

# **Perivist FeV and Perivist Compact**

Instruction Manual  
for version 1.4



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# 1 General details and instructions

## 1.1

### Introduction

Thank you for your confidence in our products by purchasing this Vistec instrument, a perfected product, manufactured and tested according to strict quality guidelines.

Ongoing research and development may result in changes regarding design and scope of delivery. The illustrations used in these operating instructions may, therefore, differ from the delivered product.

If you have any questions or require additional information about your instrument, please send us a fax or an e-mail. Our service team will gladly assist you.

Phone: +49 (0) 81 42 / 44 857-60

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## 1.2

### Product information

#### 1.2.1

Instrument designation

Perivist FeV / Perivist Compact

#### 1.2.2

Manufacturer

Vistec AG  
Werner-v.-Siemens-Str. 13  
D-82140 Olching / Germany

#### 1.2.3

Intended use/  
application area

The perimeter Perivist FeV and Perivist Compact are modern static perimeter which are specially designed to assess the field of vision within the bounds of the driving license regulations G25 and G41.

Ist easy operation enables the performance of a test even with no specialist knowledge and it is fitted out to a high degree to meet the requirements within the area of preventive and occupational Medicine and health care.

- Monocular measurement respectively with 107 test points of which 68 are within the central 30° range
- Eccentricity 80° temporal, 50° nasal and 30° caudal / cranial
- 3-zone suprathreshold strategy
- Fixation monitoring using a CCD camera with automatic evaluation or according to Heijl-Krakau, also when testing the periphery
- Checks incorrect positive and negative patients' answers
- Surrounding luminance and stimulus meet the Goldmann Standard
- Demo mode in order to make the patients accustomed to the course of the test
- Automatic measurement of the patient's reaction time and adaptation to The individual reaction
- Software interface for connection to medical databases
- Glaucoma test (from software version 2.0 upwards)

### 1.3 Warranty

The manufacturer's guarantee is 24 months. It is exclusively for the perimeter and original accessories. The "General Conditions of Sale and Delivery" of Vistec AG apply in principle.

We refer to the respective guarantee terms for accessories supplied from other manufacturers.

### 1.4 Scope of delivery

The delivery includes the perimeter with cupola, head / chin rest and holder for correction lenses and also the following items:

- Patient's answer key button with connection cable
- Power supply cable
- USB communication port cable
- Perivist FeV program CD / Perivist Compact program CD
- Set of correction lenses
- MT replacement fuses 1.0A, 2 pieces
- Replacement bulbs, 2 pieces (only for Perivist FeV)
- Optics cloth, 2 pieces
- Dust protection cover
- Transportation case (only for Perivist Compact)

Optional accessory:

- Electric elevating table

### 1.5 Safety notes

Please read these operating instructions carefully before commissioning the device.

Do not make any structural alterations or changes to the device. Moreover, if Vistec has not given information to the contrary, neither hardware nor software units may be added or removed as this may influence safety and hence lead to all warranty rights becoming invalid.

The device is not suitable for operation in potentially explosive areas.

Do not use the device if damages can be seen by the naked eye, e.g. after it has been dropped. If this occurs, please contact an authorised service agent or Vistec AG directly.

Only Vistec AG and agents authorised by Vistec AG may carry out repairs.

Only use the device with original accessories.

If you do not intend to use the device for a longer period, unplug the power supply cable from the power supply. Please cover the device with the dust protection cover when not in use.

Additional equipment which is connected to the device must be proven sufficient according to its respective DIN EN or IEC specifications. Furthermore, all configurations must fulfill the requirements of the system norm DIN EN 60601-1-1 and the changes made to it. The coupling of the device with non-medical devices (e.g. data processing devices) to build a medical electrical system must not lead to a degree of security for the patient, user and surroundings

which is worse than DIN EN 60601-1-1 (IEC 601-1-1) and the changes made to it.

If the coupling causes exceeding of the leakage currents, protective measures according to the system norm DIN EN 60601-1-1 (IEC 601-1-1) and its changes must be made.

A system must not cause any danger to the patients, the users or the surroundings after installation or changes made at a later date.

## 1.6 Manufacturer responsibility

The device is constructed with the best available technology and meets acknowledged technical safety regulations.

Vistec AG views itself only responsible for the effects on safety, reliability and performance of the device if:

- assembly, extensions, new settings, changes and repair work are carried out by persons authorised by Vistec AG,
- the electrical installation of the respective room meets the requirements of VDE 0701 and
- the device is used according to the instructions in this manual.

## 1.7 User responsibility

The user responsibility includes:

- Adhering to accident control regulations as well as observing the regulation on the installation, operation and application of medical products (according to the EU guidelines 90/385/EEG and 93/42/EEG)
- Operation
- Maintenance
- The correct and safe product condition
- Keeping the operating instructions at the place of use

## 1.8 Typographical conventions

Important text passages are marked specially with text highlights and key words. These operating instructions make use of the following highlights:

### **Attention!**

Draws attention to a potentially dangerous situation. Observe the precautionary measures which are thus marked in order to avoid endangering persons or damaging objects.

### **Important!**

This marks important information. Read this information to ensure maintenance of the device's high safety and functional standards.

### **Tip!**

This marks information on the correct use and gives useful tips regarding the optimum use of the device.

## 2 Overview

### 2.1 Perivist FeV

- 1 Cupola with lamps for background luminance (internal)
- 2 Forehead rest
- 3 Holder for correction lenses
- 4 Chin rest
- 5 Rotating handle for height adjustment of chin rest
- 6 Patient's answer key button
- 7 USB communication port cable (within the housing base)
- 8 Power supply cable (within the housing base)
- 9 CCD camera (behind the small hole in the cupola)
- On/off switch (on the backside of the Perivist)

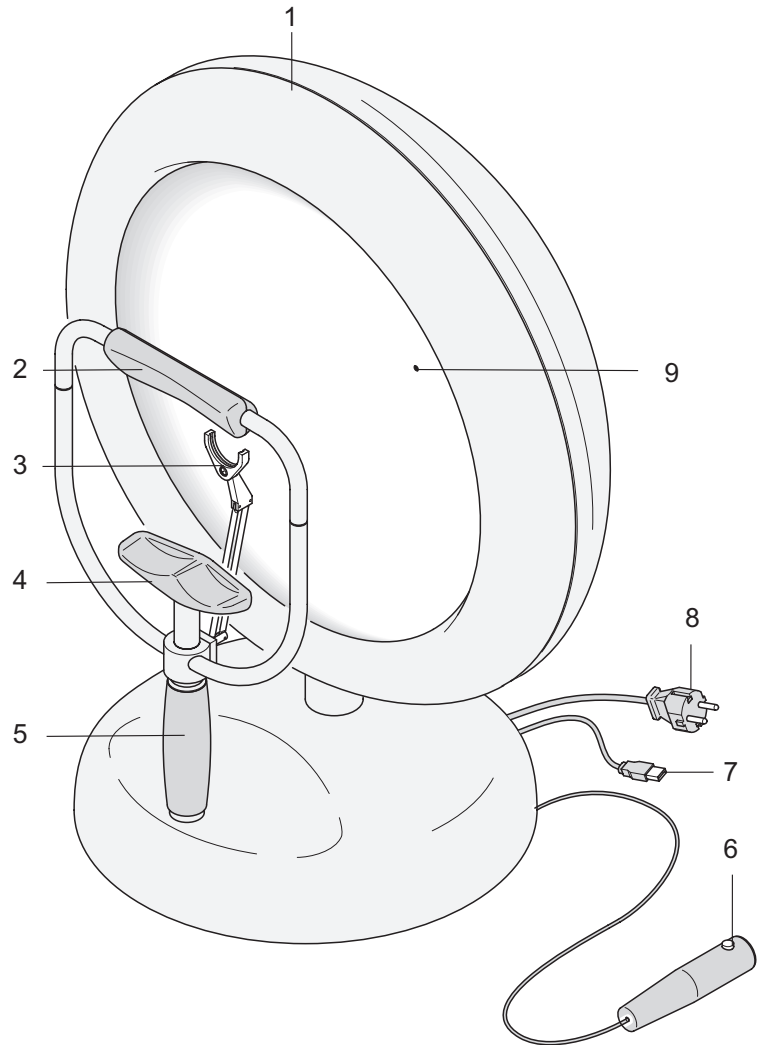


Fig.1

#### 2.1.1 Identification plate

The identification plate is located at the rear of the device. If you have any inquiries, please cite the number embossed on the identification plate.

