

NOVAG[®]
EMERALD CLASSIC

INSTRUCTION

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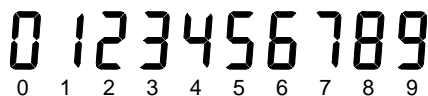
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LCD DISPLAY OF THE NOVAG EMERALD CLASSIC

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

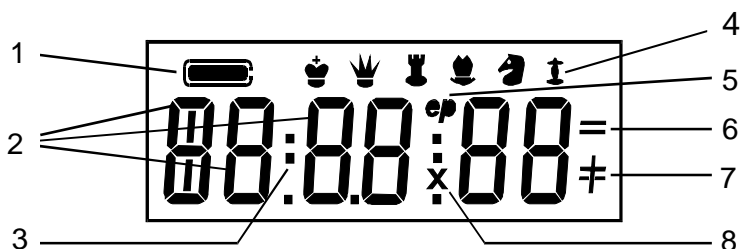
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THE DISPLAY



- | | |
|---------------------------------------|-------------------------------------|
| 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

-  Pawn
-  Knight
-  Bishop
-  Rook
-  Queen
-  King

Note: All LCD displays showing 3 bars "≡" indicate that a function is ON or the function is now at value 3.

I. GENERAL HINTS

Playing with the NOVAG EMERALD CLASSIC 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 EMERALD CLASSIC runs on six 1,5V UM 2-type, R14 or size 'C' **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 backside of the unit and place the batteries as indicated by the +/- signs. A set of new alkaline batteries runs approx. 250 hours. (continuous operation). If you don't use your computer over a long period of time, please remove the batteries.

ADAPTOR

The adaptor for the EMERALD CLASSIC 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.

Note: Make sure you first connect the adaptor with the computer before you plug it into the mains.

MEMORY

The EMERALD CLASSIC 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 INSTRUCTIONS

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 is at the backside of the cabinet. It is marked ON/OFF. Push this switch towards ON (towards the power socket). This switch operates both adaptor and batteries. If you use an adaptor, the batteries will automatically be disabled.
3. Press NEW GAME. You will hear 3 beeps and the LCD will show " -- -- " with the white bar. You can now make your opening move for White.

4. If you want to increase the level of skill, press the SET LEVEL key and the square corresponding to the desired level (**a1**, **a2**, **a3**, up to **f8**). On the LCD display you will see a number indicating the present level set. (See IV. 2. for level setting and their time controls).
5. Once you have set the level, press GO to exit the SET LEVEL mode. After this procedure you may enter your move as White. Gently press down on the piece that you want to move and the two respective rank and file LEDs will light up. Then set the piece down onto the square you wish to move to and gently press down again. (Your completed move will be shown on the LCD). Once the EMERALD CLASSIC has registered your move it will immediately start computing its counter move.

III. GAME FEATURES

a) Making a Move

The NOVAG EMERALD CLASSIC 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 on the chess board is named according to the standard adopted by the World Chess Federation (F.I.D.E.) which are the coordinates of each square from **a1** to **h8**, all moves are also shown on the LCD.

If you do not see the world COMP on the LCD and there are no LEDs lit on the chessboard then it must be your turn to move. 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 make a move, gently press on the piece that you wish to move (thereby pressing on the square that it stands on) and you will see the rank and file LEDs corresponding to this square light up. To complete your move please lift that piece and place it on the square that you wish to move it to and gently press down on that square. The LCD will show your completed move and the symbol COMP will show on the LCD. The EMERALD CLASSIC will immediately start computing its counter-move.

To make a move for the computer when the counter-move has been computed, your computer 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 computer without applying any pressure on that square.

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

b) Capturing a Piece

If the EMERALD CLASSIC 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 NOVAG EMERALD CLASSIC 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 EMERALD CLASSIC 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 you will see the "Er r" sign. Retract your move without pressing on any square. You can now make another legal move.
- If you try to move the wrong piece when executing a computer move, you hear 3 beeps and the rank and file LEDs of the correct square will light up. To execute this move correctly, press gently on the square indicated.

d) Castling

According to the rules, a castling move is first made with the King then with the Rook. The computer will indicate all the squares that you will need to press. The computer 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 computer makes an en passant capture it will show the words "ep" along with an "x" on the LCD.



