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VITA Easyshade® Advance 4.0

Operating Instructions



VITA shade taking | VITA shade communication | VITA shade reproduction | VITA shade control

Date of issue: 04.13

VITA shade, VITA made. VITA

Model Number: DEASYAS4

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Definition of symbols		
VITA Easyshade Advance 4.0	Medical equipment, With respect to electric shock, fire and mechanical hazards only in accordance with UL 60601-1, IEC/EN 60601-1, CAN/CSA C22.2 No. 601.1	
	Attention, consult accompanying documents	
	Type B applied part	
	Single patient use only	
	Class II equipment	

Warning

1. Attention! Use only with enclosed power supply (GlobTek GTM41076-0605).
2. Never look directly into the VITA Easyshade Advance 4.0 probe tip when the lamp is on.
3. Do not immerse the VITA Easyshade Advance 4.0 hand piece or base unit in water or any other liquid.
4. Follow the instructions in Section 1.4 to properly apply an infection control shield.
5. Follow the instructions in Section 9 to properly clean and disinfect VITA Easyshade Advance 4.0.
6. Do not expose the unit to temperatures above 60° C.
7. The general recommendations for the use of the VITA Easyshade Advance 4.0 instrument in dentist practices and dental laboratories must be followed.
8. Infection control shields are for single patient use only.
9. Protect the instrument against direct sunlight.
10. The temperature to perform measurements must be between 15°C and 40°C.
11. Do not drop the instrument to avoid the risk of breakage or electric shocks.

Important information on electromagnetic compatibility

Portable and mobile radio frequency (RF) communications equipment can affect medical electrical equipment. This product is intended for use in the electromagnetic environments specified. The user of this product should assure it is used in such an environment.

1. Portable and mobile RF Communications equipment (cell phones) should not be used at close distances.
2. Power frequency magnetic fields should be at levels characteristic of a typical location in a commercial or hospital environment.

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Disposal of equipment	This instrument and any accessory components are subject to regulation 2002/96/EC (WEEE) and applicable national laws and must not be disposed of with unsorted household waste within the European Union (EU).	
	The VITA Easyshade Advance 4.0 instrument complies with the applicable regulations of the European Union (EU). The declaration of conformity can be requested from VITA Quality Management at *www.vita-zahnfabrik.com*	CE

Important copyright information

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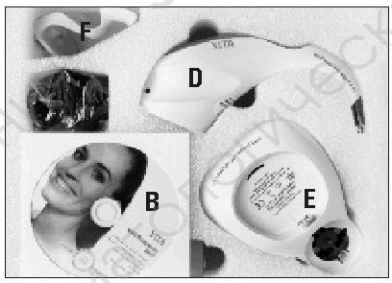
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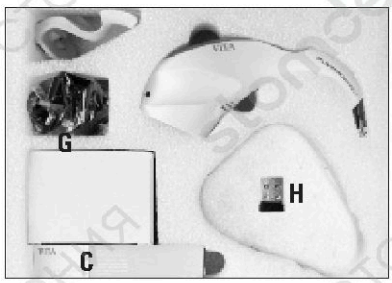
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1 Getting started

Thank you for your purchase of the VITA Easyshade Advance 4.0 instrument which provides accurate shade determination for natural dentition and a variety of restorations. The instrument can measure a broad range of shades, including VITA Linearguide 3D-MASTER shades, VITA Toothguide 3D-MASTER shades including the BLEACHED SHADE GUIDE shades and VITA classical A1–D4 shades. For accurate shade matching results, please read these instructions completely before using your instrument.





1.1 Package contents

A Operating instructions and Quick User Guide (not shown)
B CD with VITA Assist CD-ROM
C Package of infection control shields
D VITA Easyshade Advance 4.0 hand piece
E VITA Easyshade Advance 4.0 base unit
F Calibration block holder
G Power supply with universal adapter kit
H USB Bluetooth module

⚠ **Note:** If any items are missing, contact VITA Zahnfabrik or Vident (North America only) immediately.

1.2 Product information

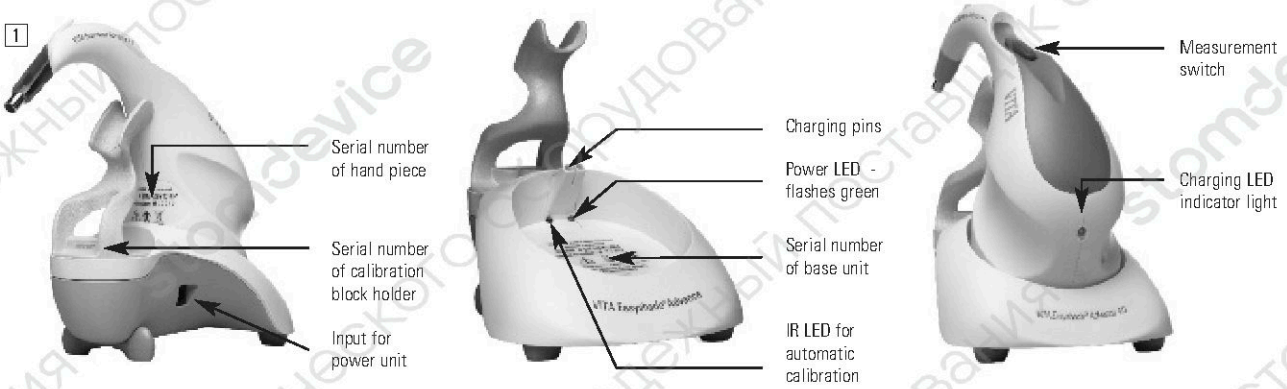
Please record the following information in the table below.