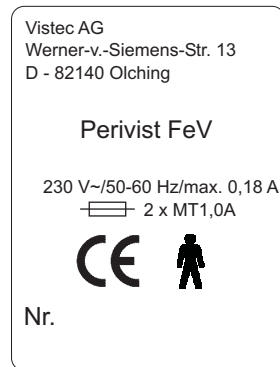


Fig.2

Perivist FeV identification plate

## 2.2 Perivist Compact

- 1 Cupola with lamps for background luminance (internal)
- 2 Forehead rest
- 3 Holder for correction lenses
- 4 Chin rest, height adjustment motor-driven via software
- 5 Patient's answer key button
- 6 USB communication port cable (within the housing base)
- 7 Power supply cable (within the housing base)
- 8 CCD camera (behind the small hole in the cupola)
- 9 On/off switch (on the backside of the Perivist)

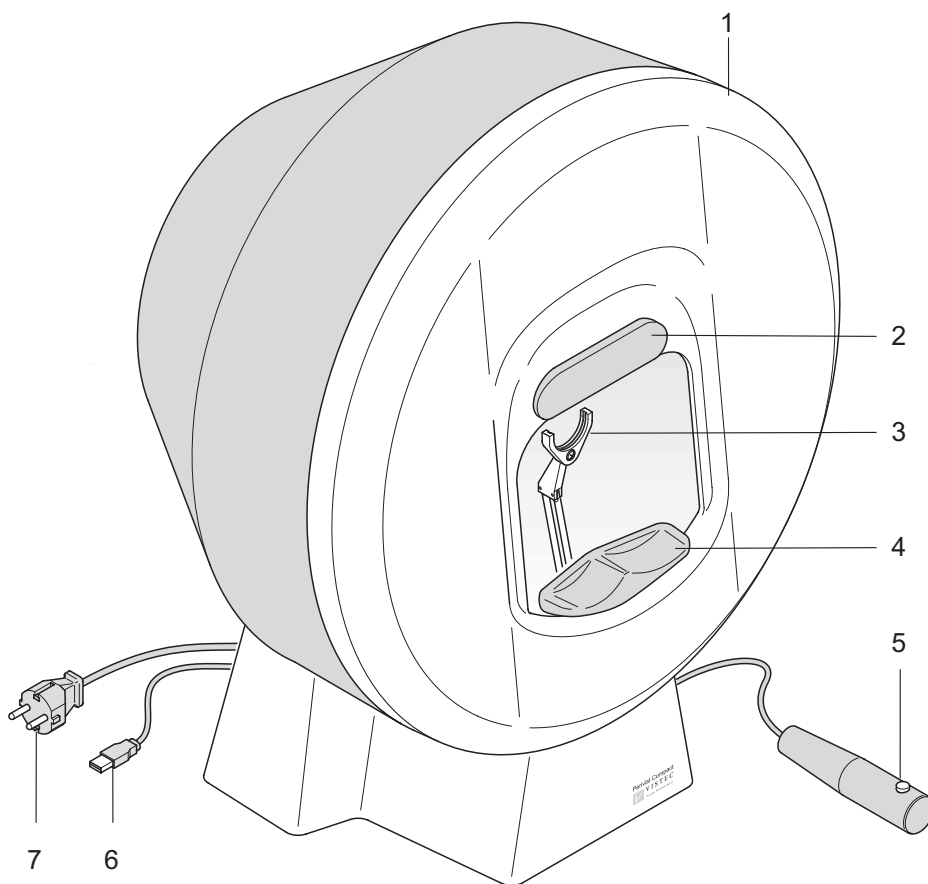
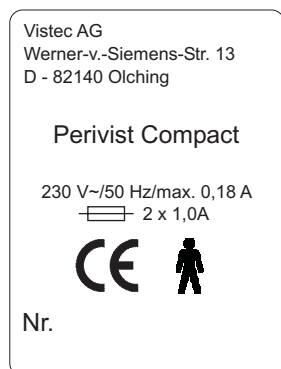


Fig.3

### 2.2.1 Identification plate

The identification plate is located at the rear of the device. If you have any inquiries, please cite the number embossed on the identification plate.



Perivist Compact identification plate

Fig.4

## 3 Start up

### 3.1 Setting up the instrument

Place the perimeter on the device table. Ensure that the surroundings are not too bright and no shadows or direct light irradiation influence the quality of the examination. It is only necessary to darken the room if a light intensity of 10 cd/m<sup>2</sup> at the patient's position is exceeded.

#### **Important!**

Wait at least 1 hour before commissioning in order to let the device adapt to the surrounding temperature (+10°C - + 35°C).

### 3.2 Connecting the power cable

#### **Attention!**

Check whether the operating voltage given on the identification plate matches the local mains voltage before connecting the device to the mains.

Place the device carefully on its front. The connectors are countersunk in the underside of the device. Make sure that the on/off switch is turned to the off position (O). Plug in the socket for the supplied mains connection lead into the correct plug.

### 3.3 Connecting the patient's answer key button

Connect the patient's answer key button to the bottom side of the device using the correct socket.

### 3.4 Connecting the communication port cable

Connect the supplied USB communication port cable to the respective connector on the bottom of the device. Then connect the communication port cable to the respective connector on your computer. Please ensure that the computer is switched off for this purpose.

### 3.5 Switching on the device

Switch on the perimeter using the on/off switch (position 1) whilst the computer is still off.

The perimeter carries out a self-test (wandering green light spot in the cupola) and is then ready for operation, recognisable by the visible fixation mark (a yellow light spot in the centre).

## 4. Installation of the Perivist user software

### 4.1

#### Installation of the CCD camera driver

After you have connected and switched on the perimeter as described in item 3, please then start-up your computer.

Normally the operating system will recognise the CCD camera as new hardware and guide you through the rest of the installation procedure. Select the option “install a new driver” or “update driver” even if the operating system does not expressly request you to.

Insert the Perivist installation CD in your CD disk drive and enter [drive letter]\Drivers (e.g. D:\Drivers) as the source of the driver to be installed. Start the installation.

The driver will then be installed.

It is possible that you are requested to insert the installation CD for your operating system in the CD disk drive. If so, follow the instructions which appear.

Should your operating system not automatically recognise the new hardware, please use the operating instructions manual for your operating system on “installing new hardware”. In this case please also install the supplied driver on the Perivist installation CD.

#### **Tip!**

The network operating system Windows NT™ does not support USB communication ports. If you work with Windows NT™, the digital camera in Perivist FeV is not supported. Therefore we recommend switching over to Windows 2000™ or Xp™ for example.

### 4.2

#### Installation of the Perivist software

Insert the Perivist FeV installation CD into your CD disk drive.

Start the set-up program on the CD via the Windows™ explorer or the command prompt. Follow the instructions displayed. A program group Perivist will be created in which the Perivist FeV program and the Perivist de-installation program are filed. Double-click the Perivist logo and start the program.

### 4.3 Configuration of the CCD camera

Activate the Perivist program.  
Click the “Setup” button in the start-up window.

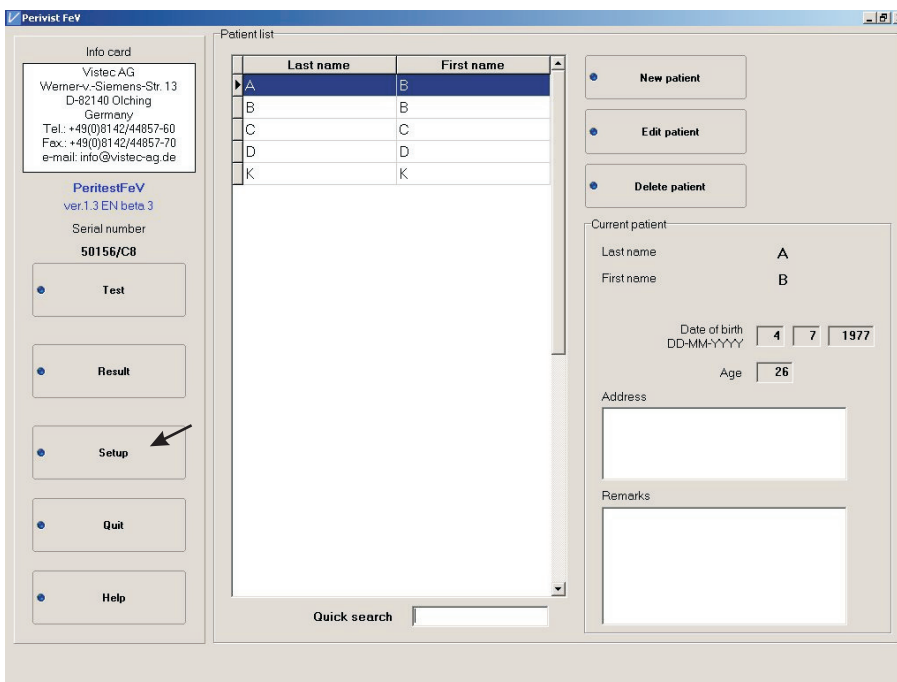


Fig. 5

The configuration window is opened. Open the “Settings” option (Fig. 6)

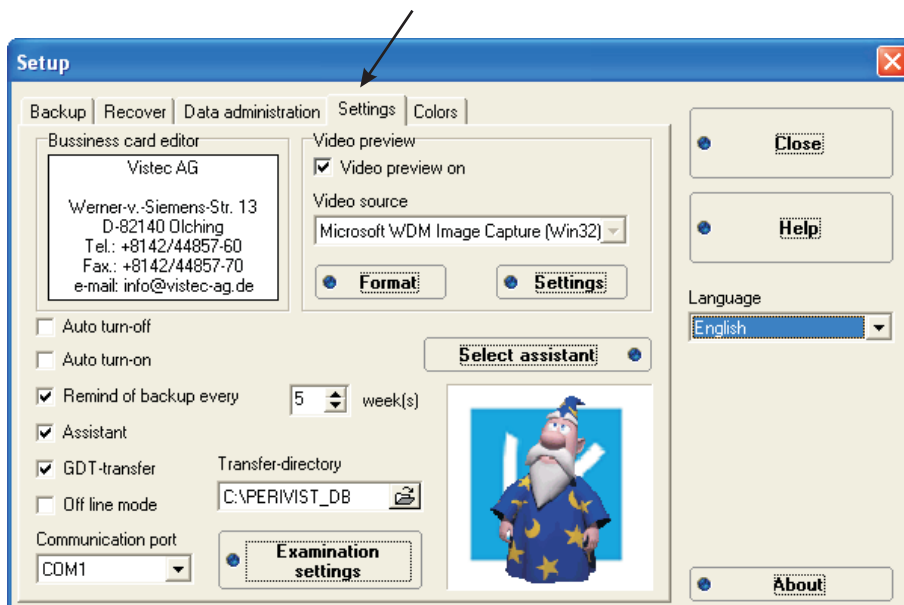


Fig. 6

Enter the communication port used (normally COM 1 or the highest of the offered) under “Communication port” (Fig. 7). Please indicate “Microsoft WDM Image Capture Version...” under “CCD source” (Fig. 7) as the selected driver.