Official Rules of Chess:

A pawn attacking a square crossed by an enemy pawn which has been advanced two squares in one move from its original square may capture this enemy pawn as though the latter had been moved only one square. This capture may be made only on the move immediately following such an advance and is called capturing "en passant".

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 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 and Draw

- The computer announces a Stalemate by the word "d St" on display. The EMERALD CLASSIC recognizes the following special draw conditions as stated by the World Chess Federation:

- Draw due to insufficient material is announced by the word "d in" on display.
- 50 moves without a capture or a pawn moves is displayed with "d 50".
- And 3 times repetition of position is displayed with "d 3r".

h) Check and Checkmate

Check announcements will be shown as a "+" sign on the right corner of the LCD display. If this check is the last check of the game i.e. checkmate, "MATE" will appear on the display along with the last move of the game and the winning color.

i) Mate Announcement

The EMERALD CLASSIC will always announce mate if it sees it and will show the numbers of moves to mate on the LCD. (example "n 4" , means mate-in-4).

j) Resignation

If the computer believes its position is hopeless, it will announce "rE Sn" for resign. If you wish you may finish the game, however note, the computer will only once announce its resignation.

Note: If either side's time runs out, the LCD display will flash "FLAG". You may continue the game by entering the next move.

IV. SPECIAL FUNCTIONS

1) NEW GAME Key

Pressing NEW GAME will reset the computer's chessboard to the starting position. This key is effective even while in the special modes like SET UP, VERIFY and SET LEVEL.

Press NEW GAME every time you switch the computer on, or whenever you wish to commence a new game.

Note: The SET LEVEL, RANDOM and SOUND values will be retained.

2) SET LEVEL Key

Your NOVAG EMERALD CLASSIC has 56 different levels of skill (including Solve Mate Levels) to suit every type of playing conditions that you wish to set. These are divided into 7 sections (plus section SOLVE MATE) and they are listed below.

To set the computer to any of the 56 levels press the SET LEVEL key. Each further press will advance to the next level group and you will see on the LCD the abbreviation (**tr** = **Tournament level**, **At** = **Average Time level**, **Sd** = **Sudden Death level**, **Fd** = **Fixed Depth level**, **An** = **Analysis level**, **EA** = **Novice level**, **in-x** = **Solve Mate level**) of the level that you have selected. Please refer to the level table for the meaning of each of the 56 levels. To set the required level of each level group press the corresponding square on the "a" through "g" columns.

A better alternative in setting the playing level is by pressing the square corresponding to the desired level (a1, a2, a3 etc up to f8). To exit this mode press GO.

Note: Column "g" represents the last group (mate-in-x, see section IV. 3. for full details).

Example: If you wish to set level 12, press the SET LEVEL key and the square B4. The corresponding LEDs will light up and on the LCD display you will see "At 4" indicating the level which is set up. Once you have set the desired level press GO to exit this mode.

You can always check or change the skill level during a game, however not whilst the computer is calculating. Changing level resets the clocks.

Note: If you switch the computer off to continue your game at a later time or if you start a new game, the previously set skill level will be retained.

Numbering system for the selection of playing levels on the chessboard

8	8	16	24	32	40	48	IN-8	
7	7	15	23	31	39	47	IN-7	
6	6	14	22	30	38	46	IN-6	
5	5	13	21	29	37	45	IN-5	
4	4	12	20	28	36	44	IN-4	
3	3	11	19	27	35	43	IN-3	
2	2	10	18	26	34	42	IN-2	
1	1	9	17	25	33	41	IN-1	
	A	B	C	D	E	F	G	H

Description of level time controls:

- Tournament Level TR 1 - TR 8 : (Level 1 - 8)**
 For tournament time controls. All moves are pre-set which have to be played within a fixed time, e.g. 40 moves in 120 min. (level 8 is the strongest). If you or the computer exceeds the specified time control, the game will be declared lost.
- Average Time Level AT 1 - AT 8 : (Level 9 - 16)**
 The computer will only use the time selected.
- Sudden Death Level SD 1 - SD 8 : (Level 17 - 24)**
 For play to the finish. The computer has to finish its game within a given time. If you or the computer exceed the specified time control, the game will be declared lost (clocks count down to zero and 3 beeps to warn you if you overstep). If you wish you can continue to play and finish the game. On the LCD display the total time used will be shown and will count continuously.
- Fixed Depth Level FD 1 - FD 8 : (Level 25 - 32)**
 Important for analysis purpose. The computer will only compute up to the depth selected.
- Analysis Level AN 1 - AN 8 : (Level 33 - 40)**
 These levels provide deeper searches for more difficult problems.
- Novice Level EA 1 - EA 8 : (Level 41 - 48)**
 Here the computer will not compute on opponents time, therefore its play is weaker. The computer limits its mate search up to the specified number of halfmoves.