Date of purchase:	
Serial number of the VITA Easyshade Advance 4.0 hand piece / calibration block holder:	
Serial number of the VITA Easyshade Advance 4.0 base unit:	

Software to transfer and document the natural tooth shade measured

⚠ **Note:** Operating system: Windows XP SP2 or later versions

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1.3 System setup

Open the packaging of VITA Easyshade Advance 4.0 and remove the Quick Guide, the CD-ROM containing the Operating Instructions and VITA ShadeAssist, the Easyshade Advance 4.0 hand piece, base unit, the calibration block holder and power supply. Attach the calibration block holder as shown in fig. 2. The green power LED flashes on the base unit once the power supply is connected to the wall electrical outlet with a suitable adapter. Place the base unit on a flat surface. Insert the Easyshade Advance 4.0 hand piece into the base unit so that the battery charging port fits over the charging pins. The green LED on the hand piece (charging indicator for the battery) flashes after the instrument has been connected to the power supply. Let the battery of the hand piece charge for a minimum of five hours before initial use.



Important:
The hand piece and the calibration holder will have the same serial number (fig. 1); if not, contact VITA (Vident for North America only) immediately. The base unit has a different serial number.

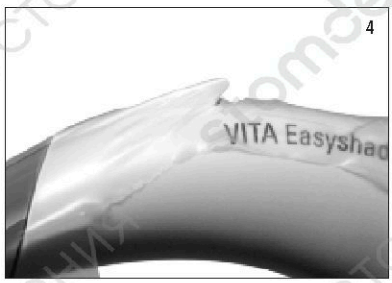
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1.4 Applying an infection control shield.

It is important to properly clean and disinfect the instrument between patient uses and to use a new Easyshade infection control shield for each patient to prevent patient cross-contamination.

The infection control shield also protects the fiber optics in the instrument from damage.





1. Insert the tip of the hand piece into the shield
2. Remove paper backing from the shield
3. Pull shield carefully over the hook
4. Secure shield on the hook

Verify that the infection control shield is stretched uniformly and flat over the face of the probe tip, and is not torn during application (fig. 3+4).

Then calibrate the instrument as described in section 1.6. The infection control shield should remain in place for all measurements with the same patient.

These non-sterile covers are for single patient use only and should be properly disposed of.

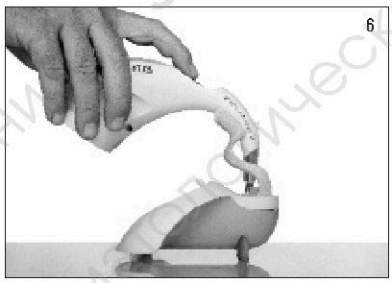
> ⚠ **Note:** An infection control shield that has come into contact with a patient must not contact the calibration block assembly. If contact occurs, follow the instructions for cleaning and disinfection of the calibration block assembly in section 11.

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1.5 Power-on

Turn on the VITA Easyshade Advance 4.0 by pressing and holding any button on the handpiece for at least two seconds.



1.6 Calibration

The unit may only be calibrated with a new anti-infection cover in order to prevent patient to patient cross-contamination.

1.6.1 Automatic calibration

If the base unit is connected to a power source, the calibration procedure is carried out automatically.



Place the instrument in the calibration block holder so that the probe tip is flush with and perpendicular to the calibration block and depresses the calibration block (fig. 6). Make sure that the hand piece is fully seated in the calibration holder. Do not press the measurement switch when the unit is calibrated automatically.

A green LED in the center of the base unit is lit and shortly afterwards the hand piece probe will illuminate the calibration block (fig. 7). Initial calibration may take a few seconds after the unit is switched on.

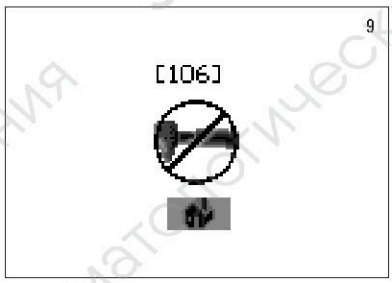
Two short beeps indicate completion of calibration.

> ⚠ **Note:** Before carrying out any measurement, the unit must be calibrated. If power is not available to the base unit, the unit must be calibrated manually (section 1.6.2).

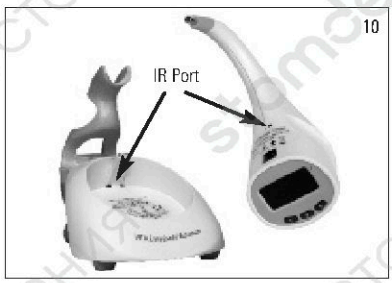
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After successful calibration, the measurement menu is displayed (fig. 8) and the unit is ready for use. The measurement mode used last is highlighted and activated after pressing the Select key.



If a single "beep" sounds, an error message is displayed on the screen as shown (fig. 9).
Calibration has failed and must be repeated (see section 12.2).



⚠ **Note:** Make sure not to block the IR ports above the labels located on the hand piece and the base unit (see IR ports, fig.10).

Avoid placing the base unit in the vicinity of a powerful infrared light source (such as sunlight or an incandescent light), which may interfere with the signal transmission between the base unit and the hand piece.

During automatic calibration, do not press the measurement button.

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1.6.2 Manual calibration

The instrument can also be calibrated when a power source is not available for the base unit (the green Power LED is not flashing). For this purpose select the Calibration icon in the Settings menu (fig. 11), which you can access from the Toolbar icon.

Place the hand piece in the calibration block holder and press the measurement switch to activate the calibration procedure. The beeps indicate that the unit has been calibrated successfully.

⚠ **Note:** VITA Easyshade Advance 4.0 is pre-calibrated at the factory for the calibration block that is shipped with the instrument and may only be used with this calibration block. If you own more than one VITA Easyshade Advance 4.0, care must be taken not to switch calibration blocks between VITA Easyshade Advance 4.0 units, which may adversely affect the accuracy of measurements.

Make sure that the serial number on the hand piece matches the serial number on the calibration block holder (see section 1.2).

1.6.3 Monitoring the calibration

Due to environmental changes or after repeated use, it may be necessary to re-calibrate the instrument when performing repeated measurements. The animated Calibration icon, as shown in figure 12, indicates that the instrument must be re-calibrated.

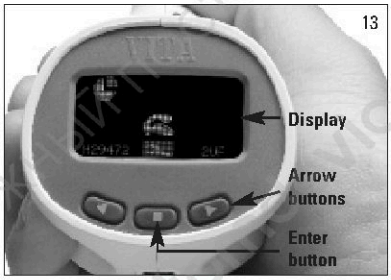


⚠ **Note:** An anti-infection cover that has come into contact with a patient must not contact the calibration block assembly. If this occurs, follow the instructions for cleaning and disinfection of the calibration block assembly in section 11.