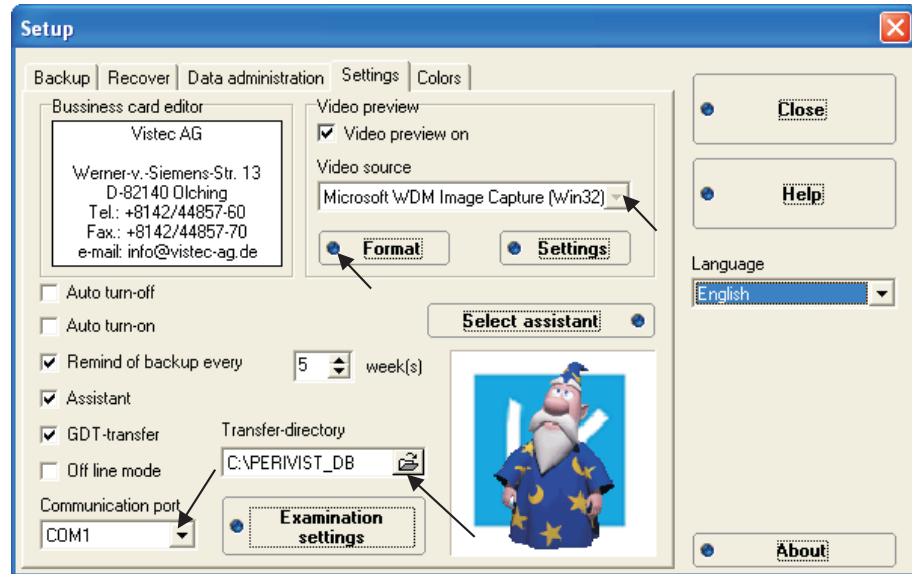


Fig. 7

Press the “Format” button next. Please set the resolution in the window that now appears to 352 x 288 pixels and the pixel density to RGB 24 bit (Fig. 8).

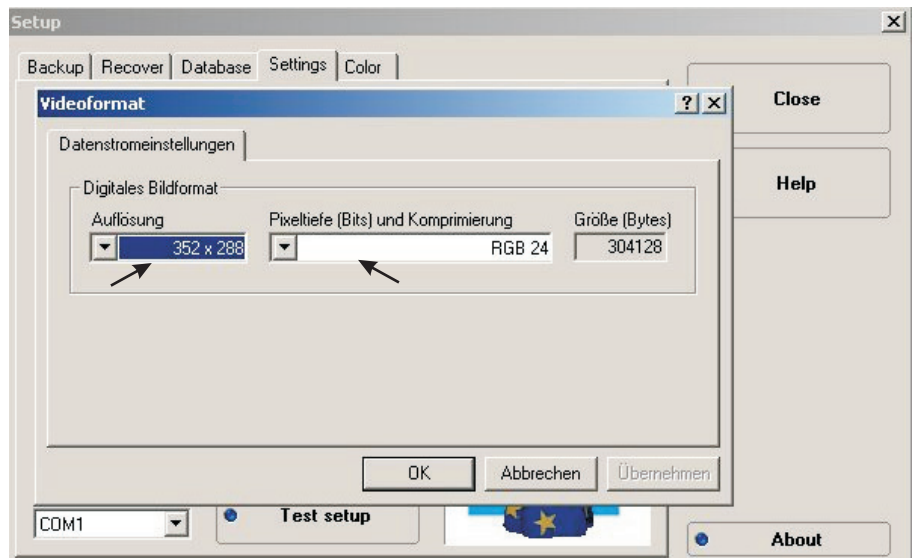


Fig. 8

Click “OK” and then “Close”. You are now back at the start-up window. The CCD camera is now ready for operation and you can start making the examinations.

#### 4.4 Configuration of the transfer directory

Click the relevant box for the GDT-transfer. Enter the path of the “transfer directory”. Use the file symbol on the right to select any directory. This transfer directory will also be used by the program to file exported individual diagnoses when the GDT transfer is not activated. These files are in GDT format and are named sequentially (FEV\_FEV.GDT; FEV\_FEV.001; FEV\_FEV.002 etc.). They can be imported into the Perivist’s own database (refer to 6.1 and 6.2, Exporting and importing the individual results).

## 4.5 Configuration of the Perivist software

Use the “Setup” button in the start-up window (Fig. 5) to open the setup window (Figs. 6 and 7). There the Perivist software can be adapted to individual needs using the register cards at the top of the screen.

The “Backup” register card:

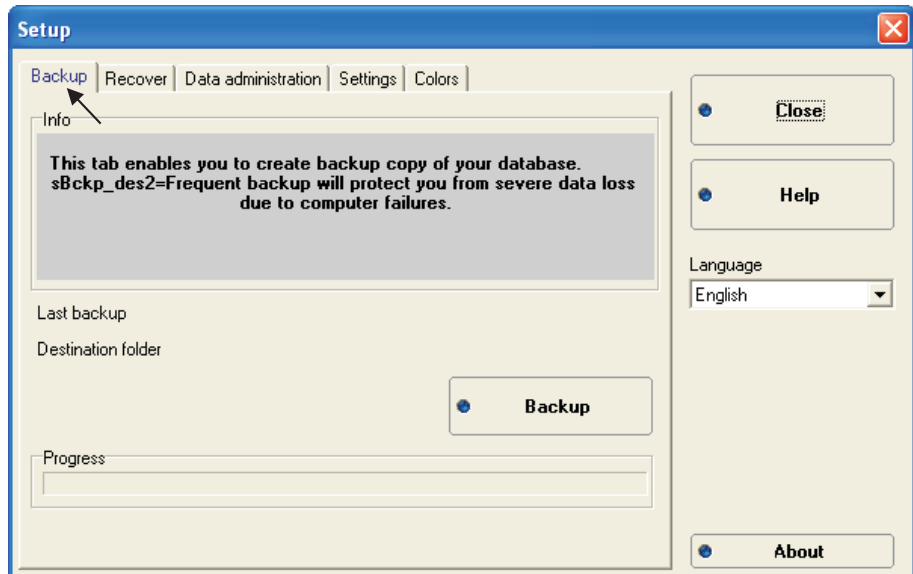


Fig. 9

The disk drive or directory you would like to use to save the Perivist data can be selected here.

The register card “Data administration”:

It is possible to check the database here for errors (“Integrity check”) and to remove patients from the database who have not been tested for a long time as well as older test results. From SW-Version 1.3R2 on the “Integrity check” tool will also repair a damaged database. From software version 1.31R2 on, a database repair function is backgrounding. Defects at the database which can arise because of improper program closings are repaired automatically after selecting the function „Integrity check“ and clicking on „Start“.

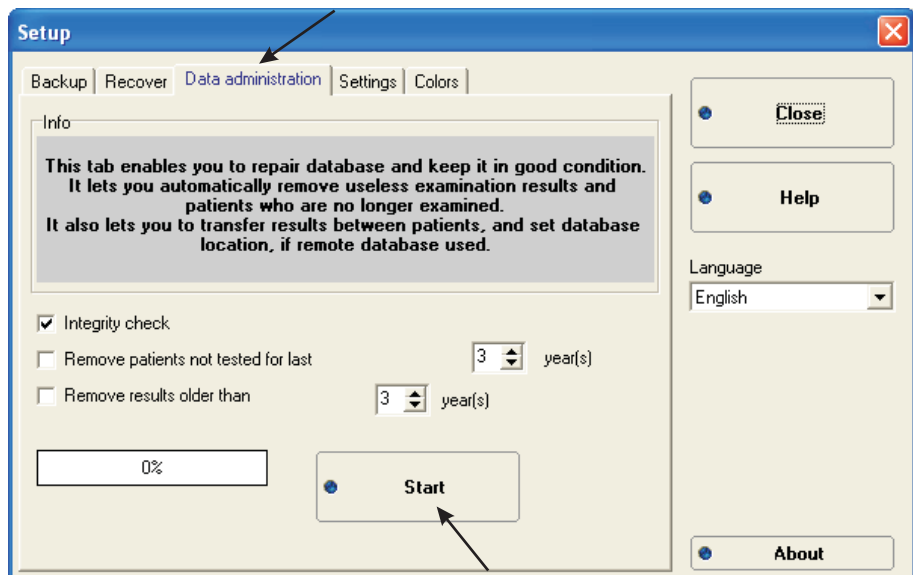


Fig. 10

The register card "Settings" (Figs. 6 and 7):

The CCD camera has already been configured here. You can also create your own personal business card here. Click the entry field "Business card editor" and enter the text desired. It then appears on the printout, in the results and the examination windows.