LEVEL TABLE

Level	Description			Level	Description						
TR	1	(1)	40 moves in	5	min.	FD	1	(25)	search only	1	half move
	2	(2)	40 moves in	15	min.		2	(26)	search only	2	half moves
	3	(3)	40 moves in	30	min.		3	(27)	search only	3	half moves
	4	(4)	40 moves in	60	min.		4	(28)	search only	4	half moves
	5	(5)	40 moves in	90	min.		5	(29)	search only	5	half moves
	6	(6)	40 moves in	100	min.		6	(30)	search only	6	half moves
	7	(7)	40 moves in	120	min.		7	(31)	search only	7	half moves
	8	(8)	40 moves in	150	min.		8	(32)	search only	8	half moves
AT	1	(9)	2 sec.	per move		AN	1	(33)	search only	9	half moves
	2	(10)	5 sec.	per move			2	(34)	search only	10	half moves
	3	(11)	10 sec.	per move			3	(35)	search only	11	half moves
	4	(12)	15 sec.	per move			4	(36)	search only	12	half moves
	5	(13)	30 sec.	per move			5	(37)	search only	13	half moves
	6	(14)	1 min.	per move			6	(38)	search only	14	half moves
	7	(15)	2 min.	per move			7	(39)	search only	15	half moves
	8	(16)	3 min.	per move			8	(40)	search only	16	half moves
SD	1	(17)	game in	3	min.	EA	1	(41)	restricted	3	ply search
	2	(18)	game in	5	min.		2	(42)	restricted	4	ply search
	3	(19)	game in	10	min.		3	(43)	restricted	5	ply search
	4	(20)	game in	15	min.		4	(44)	restricted	6	ply search
	5	(21)	game in	30	min.		5	(45)	restricted	7	ply search
	6	(22)	game in	60	min.		6	(46)	restricted	8	ply search
	7	(23)	game in	90	min.		7	(47)	restricted	9	ply search
	8	(24)	game in	120	min.		8	(48)	restricted	10	ply search

3) SOLVE MATE FUNCTION (use key marked SET LEVEL)

The NOVAG EMERALD CLASSIC can solve most chess problems as well as mate problems up to Mate-in-8 even those that require castlings, en passant captures or pawn promotion / underpromotions. Press NEW GAME and set up the required board position. Before you start the mate search, it is advisable to verify the set-up board position via the VERIFY key and make sure that the color to move is correct, if not change this by pressing the COLOR key.

To set the depth of mate search press the SET LEVEL key until the correct indication "in 1" shows on the display. Select now the number of moves to mate by pressing any of the squares G1 to G8.

Press GO once to exit the setting of the mate search and then press GO a second time and the computer begins with the mate search.

If there is no solution you will see "no nE" on display. Whilst the computer is searching it will show the main variations that it is presently considering and will rotate a variety of information on the LCD display in the following order:

- a) Time used up so far (example : " 01 : 35 ")
- b) First move of main line (example : " G5 G4 ", display of the most anticipated next move for Black).
- c) Second move of main line (example : " F3 H4 ", display of the thereafter expected counter-move for White).
- d) Third move of main line (example : " D6 D5 ", display of the anticipated counter-move for Black).
- e) Evaluation of the position = score from computer's point of view. (example : " 0 21 ", means + 0.21 pawns up).
- f) Depth of search (d 6 means now searching 6 half moves).
- g) Iterations not completed (29 30 means 29 out of 30 still to be calculated).
- h) If there is no solution you will see "no nE" on display.

4) GO Key

The GO key is used to enter a command or to exit from the following special functions:

SET UP / VERIFY / SET LEVEL / AUTOPLAY or DEMO / SOLVE MATE. These functions are explained in their respective paragraphs.