If error No. 106 is displayed, the instrument must be re-calibrated.

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2 Menu navigation

The two arrow buttons located below the display (fig. 13) move the cursor left or right respectively to navigate the instrument's menus.

Pressing the Enter button will select the highlighted icon.

2.1 Tables of icons

Basic shade measurement	Averaged measurement	Measurement of tooth areas	Verify restoration	Shade tab	Off	Calibration	Measure-ment failed	Calibration failed	Shade match failed	General error
										

Toolbar	Measurement menu	Measure cervical tooth area	Measure central tooth area	Measure incisal tooth area	Battery fully charged	Battery empty	Recycle bin	Bluetooth off	Bluetooth on	Bluetooth connected
										

Verify restoration Adjust	Verify restoration Fair	Verify restoration Good	Recording memory	Save	VITA Tooth shades, VITA Block shades, Bleached shade	User standard
						

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3 Correct measurement of a tooth

The instrument may be used to measure only the central area on a tooth ("Basic shade measurement") or to measure the cervical, central and incisal areas ("Measurement of tooth areas") as described in section 4.

Procedure to perform accurate measurements with VITA Easyshade Advance 4.0 (for purposes of illustration, the probe tip is shown without an anti-infection cover):

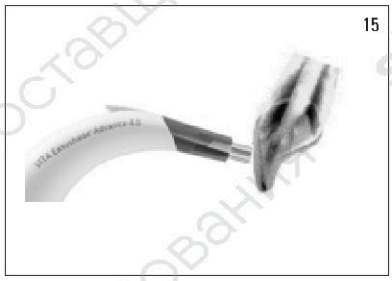
Have the patient sit on a chair and lean back his head.
Observe the color gradient of the tooth to be measured precisely beforehand and locate the dentine centre.
The probe tip must be placed on the area of the enamel surface that has underlying dentine (central to cervical area).


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The probe tip must be placed perpendicular and flush to the tooth surface as shown in the adjacent figure (fig. 14).

While holding the probe tip steady against the dentine center of the tooth, press the Measurement button and hold the probe tip against the tooth until two rapid "beeps" can be heard to indicate completion of the measurement.

VITA Easyshade Advance 4.0 will display the results of the measurement.


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Incorrect placement (fig. 15):
Probe tip not flush on the tooth surface.

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Incorrect placement – incisal (fig. 16):
Probe tip must be a minimum of 2 mm
from the incisal edge.


17

Incorrect placement – cervical (fig. 17):
Probe tip too close to gingival tissue.
Maintain a minimum distance of 2 mm to the tissue margin.

If the probe tip is moved off of the tooth prior
to the instrument sounding a "beep", an error message
or an erroneous measurement will be displayed
and the measurement will need to be repeated.

⚠ **Note:** Prior to measuring a tooth, an infection control shield must be applied to the VITA Easyshade Advance 4.0 probe tip and the instrument calibrated. It is recommended to remove any stains from the surface of a tooth prior to measurement. It may be required to wipe the tooth with gauze to prevent the tip from sliding. The probe tip must be placed entirely on the natural tooth. Any contact with existing restorations must be avoided. Underlying restorations may adversely affect the measurement result.

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4 Modes of operation

4.1 Short description of the modes of operation



4.1.1 Measurement of the basic shade

With this measurement you can determine the basic tooth shade on natural teeth only. The suitable VITABLOCS and bleached shade can be displayed for the basic tooth shade.



4.1.2 Averaged measurement

This measurement is calculated as an average basic tooth shade from several basic shade measurements. The suitable VITABLOCS and bleached shade can be displayed for the basic tooth shade.



4.1.3 Measurement on tooth areas

This measurement enables the determination of the basic tooth shade cervically, centrally and incisally on natural teeth only.



4.1.4 Measurement on a ceramic restoration

This measurement is used for:

- Comparing the shade of a ceramic restoration with a tooth shade stored in the Easyshade Advance 4.0
- Comparing the shade of a ceramic restoration with a previously measured tooth shade (user standard)
- The pure shade determination of a ceramic restoration (user standard)

The VITA SYSTEM 3D mixed shades can be activated with this button .

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4.2 Measurement of the basic shade on a natural tooth

In order to measure the base shade of a natural tooth, highlight the basic tooth shade measurement icon in the measurement menu and confirm by pressing the enter button. Press the measurement button and place the probe tip aligned flush in the dentine centre of the tooth. Measurement takes place without further inter-action as soon as the unit is positioned firmly on the tooth surface. After completion of a measurement, the VITA Easyshade generates an acoustic signal. You can choose how the measurement result is displayed: the tooth shade, the shade of a suitable VITABLOC or the bleached shade.

Note: The patient's head should be leaned back during the measurement. Ideally, the measuring is performed while the patient is sitting in the dentist's chair.

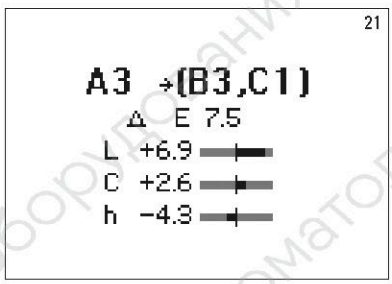


4.2.1 Display of the natural tooth shade

To display the measured tooth shade, please select the tooth icon in the lower area of the display – if this has not been set already.
The measurement results are shown as VITA classical and VITA SYSTEM 3D-MASTER shades. All 16 VITA classical A–D4 and 29 shades of the VITA SYSTEM 3D-MASTER (Basic Level) can be measured in this mode.



To receive more detailed information on the measured VITA classical A1–D4 shade, move the selection highlighting to the displayed classical shade using the navigation buttons, and then press the selection key enter button.
This will take you to the detail screen.

