

# Optec<sup>®</sup> PLUS



User Manual



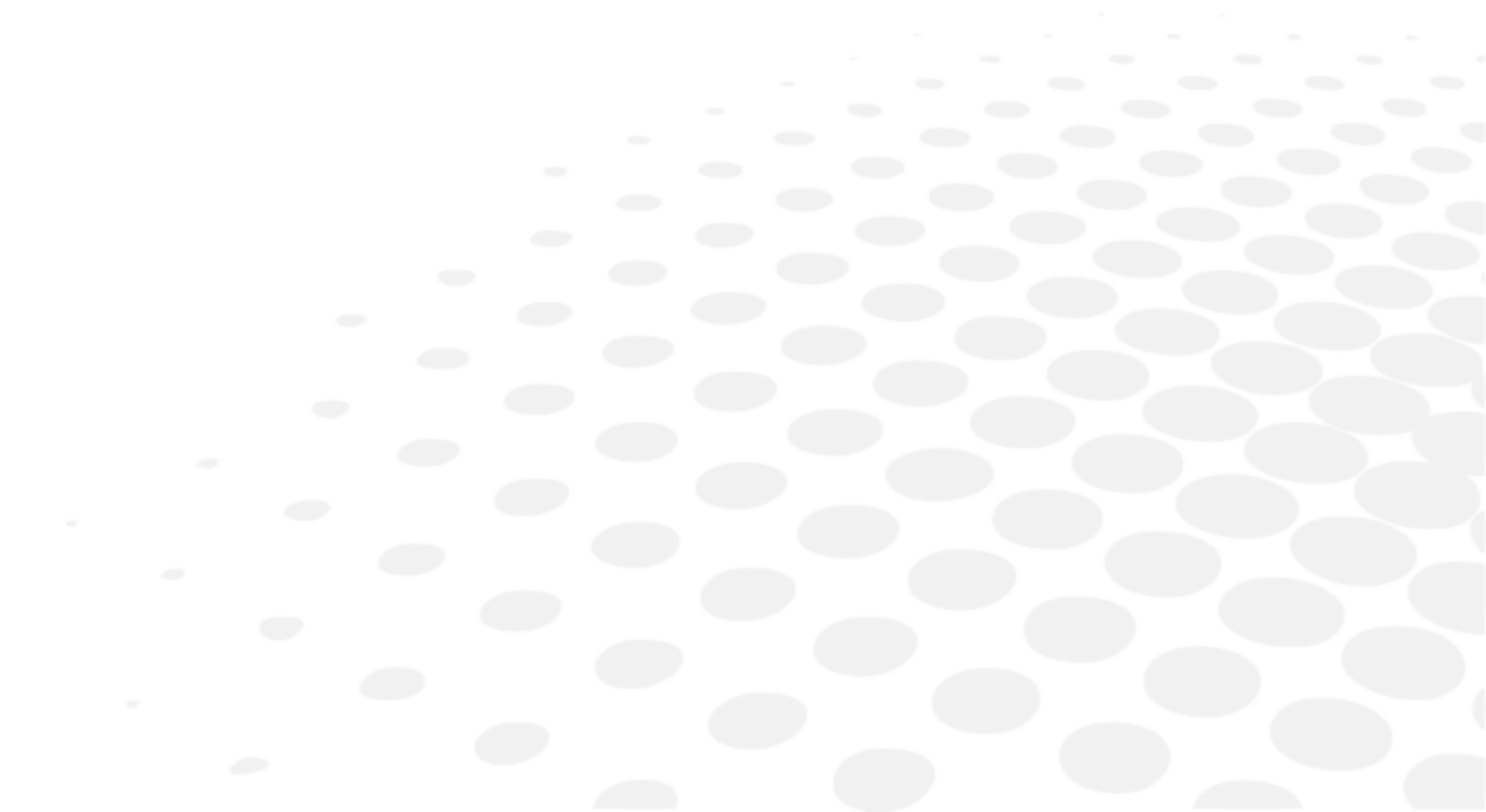
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## I. INTRODUCTION





This device C86 (Optec Plus) makes it possible to carry out an easy, fast and precise vision screening through:

- its easy to use interface,
- its height adjustment system for customised use,
- its integrated protocols which allow targeted screening.

## Home screen



1. Files of tested patients
2. List of reports generated in pdf
3. Display of the Amsler grid (available depending on the offer)
4. Settings
5. Product information
6. Display size
7. Connected Device(s)
8. Recognition of the electronic board
9. Help

## 1. To install the Bluetooth dongle

In order to be able to use the device, you must synchronize it with your computer by using the Bluetooth dongle provided.



If you do not use medical software and you are equipped with an Elite tablet you do not need to install the Bluetooth key.

- 1 Insert the Bluetooth dongle into one of your computer's USB ports.

> The Bluetooth dongle is installed automatically.






According to your operating system version:

1. An installation window is displayed > Click on next
2. The installation is carried out automatically

> Once the installation is complete, the  icon is displayed at the bottom of your screen.



If the Bluetooth key does not install automatically, insert the USB key provided with the device and install the Bluetooth directory program.

|   |                    |                  |                     |           |
|---|--------------------|------------------|---------------------|-----------|
|  | Bluetooth          | 04/08/2016 14:06 | Dossier de fichiers |           |
|  | Documents          | 04/08/2016 14:07 | Dossier de fichiers |           |
|  | Tools              | 04/08/2016 14:07 | Dossier de fichiers |           |
|  | Update             | 04/08/2016 14:07 | Dossier de fichiers |           |
|  | OptecPlus_VX.X.exe | 01/07/2016 09:39 | Application         | 81 049 Ko |

- 2 Start the device software.