Furthermore the GO key is used:

- To make the EMERALD CLASSIC compute for the side to move, even if in REFEREE mode.
- To interrupt the computing time and call-off a computer move instantly. The computer will make the move it currently considers the best. Please allow at least 5 seconds of search time before pressing this key in order to let the computer calculate a reasonable move. The evaluations of these moves do not correspond with the evaluation of the set-up level.
- To change sides during a game. Wait until it is your turn to move then press GO. The computer will now compute a move for your color, and you will play the other color from now on.
- To let the computer play against itself, which might be of special interest at a certain point during the game or for learning purposes. Every time you press GO the computer calculates for the side to move. All moves will be computed according to the set skill levels.
- To accept a HINT. If a hint is shown on display, pressing GO accepts the hint as though keyed in.

5) 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. This is always the case after the opening is finished. However, this may not always provide the desired variety.

If you press the RANDOM key you can choose various levels of randomness (**rAn / r An - / rAn = / rAn ≡**) Level "rAn" is the least random. The computer will select a move at random from a list of possible moves which are similar in their evaluation.

6) REFEREE Key

In this 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 challenge each other.

You may enter into this mode at the beginning or during a game before you make your next move. Press the REFEREE key and the LCD will show "**rEF ≡**" if REFEREE mode is on and just "**rEF**" when it is off. Press REFEREE while displayed to change the current status. The following features are still available whilst in this mode:

TAKE BACK / COLOR / HINT / SET UP / VERIFY / SOUND / GO.

7) HINT Key

The EMERALD CLASSIC 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 computer will show the move it considers the best for the color to move (the move will be shown on display). You can accept any suggested move or may make a move of your choice even whilst a HINT is being displayed. If you accept the suggested move simply press GO and the computer will immediately reply with its counter-move.

If you press the HINT key whilst the computer is calculating, the display will show the move the computer would play if the GO key was pressed. Press CLEAR to clear the LCD display and go back to the rotating info display.

The suggested move is the best possible move in this position computed by the computer at the level preset by you.

8) TRAINING Key

This function is to help the novice player:

Step One :

When it is your turn to move press the TRAINING key and the computer will show the "from" square (indicated by the lit up LEDs and on the LCD) of the first piece with a legal move.

If you continue to press the TRAINING key, the EMERALD CLASSIC will show you all pieces with at least one legal move. You may cycle through this step as often as you wish.

Step Two :

Once you have selected a piece, press GO to have this square accepted as though keyed in. If a "from" square has been entered then each press of the TRAINING key will show now each legal "to" square by this piece.

Step Three :

If you accept the move as displayed, press the CLEAR key to clear the display and then key in this move. The computer will then make its counter-move.

If you wish to make a move other than displayed clear first the display by pressing the CLEAR key and then execute the move of your choice.

Should you wish to go back to Step One, use the CLEAR key to reset the LCD display and then press the TRAINING key to go to Step One.

9) TAKE BACK Key

The EMERALD CLASSIC allows you to take back 140 halfmoves to enable you to rectify an earlier mistake or to play a different strategy.

Wait until it is your turn to move. Press the TAKE BACK key and the move is shown on display and the LEDs of the "to" square are on. Execute this move as any other ordinary one, i.e. by applying pressure on both squares as indicated.

Every time you press TAKE BACK the computer will reverse the last move. If a captured piece has to be replaced, the rank and file LEDs of that square light up and the piece type and square is also shown on the LCD. Place the captured piece on that square by applying gently pressure and the LEDs will disappear. To exit this mode make your next move or ask for the computer's next move by pressing the GO key.

Note: If you select the CHANGE COLOR or SET UP function to alter the position of any of the pieces, all prior moves will be deleted and you may not TAKE BACK moves before the change of color or position. If no moves are in the game history the LCD will show "b EG".

10) TRACE FORWARD Key

This key is mainly used for tracing forward all moves after using the TAKE BACK or RESTORE function. Every press of this key will replay a move of the current game until all moves in memory have been replayed. This is indicated by the word "En d" on the LCD.

11) CHANGE 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 key - CHANGE COLOR key - GO key

The computer will make its opening move for White from the top of the board, and you will have your Black pieces in front of you.