By activating the option "Auto turn-off" the computer is switched off with the program and by activating the option "Auto turn-on" the computer starts the program.

The activation of "Remind of backup every ...week(s)" triggers a reminder to carry out data backups at the chosen interval.

The "Assistant" may also be activated or de-activated.

By selecting the "Settings" button, you enter the Video source window. Camera-related image parameters can be changed there. However we recommend keeping the presetting.

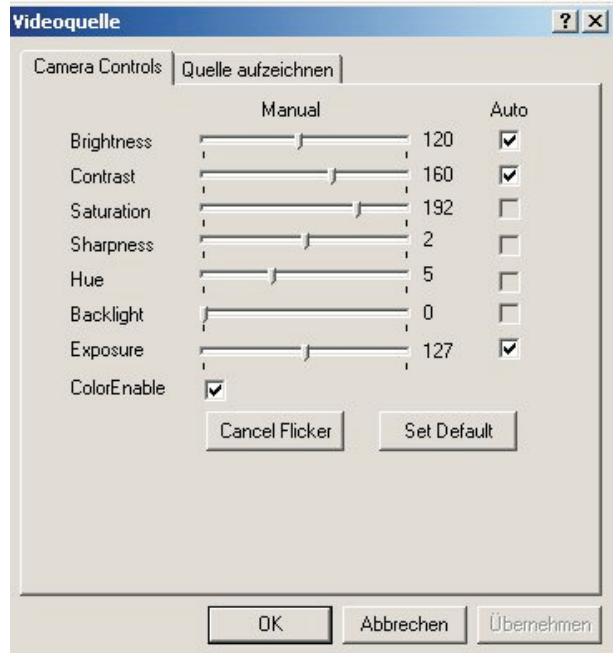


Fig. 11

## 5 Application

### 5.1

#### Test preparation

Switch the Perivist on. Then open the Perivist program on the computer.

#### Tip!

If it is too bright in the examination room, the error message “The surrounding light intensity is too high. Test results may be inaccurate!” appears. Try to create the right examination conditions, for instance by putting down the blinds or switching the lights off.

At the same time, ensure that the cupola is evenly lit without shadows cast.

### 5.2

#### Brief operating instruction

Phase	Refer to
<b>Patient</b>	
- Enter new patient or	5.3
- Select a patient	5.4
<b>Call up the test</b>	5.5
<b>Selecting the eye</b>	5.6
<b>Test settings</b>	
- If necessary, changing the test settings	5.7
<b>Creating a comfortable sitting position for the patient</b>	5.8
- Adjustment of the table and seat height	
- Positioning the patient close to the device	
- Pre-setting the right height for the chin support	
<b>Introduction to the test</b>	5.9
- Instructing the patient and giving him the answer key button	
- If necessary, show the demo program	
<b>Putting the eye-patch on</b>	5.10
<b>Correction lens needed?</b>	5.11
- If necessary, determine the correction lens	
<b>Insertion of the correction lens</b>	5.11
- If necessary, insert the correction lens in the holder and check: does the patient see the light spot clearly?	
<b>Entering the correction lens</b>	5.12
- Entering of the correction lens value into the program	

Phase	Refer to
<b>Accurate positioning</b> - Position the patient: for testing the right eye on the left chin rest and for testing the left eye on the right chin rest. - Use the camera to check whether the patient's eye is within the white ellipse.	5.13
<b>Starting the test</b>	5.14
<b>Removal of the correction lens</b> - With request of the program move the glass holder away	5.16
<b>Fixationshift</b> - Instruct the patient again and continue the test	5.17
<b>Finishing the test</b> - Store the results and continue with testing the other eye, if necessary	5.18

### 5.3 Entering a new patient

Click the "New patient" button in the start-up window to enter the patient data.

#### Important!

The date of birth must be correctly and completely entered in the format DD-MM-YYYY, otherwise it is not possible to save the patient data.

Example: 05.04.1968; the dots for 05.04.1968 are automatically entered by the program.

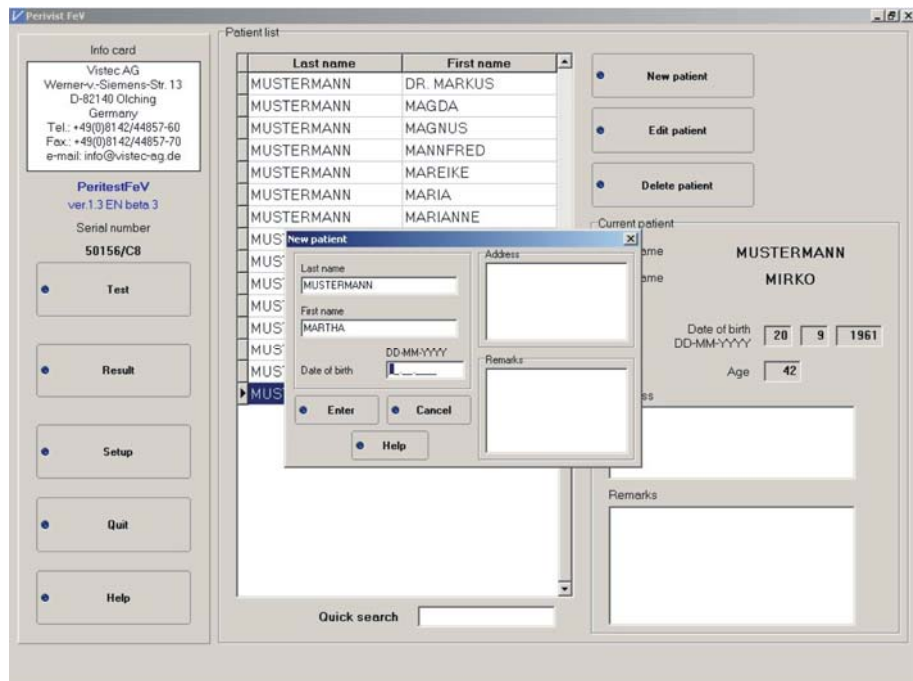


Fig. 12

#### 5.4 Selecting an existing patient

If the patient already exists in the database, select the name directly by mouse click from the "Patient list". Enter the last name in the field "Quick search" if you have an extensive patient list. The field for the respectively selected patient is marked in blue and the saved data appears in the "Current patient" card index. If you wish to change the data, select the "Edit patient" button (Fig. 12).

#### 5.5 Calling up the test

Click the "Test" button in the start-up window. The following window is opened:

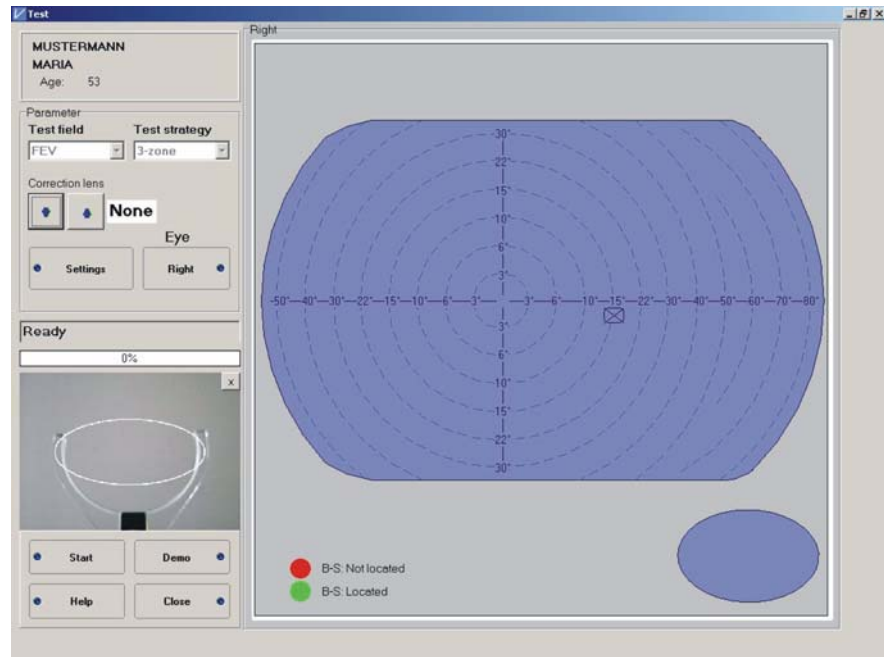


Fig. 13

The following test field is available:

#### FEV

Distribution of stimuli for a visual field judgement according to the driving license regulations.

#### 5.6 Selecting the eye

The preset option, when the test is called-up, is the examination of the right eye. Click the "Eye" button if you wish to examine the left eye.

