will be promoted / underpromoted.



Shows that the game is set back to the beginning of the game by activating the RESTORE-Key.



The last move of the game has been made, there are no other moves stored in the memory.

VI. APPENDIX

A. Care of the NOVAG chess computer:

Dirt or dust can be removed with a soft cloth. Do not use any chemical solvents or water on the set. Any damage caused by their use invalidates the warranty.

Always keep the computer in a dry and cool place (normal room temperature). Avoid exposing the computer to heat, e.g. spot lights, radiators, sunshine etc. as this may lead to permanent damage caused by overheating, which is not covered by the warranty.

WARRANTY: For details please refer to the enclosed Warranty Card.

B. Trouble Shooting List:

The NOVAG chess computers are all extensively tested before leaving the factory to ensure troublefree operation. If you encounter any problems during play, please check the following trouble shooting list:

1. Your computer does not work:

If your computer does not work at all, the problem can be the power supply, the batteries or the adaptor.

- If you are playing with batteries replace them with new ones. We only recommend the use of alkaline or heavy duty batteries. Do not use regular batteries as they will result in irregular performance! Make sure that batteries are inserted correctly according to the +/- signs.
- If you are playing with an adaptor, check if you are using the specified NOVAG adaptor (Art. No. 8210). Any damage caused by the use of another adaptor invalidates the warranty.
- Check if the adaptor plug sits properly in the socket. If not, this can result in interrupted power supply to the computer.
- Check if the voltage of your electric output is within the range specified on the adaptor label as recommended under GENERAL HINTS. A voltage fluctuation of more than 10% will cause the computer to malfunction.
- Connect the adaptor to another power outlet in your house, as the outlet you are using could be defective.
- If none of the above remedies the situation, check if your computer plays correctly on batteries. If yes, there is something wrong with your adaptor. Send it in for service (no need to send the computer as well) or buy a new one.

2. The blinking frequency of the LEDs is slower:

The power of the batteries is not sufficient. Change the batteries.

3. All LEDs light up when you switch on the computer and it is blocked:

- Switch the computer slowly on and off several times.
- If you still can not get the computer to work, check the power supply carefully or use the RESET SWITCH on the underside of the computer. To reset the chess computer is easily done:
 - a) Switch off the chess computer and turn it on its back.
 - b) On the right edge of the label a hole is located with the name ACL above it.
 - c) Use a thin instrument (ball pen) to poke into this hole and hold it for 5 seconds.
 - d) The memory has been reset and you may continue normally.

If none of the above helps, please contact the service centre.

4. One of the LEDs does not light up:

GO into the VERIFY Mode and check all rank and file LEDs by pressing on square A1-H1. If the particular LED does not light up, you have to send your computer in for service.

5. One square does not register a move:
Go into VERIFY Mode and check the square. Depending whether it is occupied or not, you should get a positive or negative response. If you get any type of response the square is in working order and you may have entered something irregular. If, after several attempts, there is no response on that particular square, you will have to send the computer in for service.

C. Technical Data:

Program Size	16K Byte ROM (Read only memory) 2K Byte RAM (Random access memory)
Power Supply	9V DC (direct current)
Power Consumption	28 mA minimum 40 mA maximum
Batteries	6 x 1,5V UM-3 type alkaline batteries
Battery Playing Life	150 hours
Adaptor	9V DC rating 250 mA (Art. No. 8210)
System Clock Speed	16 MHz
Opening Book	ca. 3000 half moves
Playing Levels	44
Game Memory	Game kept on power off and will keep while the batteries last.
Take Back Moves	100 half moves
Solves Mate	up to mate-in -9
Mate Announcement	up to mate-in-7
Depth Search	up to 14 half moves
Super Slim Board	234 x 284 x 27mm

All data subject to change without notice.