The CHANGE COLOR key can be pressed at any time during a game and the color to move will be reversed. Any moves made prior to pressing this key will be erased and the game history will begin with this position.

If you are in the SET UP mode, you can choose the color to move first via the CHANGE COLOR key (see section IV.14.).

Should you wish to take over the computer's game simply press the GO key. The computer will now compute a move for your color, and you will play the other color from now on.

12) CLEAR Key

This key has several uses:

- In Set Up mode this key clears the board of all the pieces.
- If there are messages on the LCD display like "**RA**n ≡", "**ES**y ≡" etc. you can clear them by pressing this key.
- If you start entering a move and wish to cancel it you may press this key to clear the LCD display and start over again.

13) VERIFY Key

This key has a double function:

- a) On the first press you will enter the VERIFY mode and the LCD will show "**VE**r".
- b) On the second press you will enter the SET UP mode and the LCD will show "**SE**t".
- c) To exit either of these modes press the GO key.

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. In this mode there are two ways to verify the position of pieces.

- Choose the piece(s) to be verified via the **Piece Symbol Keys** 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 light up accordingly.

If there are no pieces or no more pieces (to be verified) on the board the display will just show the symbol of the piece and the right side of the LCD will be blank.

- Press any square and check the information on display. If the square is occupied, the piece symbol, the correct color sign and the corresponding square position will appear on the LCD.

If the square is not occupied, you only see the square position but not the piece symbol and its color on display.

You may exit this mode any time by pressing the GO key. Enter now your next move or call off a move for the computer.

14) 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 an incorrect position, e.g. play without both kings or with more than one king for each color. . . . etc.

If you exit the SET UP mode with an illegal position, you will hear three beeps and the "Err" sign will be on display. Use the VERIFY mode to see what is illegal about the position.

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

Note: All previous stated moves are canceled as soon as you enter the SET UP mode.

To enter this mode press the SET UP / VERIFY key twice or if you are already in the VERIFY mode once. You will see the word "SE t" on display.

To exit this mode press the GO key or change to the VERIFY mode.

a. Removing a piece :

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

- Press the SET UP key twice, so that "SE t" 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 CHANGE 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 the SET UP key twice, so the "SE t" comes on display.
- You can change the color of the piece(s) to be entered with the CHANGE 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 light up.
- 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 the SET UP key twice, so the "SE t" 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.

d. Clear the entire board:

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 SET UP key twice, so the "SE t" comes on display.
- Now press CLEAR key to cancel all pieces from the computer's memory (on the LCD display first "CL r" and immediately after "SE t" will appear).
- Now enter your position piece by piece into the computer as described above.
- To end this mode, press Go.
- The color to move can be changed via the CHANGE COLOR key.

Note: After having left the SET UP mode if a change of color is required, press the CHANGE COLOR key. You may now enter a move for the indicated color or make the computer move by pressing the GO key.

15) RESTORE Key

This function of the NOVAG EMERALD CLASSIC allows you to restore the board position to the very beginning of the game. The computer can store 140 halfmoves in its memory which normally will allow you to go back to the new game position. If however the game was started from a Set Up position or if more than 140 halfmoves have been played the game will not be at the new game position. After pressing the RESTORE key the display will show "**b EG**" and then " -- -- " to indicate the beginning of the game history.

Note: You may use the complementary function key TRACE FORWARD to replay through the entire game.

Should you enter a move for your color you will erase all of the game history and the computer will treat this as a new game.

16) SOUND KEY

The NOVAG EMERALD CLASSIC has four different sound settings, which will be indicated on the LCD display.

Setting 1 (**Snd**) : There will be no acoustic signals at all.

Setting 2 (**Snd** -) : There will be an acoustic signal only when the computer answers with its counter-move.

Setting 3 (**Snd** =) : here will be an acoustic signal when pressing any key and when the computer or you make a move.

Setting 4 (**Snd** ≡) : The same sound setting as mentioned under c) and in addition you will hear a double beep and the LEDs and LCD will flash the square position of the piece which is threaten by the computer.

Note: Press the SOUND key to select the required sound setting. To exit this mode make a move or press GO to call off a computer move.

17) AUTOPLAY Key

Your computer may be set to play against itself and you may want to do this to watch an interesting game or to analyse a problem position overnight.