## 5.7 Changing the settings

Use the „Settings“ button (Fig. 13) to enter the „Examination settings“ menu. The following parameters can be changed:

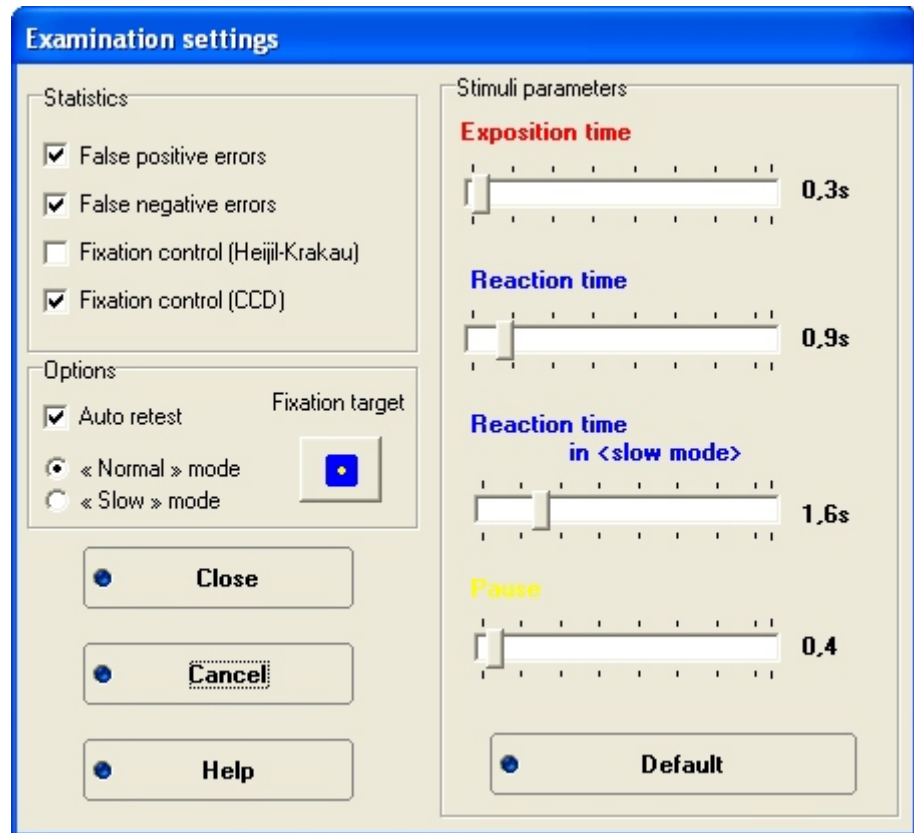


Fig. 14

### 5.7.1 Statistics

If the boxes “False positive errors” and “False negative errors” are ticked, the program tests some additional stimuli during the course of the examination. These additionally tested items give valuable information with regard to the analysis of the examination results. We therefore recommend marking these boxes.

#### **Fixation control**

You can select between fixation control using the CCD camera and the Heijl-Krakau method.

#### **CCD camera**

The camera constantly checks the fixation of the patient's eye. You can always follow the camera image in a small window at the same time. If the camera detects a fixation loss (No Fix), the program gives a stimulus in the blind spot area. If the patient responds, he is required to re-fix by a blinking fixation light. This control mode is repeated for each suspicion of fixation loss determined by the camera. The amount is documented in the results.

Should your computer have the USB communication port needed for camera operation, we recommend fixation control using the CCD camera.

#### **Heijl-Krakau**

This fixation control projects stimuli into the blind spot sporadically. If the patient gives a positive answer, then a loss of fixation is counted. The higher the number of positively answered fixation controls, the more critically the results as a whole can be seen. Select this method for fixation control if no camera function is available.

## 5.7.2 Exposition

Here it is possible to change the presentation time and the reaction period given to react to a stimulus and the break between the presentations.

### **Exposition time**

The exposition should not be set longer than 0.3s because otherwise the light spots become fixation stimulants.

### **Reaction time**

Set the reaction time for the patient in "Normal" mode in "Reaction time". The reaction time for the "Slow" mode can be set in "Slow" mode.

### **Default**

This button can be used to restore the standard saved settings for exposition duration, reaction time and the break period. This settings are recommended.

## 5.7.3 Mode

### **Auto retest**

With activated function „Auto retest“ in the FeV test field, within the 0° to 22° range determined relative and absolute defects are examined with a closer stimuli grid.

### **Normal or slow**

This option can be used to select the reaction period "normal" or "slow" granted to the patient. The accompanying time periods can be set respectively using "Reaction time" (refer to Fig. 14, page 19).

### **Tip!**

The program registers the individual patient's reaction time and adapts to it. The time set under "Reaction time" is therefore the maximum allowed reaction time. If the patient does not press the answer key button within this period of time, the previously displayed light spot is evaluated as "not seen".

## 5.8 Sitting position of the patient

Make sure that the patient has a relaxed sitting position because the test is very exhausting. Use a height-adjustable seat, if possible a height-adjustable table too. The patient should sit in a comfortable upright position in front of the perimeter and not have to bend forwards.

**Perivist FeV:** Use the rotating handle of the chin rest to set the correct height of the patients' eye in front of the device. Bring the eyes to the correct height (refer to Fig. 15, page 24). At the same time, the patient should concentrate on the fixation point.

**Perivist Compact:** Use the arrow keys to adjust the height of the chin rest (refer to Fig. 15, page 24).

## 5.9 Introduction to the test

Give clear test instructions. Explain the test before you put the eye-patch on the patient.

### **Recommendation for an introduction to the test:**

“This device will be used to examine your field of vision. The examination will take several minutes. During the course of the test it is important that you always concentrate on the yellow light in the middle. During the examination, small light spots with different degrees of brightness and at different places will light up in the sphere. Press the answer key button each time you see a light spot.” (Give the patient the answer key button.) “Always make sure to concentrate on the yellow light spot in the middle and do not follow the flashing spots. If the test is too exhausting for you, you can interrupt it by holding the answer key button pressed.”

### **Demonstration program**

You can start the demonstration program by pressing the “Demo” button. We recommend using it for explanatory purposes if the examination of the field of vision is performed for the first time for the patient.

## 5.10 Putting the eye-patch on

Then put the eye-patch on the patient's eye not being tested. Make sure that this eye is fully covered. The attached elastic band can be set to the respective head circumference. Ensure that the elastic band doesn't slip over the eye to be tested.

## 5.11 Insertion of the correction lens

If the patient needs a correction lens, insert it in the envisaged holder. Make sure that the patient can recognise the fixation mark clearly with the lens used.

In order to avoid artefacts in the area of vision, the examination is made without glasses. This avoids stimuli being hidden by the frame rim and influencing the results as spots “not seen”. If the patient wears contact lenses with correction for short-sightedness, he can normally wear them during the examination.

For patients with glasses an ametropia is corrected with special small edge correction lenses.

A set of correction lenses with refraction power ranging from +1 Dpt (dioptré) to +10 Dpt and -1 Dpt to -8 Dpt is included with the Perivist's accessories. Use these lenses to correct as well as possible. Enter the dioptrés of the correction lens used in the programs' “Test menu” under “Correction lens”. The correction will only be required for the central area of the field of vision up to 22°. When this part of the test is complete, the program interrupts the test, so that the lens can be removed and the lens holder can be moved out of the patients' sight.

### **Important!**

The program only asks for removing the correction lens if this is set accordingly.

We recommend the following procedures for the determination of the correction lens:

### 5.11.1

#### Determination of correction lens for unknown refractive errors

If the patient does not have a pair of glasses, assume the values according to table 1.

Age	Addition in dpt
under 35	0
35 to 45	+1,0
45 to 55	+2,0
From 55	+3,0

Table 1: Age-dependent addition

Test whether the patient can see the fixation light clearly with the proposed lens. If this is not the case, use steps of 1 dpt to see whether the visual impression improves using stronger or weaker lenses.

If the patient wears long-distance glasses or multifocals, ask him whether he can read without glasses or can carry out work close at hand. If yes, he is probably short-sighted and either doesn't need a correction lens for the perimetry or one which is weaker than specified under "Addition", possibly also a minus lens. Test whether the patient can recognise the fixation mark without correction. If not, feel your way towards the best possible lens in steps of -1 dpt.

If the patient cannot see near distances clearly without his glasses, he is probably long-sighted (hypermetropic) and needs at least the above specified addition value as a correction. Start with this value and increase it, as far as necessary, in 1 Dpt steps.

### 5.11.2

#### Determination of the correction lens using prescription values

If the patient has no data pass for his glasses, ask whether he has far-distance or near-distance glasses (tip: near-distance glasses are normally used for reading or similar nearby activities).

The following values are on the data pass for the glasses:

	Sph (dpt)	Cyl (dpt)	A (°)	Add (dpt)
R(ight)	+1,00	-0,75	10	2,0
L(eft)	-1,25	-1,00	93	2,0

There are also glasses passes or optician's prescriptions with the following format:

	Sph (dpt)	Cyl (dpt)	A (°)
D(istance) R(ight)	+0,25	+0,75	100
L(eft)	-2,25	+1,00	3
N(ear) R(ight)	+2,25	+0,75	100
L(eft)	-0,25	+1,00	3

This means:

**Sph: Sphere**

This is used to correct short-sightedness (myopia) or long-sightedness (hypermetropia). Short-sighted patients have their sight corrected with negative lenses and long-sighted patients with positive lenses.

**Cyl: Cylinder**

The cylinder corrects corneal curvature (astigmatism). The cylinder may be a positive or a negative figure.