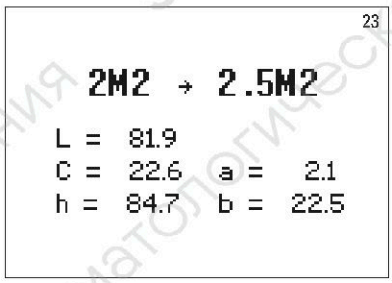


In the detail screen, the shade codes behind the arrow icon -> are information about the nearest tooth shades. A detailed description of the screen can be found in section 7.

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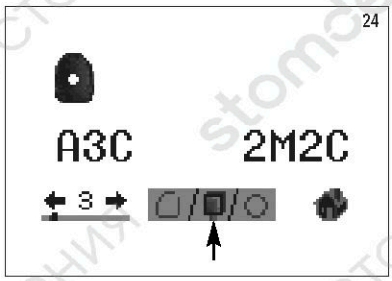


To receive more detailed information on the measured VITA SYSTEM 3D-MASTER shade, use the arrow buttons to highlight the displayed shade and then press the Enter key to go to the detail screen.



In the detail screen, the shade code behind the arrow icon -> are information on the closest mixed tooth shade. A detailed description of the screen can be found in section 7

⚠**Note:** Compare the shade measurement with a shade tab if possible in daylight, under standardized daylight lamps or at 5500 - 6500 K adapted to daylight and not under normal indoor lighting!



4.2.2 Display of the VITABLOCS shade

The VITABLOCS mode informs you which VITA block should be used for the accurate reproduction of the measured tooth shade.
To enter this mode, highlight the BLOCS icon in the lower area of the display.

The suitable VITABLOCS in the VITA classical A1–D4 or VITA SYSTEM 3D-MASTER shades are displayed. If a suitable block is not available in the VITA classical A1–D4 shade system (--- is displayed), use the block indicated in the VITA SYSTEM 3D-MASTER.

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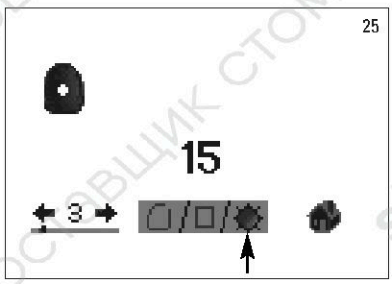
Note:
To determine the correct block shade, a distinction is made between 4 initial situations. Generally, measurements should not be carried out on prepared teeth (stumps) since they are too small and normally also darker than the unprepared teeth.

1. Vital, non-discolored
Easyshade is used to determine the base shade on the unprepared tooth and the restoration can be prepared without any additional characterization.

2. Vital, discolored
Easyshade is used to determine the base shade on the unprepared tooth; the shade of the restoration, however, must be characterized before being seated (Akzent, Shading Paste).

3. Devitalized, non-discolored
Easyshade is used to determine the base shade on the unprepared tooth and the restoration can be prepared without any additional characterization.

4. Devitalized, discolored
The tooth should not be measured with Easyshade. An adjacent tooth with the same shade should be selected to determine the block shade. A devitalized tooth should be bleached internally prior to treatment (attempt to reproduce the shade of a non-discolored, devitalized tooth). The prepared tooth should be characterized as described under 2.



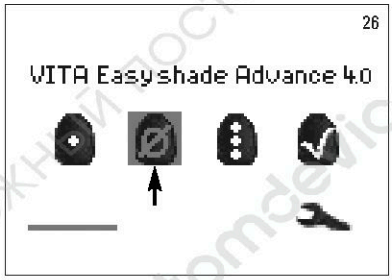
4.2.3 Display of the bleached shade

To display the bleached shade, please select the sun icon in the lower part of the display.

When selecting this display mode, the bleached index is shown for the measured shade according to the VITA Bleached Guide (Art. no. B361). The Bleached Index enables the simple verification of tooth bleaching procedures. To this purpose, the Bleached Index measured after treatment should be subtracted from the Bleached Index before treatment. The difference corresponds to the number of SGUs (Shade Guide Units) of change achieved by the treatment according to the American Dental Association recommendation.

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4.3 Averaged measurement on the natural tooth

With the averaged measurement up to 30 measurements can be made on a natural tooth. The average of the measurement results is displayed as a VITA classical A1–D4 or VITA SYSTEM 3D-MASTER shade.



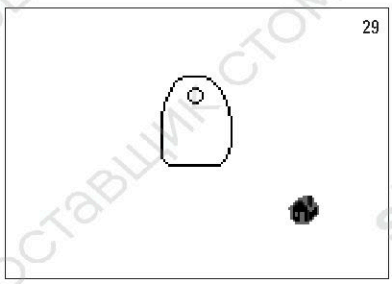
The number of averaged measurements is displayed.



4.4 Tooth area measurement on the natural tooth

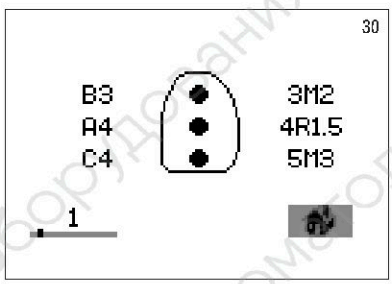
To measure the cervical, middle and incisal shades of a tooth, highlight and select the Tooth area measurement icon on the Measurement menu.

Measurement sequence: cervical, middle and incisal.



To begin (empty circle), place the probe on the cervical area of the tooth and press the measurement switch. Two rapid "beeps" will indicate a successful measurement and "OK" will be displayed.

Proceed with the measurements of the middle and incisal areas.

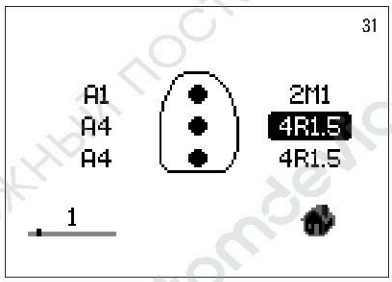


After successful measurement of all areas, the VITA classical A1–D4 and VITA SYSTEM 3D-MASTER shade results will be displayed.