Press the SET LEVEL key and select the level of skill. Press now the AUTOPLAY key and select the required setting (display shows "**Aut**", "**dEn**" or "**LE**"). To start any of the selected settings press the GO key. This immediately starts the EMERALD CLASSIC playing against itself at the current level setting. All moves are executed automatically by the computer and shown on the LCD display. You may keep track of the game by making the moves on the board.

Setting "**Aut**" = autoplay on : will allow the computer to play against itself until the end of the game (1 game only).

Setting "**d En**" = demo on : will allow the computer to play against itself continuously (at the end of a game the computer will restart with another game).

Setting "**LE**" : means autoplay and demo mode are off.

Note: To exit this mode whilst the computer is still executing opening moves, press the NEW GAME key but please bear in mind that this will cancel the current game.

Once the game is more advanced (out of the opening book) you can press the GO key to exit the AUTOPLAY mode. The move currently being computed will be executed before the computer exits this mode.

If you want to learn more about chess, we suggest to call off single moves for each side via the GO key, which gives you more time to study each move.

18) INFO Key

This key provides information on the current game as it progresses and has a rotational display to show many messages.

- First press on the INFO key shows the time of the side to move, (on display you will see the message "**tot**" for 1 second and the color symbol of the side whose clock is being shown).
- Second press on the INFO key shows the time of the side not to move, (format as above).
- Third press on the INFO key shows the evaluation of the current position adjusted to the number of pawns advantage or minus so many pawns disadvantage.
The LCD shows "**Sc r**" and then some figures like "**o 41**" which means almost half a pawn advantage to the side to move. Disadvantageous evaluations are marked with a " - " sign. For example if the computer sees it is going to be mated then the score could be "**- n 03**"
- Fourth press on the INFO key will show the number of moves made so far. (The display will show "**cn t**" and the color symbol and after 1 sec. the number of moves made so far).

Note: Use the CLEAR key to clear the INFO display. When the computer is thinking the display will show either the rotating display or one of the above INFO displays. To get back to the rotating display press the CLEAR key again.

Once the computer has finished its computing, the INFO display will disappear and the display will show the computer's next move.

The rotating displays are:

- The time spent on the current search.
- The first 3 ply of the best line found so far.
- The score displayed as above.
- The current depth of search.
- The number of legal moves in current position still needed to search out of total number of legal moves.

Note: Each display stays for 2 seconds.

19) EASY Key

The NOVAG EMERALD CLASSIC always uses the opponent's time to compute its best response which is quite an advantage as it will sometimes reply instantly (even if the move appears difficult) since it has predicted your move and completed its assessment of your move. To disable this advantage please use the EASY key. When this mode is activated you will see the message "**ESy ≡**" on the LCD and if turned off you will see "**ESy**". This key acts as a toggle with alternate key presses turning it ON and OFF.

20) 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 or just less than the move just played by the computer.

To activate this function press SET LEVEL then NEXT BEST. The LCD display will show "**Alt**" 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 TAKE BACK for your chess computer and remember to replace any captured pieces. The moment that you have completed this TAKE BACK the computer will immediately compute the best alternative move in the current position and if there is none then the same move will be played.

- NEXT BEST MODE to solve mate problems:
If there are more possibilities to solve a mate problem you can ask the computer to find a second solution. Execute first the move you wish to move and then press SET LEVEL - NEXT BEST. Now please take back the first suggested move and your chess computer will start to compute the next best move.

V. 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

All NOVAG chess computers are extensively tested before leaving the factory to ensure trouble free operation. However if you encounter problems when using the EMERALD CLASSIC please refer to the list below before sending the unit back to your dealer.

1. The computer does not work and the LCD is blank. Please check if your batteries have sufficient charge, always use heavy duty or **alkaline batteries** for reliable performance.
2. The letters on the LCD display are faint and get dimmer as you use your chess computer. The batteries are run down, please change them.
3. The chess computer keeps returning error messages ("**Er r**") on entering moves. Please check that your position is correct using the VERIFY function (see section IV. 13). Or if the computer is requesting you to enter a pawn promotion please press one of the Piece Symbol keys.
4. The EMERALD CLASSIC locks up and will not respond to any keypress or all LEDs light up and the computer is completely blocked. Please reset the computer by following these instructions:
 - Switch off the chess computer, turn it on its back and locate a hole marked RESET.
 - Use a thin instrument (ball pen) to poke into this hole and hold it for 5-10 seconds.
 - The memory has been reset and you may continue using your NOVAG EMERALD CLASSIC normally.
5. The blinking of the LEDs is slower:
The power of the batteries is insufficient, please change the batteries.
6. One of the LEDs does not light up:
Go into the VERIFY mode and check all the rank and file LEDs by pressing on every square. If that particular LED still does not light up, you have to send your computer in for service.
7. One of the squares 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 response. If you get any type of response the square is in working order, 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.