**A: Axis**

The axis is related to the cylinder. It shows the direction in which the cylinder was drilled into the glasses lens.

**Add: Addition**

This value gives information regarding the nearby effectiveness. It is only used for multi-focal and progressive lenses.

If no addition value is specified and it is a long-distance pair of glasses, the age-related addition value for Add can be found in Table 1, Age-dependent Addition.

Use the following formula for correction (C):

**K= Sph + ½ Cyl + Add**

To calculate the correction lens needed, ensure that you pay attention to the preceding values for the sphere and the cylinder.

Example (refer to the glasses pass):

Right eye:  $K = + 1,0 \text{ dpt} + (- 0,375 \text{ dpt}) + 2,0 \text{ dpt} = + 2,625 \text{ dpt}$

Left eye:  $K = - 1,25 \text{ dpt} + (- 0,50 \text{ dpt}) + 2,0 \text{ dpt} = + 0,25 \text{ dpt}$

Round the values found so that for the example you would put a +3.0 Dpt correction lens in front of the right eye and take a +1.0 Dpt lens for the left eye.

**Tip!**

If it is a pair of glasses for near distances or values are entered under "Near", only use the sphere and cylinder values for calculation purposes:

$$C_N = \text{Sph} + \frac{1}{2} \text{Cyl}$$

**Optimising the correction lens value**

If the correction lens is inserted in the Perivist glass holder, make sure that the patient can clearly recognise the fixation light using the correction lens. If he still cannot see the fixation light clearly, insert a 1 Dpt stronger lens. If this worsens it further, insert a 1dpt weaker lens than the lens originally used. If you do not find a lens with which the patient can see the fixation light clearly, we recommend sending the patient to an ophthalmologist in order to avoid incorrect positive results. This can occur, for instance, if there is an astigmatism.

**Tip!**

The correction lens should be positioned as close as possible to the patient's eye and centred. At the same time, the eyelashes must not come into contact with the lens.

**5.12**  
**Input of the**  
**correction lens value**

Enter the refractive power of the correction lens into the software. Use the up-arrow key to set positive values and the down-arrow key to set negative values.

**5.13**  
**Accurate positioning**  
**of the patient**

Check the right eye, position the patient on the left half of the chin rest (For the left eye use right half). Make sure that the patient's forehead is flat against the forehead support and that the patient holds his head upright. Set-up the patient's position using the camera image. The eye should be within the white ellipse visible on the screen. If a correction lens is used, it should be visible centered in front of the eye. If you are working without the camera, the black markings on the forehead-rest indicate the correct height of the patient's eyes (only for Perivist FeV).

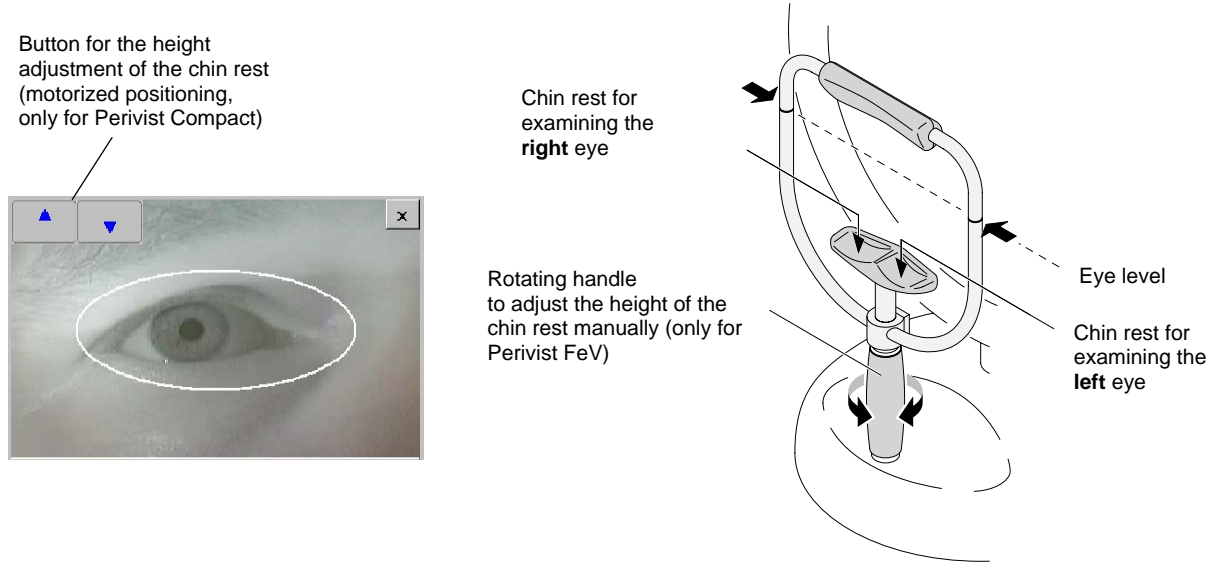


Fig. 15

**5.14**  
**Starting and**  
**interrupting the**  
**examination**

Start the examination by pressing the "Start" button. If it is necessary to make an interruption, click "Pause" and click "Continue" to continue.

### 5.15 Sensitivity threshold at 10 degrees

At the beginning of the examination the "blind spot" is searched and the sensitivity threshold is determined. If the window shown below appears after a short time, this could be caused by:



Fig. 16

1. The response of the patient was wrong. For example, only the light stimuli, not the dark stimuli had been answered, although they had been noticed. Possible cause for this: insufficient motivation or attention (level of vigilance).
2. There is a general sensitivity reduction, at least centrally. The cause for this may be different pathologies such as an opacity of the crystalline lens (cataract).

In this case introduce the patient once more and repeat the examination, or follow the suggestion of the program and continue the examination with the age correlated threshold (button: „OK“).

The averaged threshold determined within the range of the 10° visual field is stated on the printout or in the result window.

You can provoke the appearance of the window by starting a test and never pressing the answer button. The program assumes that the patient does not see anything.

### 5.16 Removal of the correction lens

If a correction lens is used, the program is interrupted after the central area is tested. Remove the lens and move the glass holder away. Continue the program.

### 5.17 Moving the fixation shift

In order to be able to check also the outer periphery, it is necessary to change the fixation direction. For this purpose, the program interrupts the test. Instruct the patient as follows, for example:

„The yellow light now appears to be moved sideways towards your nose. Please look in this direction now without turning your head.“

Continue the test.

When the examination is finished, the window appears "Examination finished". If you wish to note additional information, enter it under "Remarks". You now have the following options:

## 5.18 Finishing the test

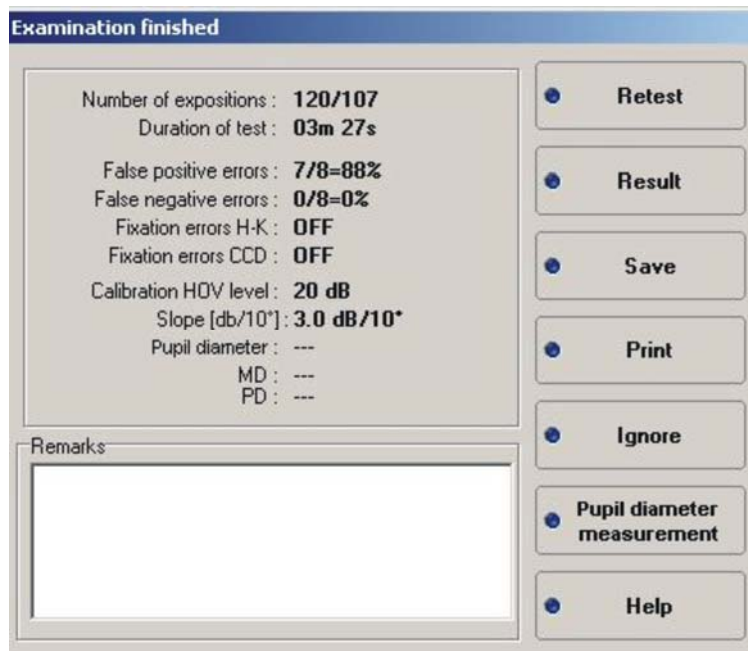


Fig. 17

### Retest

If deficiencies are discovered during the examination which cannot be clearly classified and which you would like to check again, instruct the patient to keep his position in front of the perimeter after the examination is finished. Press the “Retest” button in the window which appears at the end of each examination.

After pressing the Retest button, the result is displayed. It is possible to mark single stimuli in this window using the mouse (left mouse button) for retesting.

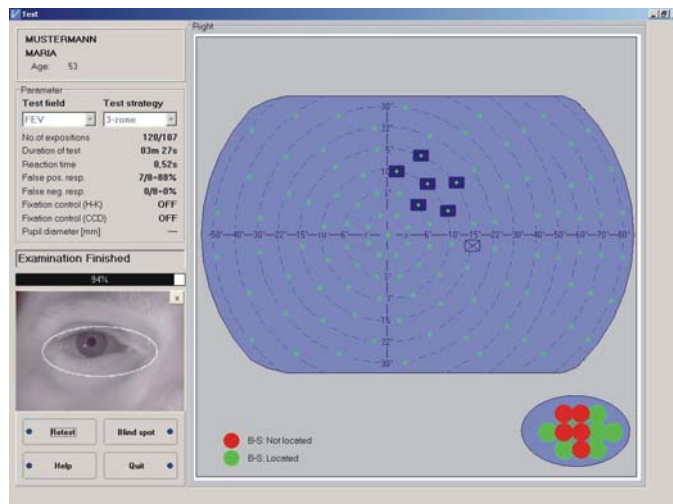


Fig. 18

The marked items are highlighted in colour. If an item which is already marked is re-clicked using the mouse, it is removed from the selection list again.