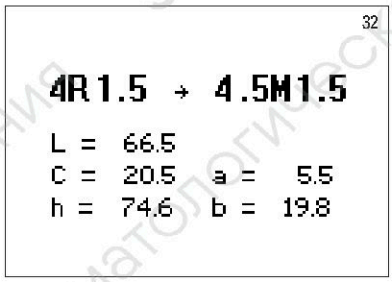
If an error occurs during measurement, a long "beep" will sound and "X" will be displayed in the measured tooth area (not shown). Repeat the measurement of the area until a successful measurement result is obtained.

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To receive extended color information, highlight and select one of the displayed shade results.

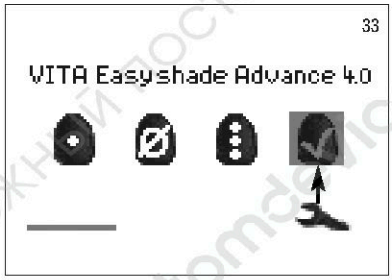


Please note: The measurement data of the VITA Easyshade Advance 4.0 are dependent on the measurement mode, and only valid for natural teeth. The measurements of shade samples is possible only in the training mode. Measurements made on dental restorations should always be carried out in the restoration mode.

4.5 Measuring on ceramic restorations

VITA Easyshade Advance 4.0 enables dental professionals to verify that a ceramic restoration's shade is an acceptable match to a prescribed shade (fig. 33). Here both the 29 shades, the 52 mixed shades of both the VITA SYSTEM 3D-MASTER and the 16 VITA classical A1–D4 shades can be verified.
Moreover, you can also define your own shade standard (User standard, section 4.4.2) and compare the ceramic restoraton with this. It is also possible to determine the approximate shade value of the restoration.

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4.5.1 Comparison of the shade of the VITA standard

To verify a restoration, select the icon for verifying the shade of a restoration (fig. 33) and press the Enter button.
The target shade is selected before measuring the restoration

To select a target shade, select the first digit or letter using the navigation buttons and the Enter button. Then only the digits and letters can be selected, which may produce a corresponding VITA SYSTEM 3D-MASTER or VITA classical A1–D4 shade.



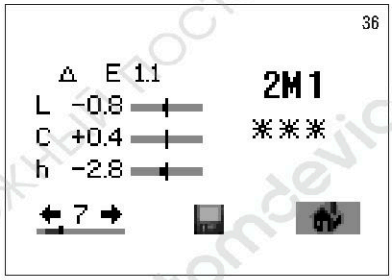
Example: If a B is selected first, only the digits 1, 2, 3 and 4 will be subsequently available as selection options (fig. 34).



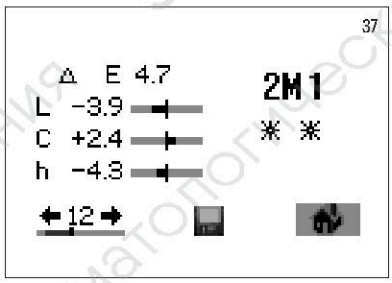
To select mixed shades, go to the Extended Color mode (fig. 35). Navigation in the menu remains unchanged.

After selecting the target shade, measure the middle third of the restoration. 1 to 3 asterisks (*), as shown in the following figures, indicate the degree to which the restoration matches the target shade.

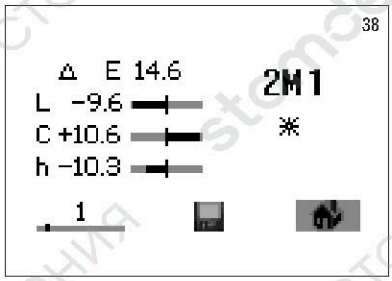
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*** Three asterisks mean **"good"**. That means that the base color of the restoration has little to no color difference from the target shade with which it has been compared.



** Two asterisks mean **"fair"**. That means that the base color of the restoration may have a noticeable but still acceptable difference from the target shade with which it has been compared. However, this may not be sufficient for an anterior restoration.



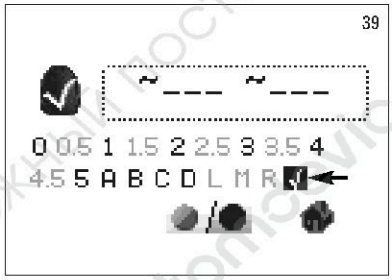
* One asterisk means **"adjust"**. That means that the base color of the restoration has a noticeable difference from the target shade with which it has been compared. The restoration should be adjusted in order to obtain an acceptable shade match.

You will find a detailed description of the display in section 7.

Press the Enter button to return to the measurement menu.

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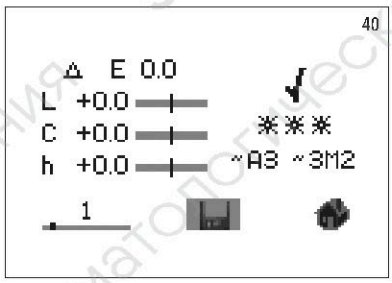
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4.5.2 Comparison of the shade of the restoration with a user standard

Select the Restoration mode (fig. 39). Now enter any tooth shade or highlight the user standard icon (fig. 39). Measure the target shade of a ceramic restoration with which the actual restoration is to be compared. Highlight the disk icon (fig. 40) and press the Enter key. The shade measurement is now saved, and will be displayed as the approximate VITA classical A1–D4 shade and the VITA SYSTEM 3D-MASTER shade. All shade deviations are reset to zero after saving, and three *** asterisks are displayed. This shade is now defined as the user standard.

All subsequent shade measurements in this mode (without saving) will be compared with the user standard and the match displayed with * to *** asterisks, and the deviations in the LCh value displayed. The user standard can be recalled at any time as a target shade by activating the user standard icon (fig. 41). In order to define a new user standard, repeat the procedure described at the beginning. The previous user standard will then be over-written.





4.5.3 Determining the shade of a ceramic restoration

In order to determine the shade of the ceramic restoration, define this as a user standard. The shade is displayed as the VITA classical A1–D4 and the 3D-MASTER shade and helps to choose the VITA ceramic that ensures perfect reproduction of the shade.

Attention! The tooth shade measurement will be displayed only after saving.