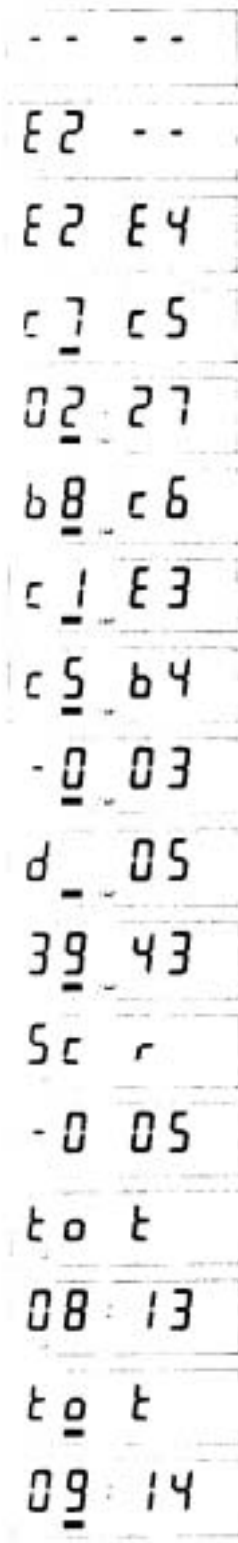
C. Technical Data and Features

• Programme Size	32K Byte ROM (Read-Only-Memory)
• 1K Byte RAM (Random-Access- Memory)	
• System Clock Speed	26.6 MHz
• RISC Style Processor	
• Power Supply	50 mA max.
• Power Consumption	450 mW max.
• Batteries	6 x 1.5V UM-2 or R14 or size"C" alkaline batteries
• Battey Playing Life	250 hours
• Adaptor	9V DC rating 100mA (Art. No. 8210)
• Opening Book	more then 13'000 halfmoves
• Playing levels	56
• Game Memory	Game kept on power off and will keep while the batteries last
• Takes Back Moves	140 halfmoves
• Hint and Training function	
• Estimated ELO (USA)	2260
• Solves Mate	up to Mate-in-8
• Mate Announcement	up to Mate-in-8
• Depth Search	18 halfmoves
• Elegant Slim Board	370 x 266 x 35 mm

All data subject to change without notice.

D. EXAMPLES OF THE DISPLAY:

The following are examples of the most important displays of the EMERALD CLASSIC.



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

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

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 NOVA EMERALD CLASSIC 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 computer has searched so far

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

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

INFO-Display: Position evaluation for White, and it is White to move.

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

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

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

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



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

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

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

Any illegal move or input will be indicated by the ERROR message.

The NOVAG EMERALD CLASSIC resigns the game.

Shows the announcement for a draw, due to stalemate.

Shows a draw with 3 time repetition of the position.

Shows a draw according to the 50 move rule.

Draw due to insufficient mating material (see F.I.D.E. rules)

The announcement of a checkmate.

The VERIFY-Function is selected and you may verify the position of any piece on the board.

The SET UP-Function is selected and you may remove or add any chess piece to make up a new position.

The use of the CLEAR BOARD key is confirmed.

A Black Rook is set up on square a8 by using the SET UP-Function.

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

The AUTOPLAY-Function is on and the NOVAG EMERALD CLASSIC will start playing itself after pressing GO.

The REFEREE-Function is activated by pressing the REFEREE key.

The SOUND is switched off.

r R n 3

The RANDOM-Function is activated.

E S y 3

The EASY-Mode is activated.

P r o 2

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

r _ R 1

The NOVAG EMERALD CLASSIC wishes to promote its pawn which has just moved onto the square a1 and request a Rook in its place.

b E G

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

E n d

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

L E

The SET LEVEL key has just been pressed. You will see the selected level after 1 second.

t r 1

Tournament level 1 has been selected and is now effective.