We recommend marking both the defects and some points surrounding the defects.

In order to carry out retesting of the selected items, click the “Retest” button. Follow the on-screen-instructions for correction or moving the fixation.

After completion of retesting, the "Examination finished" screen re-appears and you can continue as usual with "Result", "Save", etc.

**Result**

If this button is clicked, the program changes to the sub-item "Result" and displays the last measurement. In this case, the result is automatically saved.

**Save**

If "Save" is clicked, the test is saved and the program queries whether the other eye should be tested.

**Print**

Opens the print window for the test results.

To print the results for both eyes on one sheet, do the following:

- After testing the right eye, press the "Save" button (refer to Fig. 17, page 26).
- Question: "Would you like to test the other eye?" Confirm with "Yes".
- After testing the left eye, press the "Print" button and answer the question: "Both eyes on one printout? Confirm with "Yes".
- Now press the "Save" button after printing.

**Ignore**

Click this button if the test which has just been completed needs not be saved.

**Manual pupil diameter measurement**

This function can be used to determine the pupil size, taking several images saved during the examination into account. In this case, the automatically measured pupil diameter is replaced.

## 6 Results menu

To view the test results, select the respective patient from the patient list in the start menu and click the “Result” button.

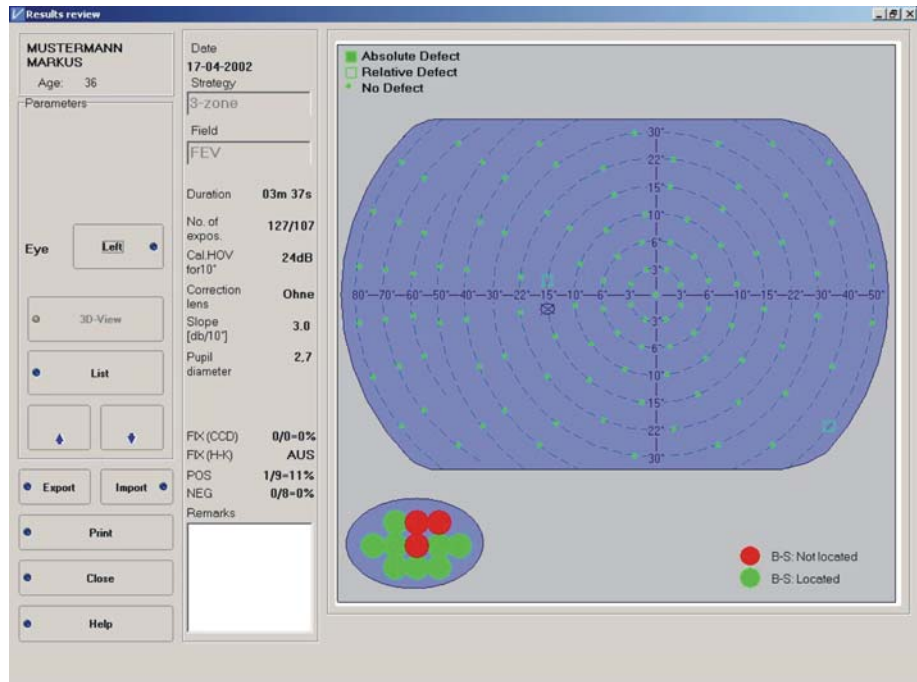


Fig. 19

### Patient

To call-up a different test person's result list, click on the button with the patient's name. Select the name looked for from the patient list which then appears.

### Eye

This button is used to change between the right and left eye.

### List

Click on the “List” button to view the “Examinations list” in which all tests for a patient are listed, sorted by date.

### Tip!

Only the tests for the eye currently selected are displayed. In order to view the tests for the other eye, click the button “Right” or “Left” respectively.

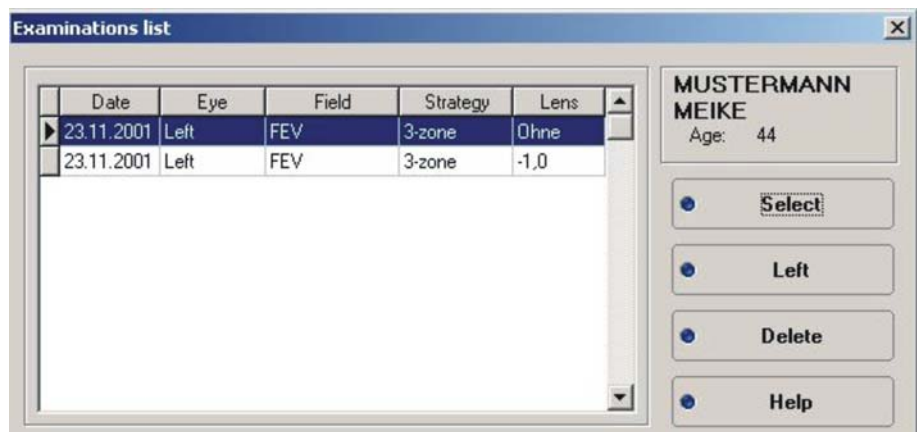


Fig. 20

### Arrow keys

If more than one test is saved for the selected eye, use the arrow keys to change quickly between the available tests.

### Print

This option is used to print out the result currently displayed.

## 6.1 Exporting individual results

The “GDT-transfer” box can be found under the item settings in the configuration menu. There you have also the possibility to determine a transfer directory (refer to section 4.4 „Configuration of the transfer directory“).

- Look for the patient in the database and then switch to the results window.
- Call-up the result which you wish to export.
- Then press the “Export” button. The result will be saved in the transfer directory chosen by you and the following screen message appears:

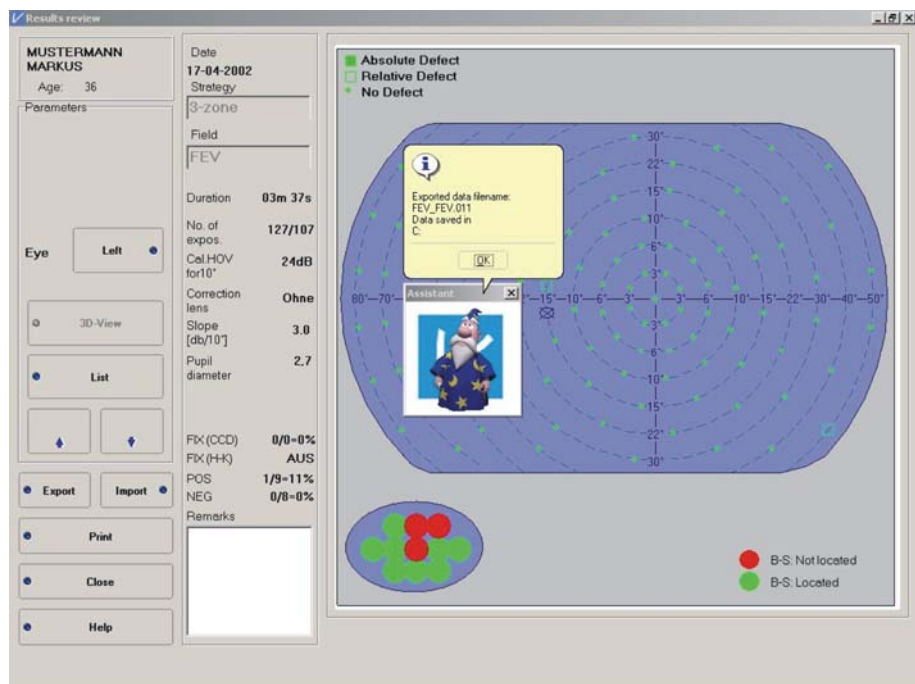


Fig. 21

You can now send this file per e-mail, for instance to other Perivist users, on condition that the Perivist software is installed on the other PC.

## 6.2 Importing the individual results

Call-up any results window you like and press the “Import” button.

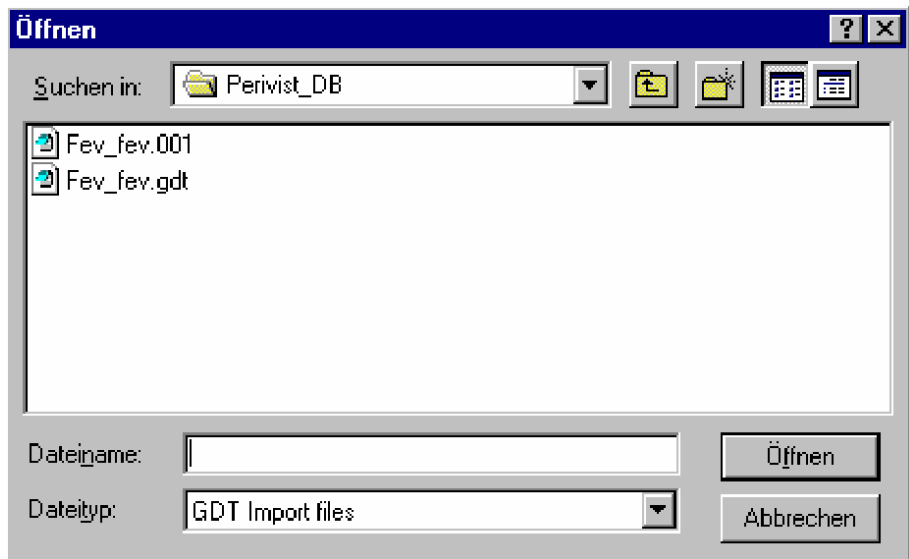


Fig. 22

Now you can open the transfer directory or also any other directory you like, mark the desired file there and use “Open” in the results window and import it to your Perivist database.