⚠ **Note:** To verify a restoration, only the base shade of the restoration is measured in the middle third of the restoration. The ceramic material must have a minimum thickness of 0.8 to 1.5 mm to ensure accuracy of the measurement.
Very translucent all-ceramic restorations, such as veneers, will require the application of a tooth-colored material, such as VITA Simulate, to obtain accurate measurement results.

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5 Training mode

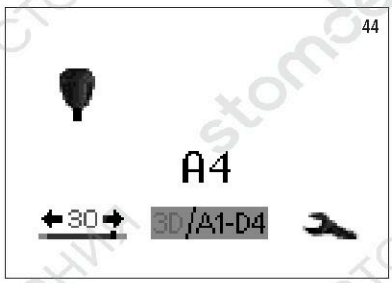
To learn how to use the VITA Easyshade Advance 4.0, it is useful to practice using the instrument by measuring the VITA Linearguide 3D-MASTER, VITA Toothguide 3D-MASTER or VITA classical A1–D4 shade tabs.

To measure a shade tab, highlight the Shade tab icon on the Settings menu.



Position the probe tip steady on the middle of the shade tab and exert slight pressure.
Then press the Measurement switch.

The closest tooth shade match will be displayed.



Highlight the 3D/A1-D4 icon. You can now switch between the two shade systems using the Select key.



If the probe tip is not held steady or is partially off the shade tab, faulty measurements will result. The instrument detects and displays major measurement errors (fig. 45).

For purposes of training, repeat the measurement until a correct result is displayed.

⚠ **Note:** The 29 VITA Linearguide or Toothguide 3D-MASTER shades and the 16 VITA classical A1–D4 shades are displayed in the Training mode. Measuring other shade guides or VITA mixed shade tabs will produce different (possibly inaccurate) results. Due to the small difference in the color and the natural color variations of the shade tabs, even slight changes in the measurement process may lead to the fact that a nearest "neighbor shade" is displayed for some shades.

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6 Recording the measurements

The instrument has a memory capacity to store 30 successful measurements in the order in which they were made.
Each set of tooth area measurements is stored as one result.

The Measurement memory icon is located on the lower left of the Measurement menu screen. The bar indicates the total memory capacity.



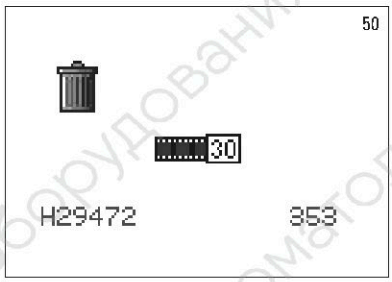
If the Measurement memory already contains measurements, a bar will be displayed; the length of the bar indicates the number of measurements stored. Directional arrows allow navigation within the recorded data. A dot above the bar indicates the position in the memory in addition to the measurement number.



Once the maximum number of measurements is stored, the number 30 will flash. If additional measurements are added, the last measurement will be replaced.
The 29 measurement values saved first will not be changed.



Use the Select key to delete, highlight and select saved measurement values (fig. 49). Select the recycle bin icon on the settings screen (see section 2.1 icons) to permanently delete all saved measurements (fig. 50).

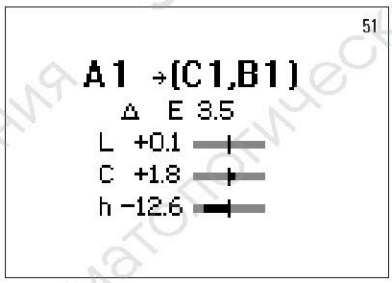


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7 Extended color information

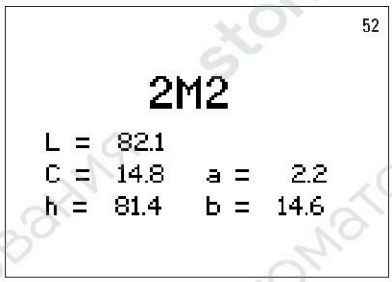
7.1 VITA classical A1–D4 shades

This screen indicates the distances in color space between the measured tooth shade and the closest matching VITA classical A1–D4 shade.



Color space coordinates for the exact description of the tooth shade. The bars graphically depict the color distances.

ΔE The overall color deviation of the tooth.
ΔL +/- The tooth's **lightness** is higher (+)/lower (-) than the VITA classical A1–D4 shade.
ΔC +/- The tooth's **chroma** is higher (+)/lower (-) than the VITA classical A1–D4 shade.
Δh +/- The tooth's **hue** is yellower (+)/redder (-) than the VITA classical A1–D4 shade.



7.2 VITA SYSTEM 3D-MASTER® shades

This screen displays the L*C*h* and a*b* coordinates in the CIE L*a*b* color space for the measured tooth shade.

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7.3 VITA SYSTEM 3D-MASTER® mixed shades

M shades										
0M1	0.5M1	**1M1**	1.5M1	**2M1**	2.5M1	**3M1**	3.5M1	**4M1**	4.5M1	**5M1**
0M1.5	0.5M1.5	1M1.5	1.5M1.5	2M1.5	2.5M1.5	3M1.5	3.5M1.5	4M1.5	4.5M1.5	5M1.5
0M2	0.5M2	**1M2**	1.5M2	**2M2**	2.5M2	**3M2**	3.5M2	**4M2**	4.5M2	**5M2**
0M2.5	0.5M2.5		1.5M2.5	2M2.5	2.5M2.5	3M2.5	3.5M2.5	4M2.5	4.5M2.5	5M2.5
0M3				**2M3**	2.5M3	**3M3**	3.5M3	**4M3**	4.5M3	**5M3**

L shades				
2L1.5	2.5L1.5	**3L1.5**	3.5L1.5	**4L1.5**
2L2	2.5L2	3L2	3.5L2	4L2
2L2.5	2.5L2.5	**3L2.5**	3.5L2.5	**4L2.5**

R shades				
2R1.5	2.5R1.5	**3R1.5**	3.5R1.5	**4R1.5**
2R2	2.5R2	3R2	3.5R2	4R2
2R2.5	2.5R2.5	**3R2.5**	3.5R2.5	**4R2.5**

The 29 VITA Linearguide or Toothguide 3D-MASTER shades are shown in bold in the tables above. The tables also include the 52 mixed shades that are achieved by equally mixing the appropriate VITA 3D-MASTER porcelains.