R t 2

Average Time playing level 2 has been selected and is now effective.

S d 3

Sudden Death playing level has been selected and is now effective. Clocks will count down to zero time.

F d 2

Fixed Depth playing level is selected and now effective. The computer will only analyze every move for only 2 half moves.

R n 3

Analysis level 3 is selected and now effective.

E R 5

Novice playing level 5 is selected and the NOVAG EMERALD CLASSIC will play less strongly.

h 4 . G 3 +

Black's moves was from h4 and captures on the square g3 and announces check.

R L t

The NEXT BEST-Function has been selected and you will be prompted to take back the last move. Computing will then begin.

Q 1

The computer announces a mate-in-1, the game is lost for you.

F L R G

Time out.

VI. RULES OF CHESS

I. GENERAL MOVES

1. The two players must alternate in making one move at a time. The player with the white pieces moves first to start the game.
2. With the exception of castling (section II.1.), a move is the transfer of a piece from one square to another square which is either vacant or occupied by an enemy piece.
3. No piece, except the Rook when castling and the Knight (section II.5) may cross a square occupied by another piece.
4. A piece moved to a square occupied by an enemy piece captures it as part of the same move. The captured piece must be immediately removed from the chessboard by the player making the capture.
5. When one player moves a piece into a position whereby he can attack the King, the King is in "Check" (announced by the CHECK LED and on the LCD display) and must either
 - a) move the King,
 - b) block the path of the attacking piece with another piece,
 - c) or attack the attacking piece.
6. The game is over when there is no escape for the King from an attacking piece. This is known as "Checkmate" (the CHECK and MATE LED and on the LCD display).

II. INDIVIDUAL MOVES

1. KING

Except when castling, the King can move only one space to any adjoining square (including diagonally) which cannot be attacked by an enemy piece.

Castling is a move of both the King and either Rook which counts as a single move (of the King) and is executed as follows:

- a) The King is moved from its original square two squares toward either Rook on the same rank, and
- b) The Rook is moved to the opposite side of the King.

Castling cannot occur if:

- a) the King has already been moved.
- b) the Rook has already been moved.
- c) the King's original square or the square which the King must cross or the one which it is to occupy is attacked by an enemy piece.
- d) there is any piece between the King and the Rook.

2. QUEEN

The Queen can move to any square along the same rank, file or diagonal on which it stands (except as limited by Article I.3).

3. ROOK

The Rook can move to any square along the same rank or file on which it stands (except as limited by Article I.3).

4. BISHOP

The Bishop can move to any square along the same diagonal on which it stands (except as limited by Article I.3).

5. KNIGHT

The Knight's move is in the shape of an "L", moving two squares horizontally vertically, and then one square at 90° angle from the first move. These two moves can be reversed (one square and then two) if desired.

6. PAWN

The Pawn can move either one or two squares forward on its original move, and then one square forward at any time afterward. When capturing, it advances one square diagonally (forward). When a Pawn reaches the last rank, it must be immediately exchanged for a Queen, Rook, Bishop, or a Knight of the same color as the Pawn, at the player's choice and without taking into account the other pieces still remaining on the chessboard. This exchange is called a "promotion".

A Pawn can attack a square crossed by an enemy Pawn which has been advanced two squares in one move from its original square as though the latter had been moved only one square. This capture may be made only on the move immediately following such an advance and is called capturing "en passant". (When your computer makes an en passant capture it will display the symbol "ep".) The en passant moves is also described under section III.e. in this instruction.

III. HINTS & TIPS

Get a feel for the values of different pieces, which will be useful when making decisions on captures and exchanges. In general, try to capture the more valuable pieces. Some important principles:

- Castle your King into safety as soon as possible.
- If you control the center squares, this will give you the advantage. To do this, move your center pawns and develop your Bishops and Knights early in the game.
- Take advantage of capture situations, particularly if you will gain material.
- Concentrate – don't be caught off guard by your opponent!

This chess computer has been manufactured under the traditionally high quality and safety standards of Novag Industries Ltd. and complies with the European standard which is guaranteed by the importer whose name is marked on the enclosed warranty card. Not suitable for children under 36 months due to inclusion of small parts.

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