### **Important!**

Although the originally opened results window will be “replaced”, the result (and, needless to say, the patient) will remain saved in your database. There is no data loss.

The imported result and the respective patient are now saved in your database.

## 6.3 Important reliability data

### **Pupil diameter:**

Pupil diameter: not smaller than 2 mm (if nec., check manually). Only important if simultaneously there is a concentric visual field reduction or a failure of the temporal sickle.

### **FIX (Fixation CCD): 1/4 = 25%**

The number on the left side of the slash states the quantity of the confirmed fixation losses; the number on the right side of the slash states the quantity of the suspicious facts of fixation loss (the camera has noted an eye movement).

### **Important!**

There must be fulfilled two conditions simultaneously:

1. Number of suspicious facts = 10 max.
2. Threshold value = 30 % max.

### 6.3.1

Examples for good fixation

#### **Suspicious facts below 10**

1/1 = 100%: Fixation is all right, because there was only one suspicious fact

2/4 = 50%: Fixation is all right, because there were only four suspicious facts

#### **Threshold values below 30% - suspicious facts more than 10**

2/11 = 18%: Fixation is all right, because the threshold value is below 30%

3/12 = 17%: Fixation is all right, because the threshold value is below 30%

### 6.3.2

Examples for bad fixations

#### **Threshold values higher than 30% and more than 10 suspicious facts**

4/11 = 36%: Fixation is not correct, because there were more than 10 suspicious facts and the threshold value is higher than 30%

5/12 = 42%: Fixation is not correct, because there were more than 10 suspicious facts and the threshold value is higher than 30 %

### 6.3.3

Examples for critical evaluations of the fixations

If the false positive and the false negative answers are just within the tolerable range, the following fixation result can be judged as just all right:

5/10 = 50%: Fixation is just all right

#### **False positive answers (POS)**

How was the cooperation? How often the patient has pressed the answer button although he had not seen anything? The number on the left side of the slash states how often the patient pressed the answer button, although there were no stimuli. The number on the right side of the slash states the quantity of the trial presentations (the frequency of the stimuli presentation is changed. If the patient presses the answer button in one of the pauses, this is a false positive answer).

#### **The threshold value for a good cooperation is 30%**

0/10 = 0%: There were 10 pauses; within these pauses the patient never pressed the answer button. Very good cooperation.

3/10 = 30%: There were 10 pauses; within these pauses the patient pressed the answer button 3 times. If the other parameters are all right, this value is just acceptable.

4/10 = 40%: The threshold value of 30% is exceeded. The cooperation was bad.

#### **False negative answers (NEG)**

In the course of the examination some of the stimuli the patient had recognized correctly are presented again with more brightness. If this time the patient does not press the answer button, this is called as false negative answers (plausability check).

The number on the left side of the slash states the quantity of not recognized stimuli (second presentation). The number on the right side of the slash states the quantity of stimuli presented a second time. Normally, the number of false negative answers increases when there is a wide area of a scotoma.

#### **The threshold value is about 30%**

0/9 = 0% Result is acceptable

2/9 = 22% Result is acceptable

4/9 = 44% The threshold value of 30 % is exceeded. The result is not acceptable.

## 7 Maintenance and Care

### 7.1 Cleaning

#### Cleaning the housing

Wipe the outer surfaces of the housing and the inside of the semicircular lens (cupola) with a clean cloth, dampened with soapy water.

#### Important!

Please ensure that no cleansing agents penetrate the interior of the device.  
Never use aggressive cleaning agents or solvents such as acetone or similar.

#### Cleaning the chin rest and the forehead rest

#### Important!

Clean both the chin rest and the forehead rest after each examination using commercially available disinfectant. Never use aggressive cleaning agents or solvents such as acetone or similar.

### 7.2 Changing the lamps

The background luminance of the Perivist FeV is performed by lamps which can be replaced in an error case.

The Perivist Compact is equipped with LEDs for the background luminance. These LEDs have a long life and therefore they are not supposed to be exchanged.

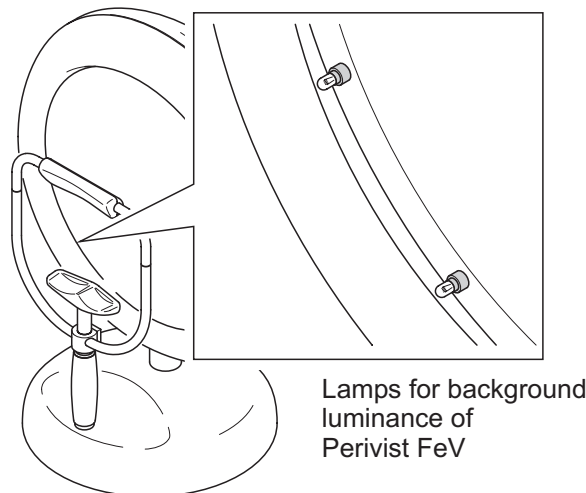


Fig. 23

#### Attention!

Before exchanging lamps, the device must be removed from the mains supply. Switch the device off and remove the mains power plug.

The technical data for the lamp is matched to the brightness needed in the cupola. Please therefore only use an original replacement lamp: 12 V, 2 W (order no. 700-080).

When changing the lamps, please observe the following instructions:

Switch the device off and remove the plug from the power supply socket.

**Attention!**

Danger of burning! A lamp which was intact until a short while ago may still be hot.

Grasp the lamp with two fingers and push it lightly into the bayonet cap until you feel some resistance. Turn the lamp a little. Reduce the pressure and remove the lamp.

Place the new lamp in the socket. Turn the lamp slowly to find the position in which it slips into the socket a little. Then press the lamp in further until you feel some resistance and turn it a little until it is secured.

### 7.3 Changing the fuses

The fuses are located underneath the device above the power-supply-Socket.

When changing the fuses, please observe the following instructions:

Switch the device off and remove the plug from the power supply socket.

Place the device carefully on its front side and remove the power supply plug.

Press the catch (1) on the fuse box, e.g. with a screwdriver.

Pull the fuse box (2) out and exchange the fuses.

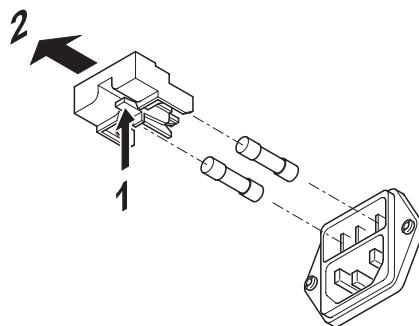


Fig. 24

### Important!

Only use fuses with a value of MT 1.0. Always change both fuses.  
Please also observe the details on the identification plate.

Push the fuse box back into the socket until it engages.

Reconnect it to the mains and switch the device on.

If the fuses fail again immediately, please contact your Vistec AG servicing agent.

## 7.4 Photometric measurements


In order to maintain consistent examination quality with constant examination conditions, it is necessary to make control measurements of the surrounding light intensity in the cupola and the light intensity of the light diodes every 2 years. If there are variances to the set points, they are then calibrated. For this purpose please refer to an authorised Vistec AG servicing agent or directly to Vistec AG.

## 8 Waste disposal

The device contains components which are not suitable for disposal in normal household waste. Please engage a waste disposal company or turn to Vistec AG.

## 9 Technical data

### 9.1 Technical instrument data

<b>Dimensions</b>	<b>Perivist FeV</b>	<b>Perivist Compact</b> without/ with case
Height .....	740 mm	680 mm/ 720 mm
Width .....	590 mm	550 mm/ 590 mm
Depth .....	382 mm	390 mm/ 460 mm
<b>Weight</b> .....	15 kg	11.7 kg/ 13.9 kg
<b>Electrical Data</b>		
Supply voltage .....	230V ~	
Supply frequency .....	50-60 Hz	
Max. current consumption .....	0.18 A	
Fuses .....	2x MT 1.0A	
Protection class .....	I	
Device type .....	B 	
<b>Environment conditions during operation</b>		
Temperature.....	+10°C to +35°C	
Relative humidity .....	30% to 75%	
Atmospheric pressure.....	800 hPa to 1060 hPa	

**9.2**  
**PC requirements**

Processor .....	e.g. Intel Pentium with 600 Mhz or higher
Free working memory .....	64 MB RAM minimum
Free communication ports .....	1 USB communication port 1 printer communication port
Drive.....	CD ROM
Hard disk capacity .....	10 MB free memory minimum
Operating system .....	Windows 2000, Windows XP
Screen resolution .....	800x600 pixels minimum; 24 bit colour depth; for the camera: 352x288 pixels; 24 bit colour depth



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