VITA Easyshade Advance 4.0 measures teeth and restorations to the nearest VITA SYSTEM 3D-MASTER mixed shades.

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8 Bluetooth interface

For the wireless transmisison of the measurement results to a computer, the VITA Easyshade Advance 4.0 has an integrated Bluetooth wireless module. This module can be switched on and off by the operator to optimize the battery run time. Even after the VITA Easyshade Advance 4.0 is switched on again, the wireless module will remain in the mode last set.



To switch the integrated Bluetooth wireless module on or off, highlight the Bluetooth icon in the menu tools, and confirm by pressing the Enter key. The icon for the Bluetooth wireless module is displayed according to the selected setting. If the module is switched off, the Bluetooth icon will be displayed as crossed out.



To connect with a computer, the Bluetooth wireless module must be switched on, and the USB Bluetooth module included in the scope of supply connected to a USB port of your computer. For transferring data to the computer, use the VITA Assist software likewise included in the supply schedule of the VITA Easyshade Advance 4.0.

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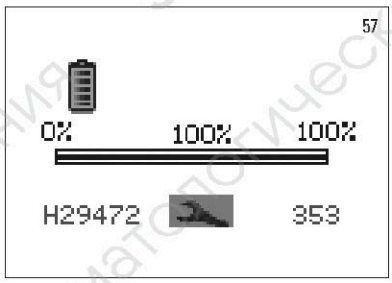
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9 Battery level

The Battery icon indicates the battery charge level.
When the battery is almost empty, the Battery icon will flash.

Highlight and select the Battery level icon
on the Settings screen.



The exact amount of charge on the battery can be viewed
on the Battery screen.

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10 Power off / Automatic power off

After 20 minutes of inactivity, the unit turns off automatically (automatic power off). Press any switch to turn on the instrument again. Once powered off and back on, the instrument must be re-calibrated with a new infection control sleeve prior to performing new measurements.



To manually power off (turn off) the instrument, select the Power off icon on the Settings screen (see 2.1 Icons).

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11 Cleaning and disinfecting

The surface of VITA Easyshade Advance 4.0 can be disinfected.
We recommend using mild disinfectant sprays or disinfectant wipes, which can be purchased from most dental dealers.
Please follow the manufacturers' instructions for use.

If iodine, phenyl phenol-based products or isopropyl alcohol are used to clean or disinfect VITA Easyshade Advance 4.0, permanent discoloration and/or cracks may result which are not covered by the Product Warranty. Disinfectants that contain phenol or phenyl phenol compounds or methyl ethyl ketone damage the surface of the instrument.

⚠ **Note:** The dentist or health care provider should follow the CDC's recommendations for universal precautions during the use of VITA Easyshade Advance 4.0.


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VITA Easyshade Advance 4.0 may only be calibrated with a new infection control shield. In the event that the calibration block becomes contaminated, the calibration block must be removed, along with the holder, from the base unit and sterilized using a steam autoclave in accordance with the instructions of the manufacturer of the sterilizing agent. Do not use a "heat only" autoclave.

While holding the base unit with one hand, turn the calibration block holder 1/4 turn counter-clockwise to remove it from the base unit (fig. 59).

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12 Appendix

12.1 Replacement parts and accessories for users

The following replacement parts and accessories for users are available from VITA:

Case with insert:	DEASYASK	Operating instructions:	1506/2
Anti-infection cover:	D39003	Quick Start Guide:	1996
Shipping container:	DEASYAVP	USB Bluetooth:	D46008
Base unit:	D46006	External power supply:	D46002
VITA Assist CD-ROM incl. ShadeAssist:	DASSISTDEMO02		

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12.2 Error messages

Error no.	Symbol	Then ...
112		Calibrate the instrument.
108		Power unit off. Insert the probe tip into the calibration block holder. Switch the instrument on and calibrate it.
101, 102		
103		
104, 105		Hold steady when measuring.
116, 117		Internal message, contact VITA's Technical Service if problem persists.
109, 110		Re-calibrate
101, 111		Re-calibrate
106		Re-calibrate
107		Shade out of measurement range

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Error no.	Symbol	Then ...
114, 115		Contact VITA's Technical Service.
118		Charge the battery.
119 - 133		Bluetooth connection error
134		No measuring surface found

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12.3 Troubleshooting

Problem	Then ...
VITA Easyshade Advance 4.0 cannot be turned on.	Charge the battery as described in section 1.3.
VITA Easyshade Advance 4.0 cannot be calibrated or repeatedly prompts to calibrate again.	Make sure that the probe tip is correctly placed into the calibration block holder and held at an angle of 90° and is not lifted before hearing the "beep", which indicates completion of calibration. Reposition the probe tip as needed. Make sure that the IR ports of the base unit and the hand piece are not blocked (see section 1.6.1).
Measurements cannot be made after switching on the VITA Easyshade Advance 4.0.	The VITA Easyshade Advance 4.0 first has to be calibrated after switching on (see section 1.6.). Only then is a measurement possible in the desired measurement mode (see section 4).
A measurement is made and VITA Easyshade Advance 4.0 displays "---" in place of a VITA classical A1–D4 shade or VITA SYSTEM 3D-MASTER shade.	Either the color is outside the known range of dental shades, the probe tip was not correctly positioned or was lifted or moved during the measurement. Measure again; be careful to use proper placement technique.
Inaccurate shades are always displayed when testing on shade tabs.	Make sure that Easyshade is in Shade Tab mode. Make sure that the calibration block and the probe tip are clean; then re-calibrate the unit. Use only approved VITA Easyshade Advance 4.0 anti-infection covers. Repeat the measurement, assuring that the probe tip is touching the surface at 90° in the middle of the shade tab and that the probe tip is not moving during the measurement. Compare the serial number to make sure that the correct calibration block for VITA Easyshade Advance 4.0 is installed. Make sure that only VITA Linearguide or Toothguide 3D-MASTER and VITA classical A1–D4 shade tabs are used.
A letter (S or W) is displayed to the right of the Toolbar icon.	This indicates a temporary change to the instrument, due to environmental factors, such as static discharge or disconnecting the battery. Turn the unit off and on again; the letter will not be displayed.

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12.4 Technical data

Height / Width / Depth:	15.9 cm / 17.2 cm / 10.8 cm
Weight:	511 g
Battery:	Rechargeable Li-Ion battery
Lamp type:	White High Power LED
Connection:	Use only approved power supply (GlobTeK GTM41076-0605) VITA Prod. No. D46002
Classifications:	UL 60601-1 Class II equipment Type B applied part  IPX0 CE Equipment is not suitable for use in presence of flammable anesthetic mixture with air or nitrous oxide.
Temperature range:	15°C to 40°C
Bluetooth:	Range: approx. 10 m at free visibility Transmission frequency range: 2402 to 2480 MHz Modulation: FHSS/GFSK, Channel intervals: 1MHz, No. of channels: 79 128-bit encryption

12.5 Storage and transport conditions

Temperature range:	-40 °C to +60 °C
Humidity range:	10 % to 90 %, non condensing
Pressure range:	500 to 1060 hPa

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12.6 Glossary

Spectrophotometer	An instrument for color measurement that measures the spectral distribution of light and converts it into color values (tristimulus value) or an internationally accepted numerical form.
VITA SYSTEM 3D-MASTER shades	Refers to the 29 shade sample teeth including 3 Bleached Shade Guide and the 52 VITA SYSTEM 3D-MASTER mixed shades.
VITA classical A1–D4 shades	Refers to the 16 original VITA classical A1–D4 shades found on the VITA classical A1–D4 shade guide, which was originally called the Lumin Vacuum shade guide.
Value	The luminance of the color. It is the lightness or darkness of a color relative to a series of grays ranging from white (L = 100) to black (L = 0).
Chroma	The saturation (intensity) of a color. It is the difference between the color and a gray having the same brightness, measured as the distance from the neutral axis. It is sometimes referred to as the purity of the color.
Hue	What we commonly call color (red, yellow, green, blue or some other color). It corresponds to the physical wavelength of light. In the L*C*h* system it is represented as an angle ranging from 0° to 360°. Angles that range from 0° to 90° are reds, oranges and yellows; 90° to 180° are yellows, yellow-greens and greens; 180° to 270° are greens, cyans (blue-greens) and blues; 270° to 360° are blues, purples and magentas, returning again to red at 360° (the same as 0°).
Mixed shades	The mixture of two or more shades of porcelain to achieve an intermediate shade. For example, 2M2 can be mixed with 2M3 to achieve the shade 2M2.5.
CIE L*a*b*	A three-coordinate representation of color (tristimulus) in color space, defined by the International Commission on Illumination (Commission Internationale d'Eclairage). For additional information on color theory visit VITA's website at www.vita-zahnfabrik.com

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12.7 Patents and trademarks

VITA Easyshade Advance 4.0 is covered by one or more of the following US patents (6,040,902; 6,233,047; 6,239,868; 6,249,348; 6,264,470; 6,307,629; 6,381,017; 6,417,917; 6,449,041; 6,490,038; 6,519,037; 6,538,726; 6,570,654; 6,888,634; 6,903,813; 6,950,189; 7,069,186; 7,110,096; 7,113,283; 7,116,408; 7,139,068; 7,298,483; 7,301,636; 7,528,956; 7,477,364; 7,477,391) and other U.S. and foreign patents pending.

VITA Easyshade®, VITA classical A1–A4 and VITA SYSTEM 3D-MASTER® are registered trademarks of VITA Zahnfabrik.

Windows® is a registered trademark of Microsoft Corporation.

Other trademarks shown herein are the property of their respective owners.

12.8 Limitation of liability for subsequent errors

VITA will not assume any liability for loss of data resulting from the use of the VITA Assist CD-ROM.

12.9 Warranty

The warranty claims of the original purchaser of the VITA Easyshade Advance 4.0 spectrophotometer are based on the General Terms of Business of VITA and the statutory provisions.

Visit www.vita-zahnfabrik.com to read the General Terms of Business of VITA and on the CD-ROM included in the scope of delivery.

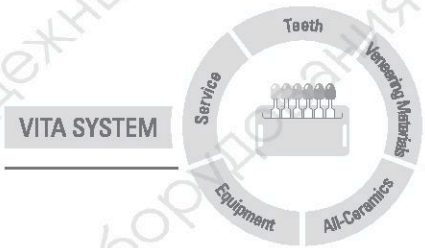
Technical support or service for VITA Easyshade Advance 4.0 are available from VITA at + 49/7761-5620.

If necessary for service, a Returned Goods Authorization number will be provided with further instructions. We recommend to retain the original packaging for service/warranty and to return it including all accessories if necessary.

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With the unique VITA SYSTEM 3D-MASTER all natural tooth shades are systematically determined and completely reproduced.



Please note: Our products must be used in accordance with the instructions for use. We accept no liability for any damage resulting from incorrect handling or usage. The user is furthermore obliged to check the product before use with regard to its suitability for the intended area of application. We cannot accept any liability if the product is used in conjunction with materials and equipment from other manufacturers that are not compatible or not authorized for use with our product. Furthermore, our liability for the accuracy of this information is independent of the legal basis and, in as far as legally permissible, shall always be limited to the value as invoiced of the goods supplied, excluding value-added tax. In particular, as far as legally permissible, we do not assume any liability for loss of earnings, indirect damages, ensuing damages or for third-party claims against the purchaser. Claims for damages based on fault liability (culpa in contrahendo, breach of contract, unlawful acts, etc.) can only be made in the case of intent or gross negligence. The VITA Modulbox is not necessarily a component of the product.
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After the publication of these working instructions any previous versions become obsolete. The current version can be found at www.vita-zahnfabrik.com

VITA Zahnfabrik has been certified in accordance to the Medical Device Directive and the following products bear the CE mark CE:
VITA Easyshade® Advance 4.0

VITA

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