See Installing the software (p.8).






## 2. Installing the software

A USB stick is provided with the device. It contains the software. You must install it on your computer before being able to use it or start tests.

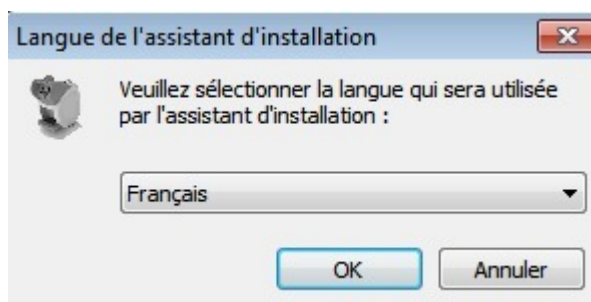
- 1 Insert the Bluetooth key into one of your computer's USB ports.

> A new folder is displayed in the file explorer list.

- 2 Open the file and double-click on the software.

|   |                    |                  |                     |           |
|---|--------------------|------------------|---------------------|-----------|
|  | Bluetooth          | 04/08/2016 14:06 | Dossier de fichiers |           |
|  | Documents          | 04/08/2016 14:07 | Dossier de fichiers |           |
|  | Tools              | 04/08/2016 14:07 | Dossier de fichiers |           |
|  | Update             | 04/08/2016 14:07 | Dossier de fichiers |           |
|  | OptecPlus_VX.X.exe | 01/07/2016 09:39 | Application         | 81 049 Ko |

- > The installation window opens.

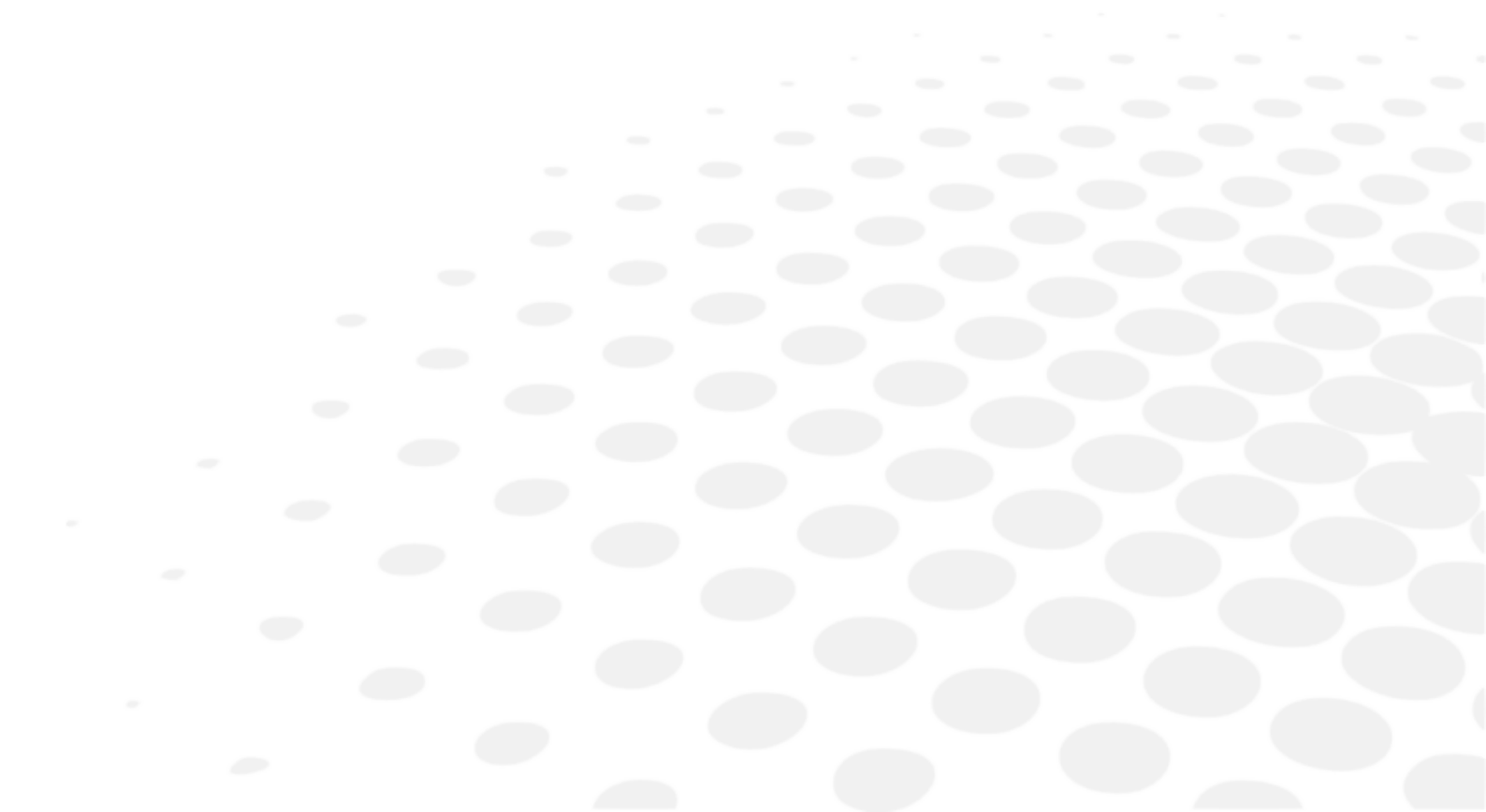


- 3 Follow the installation instructions.

- > The software has been installed on your computer.



## II. TO START A PROTOCOL






The *Protocols* menu lets you start a series of tests for targeted screening. The user can adjust the font size.

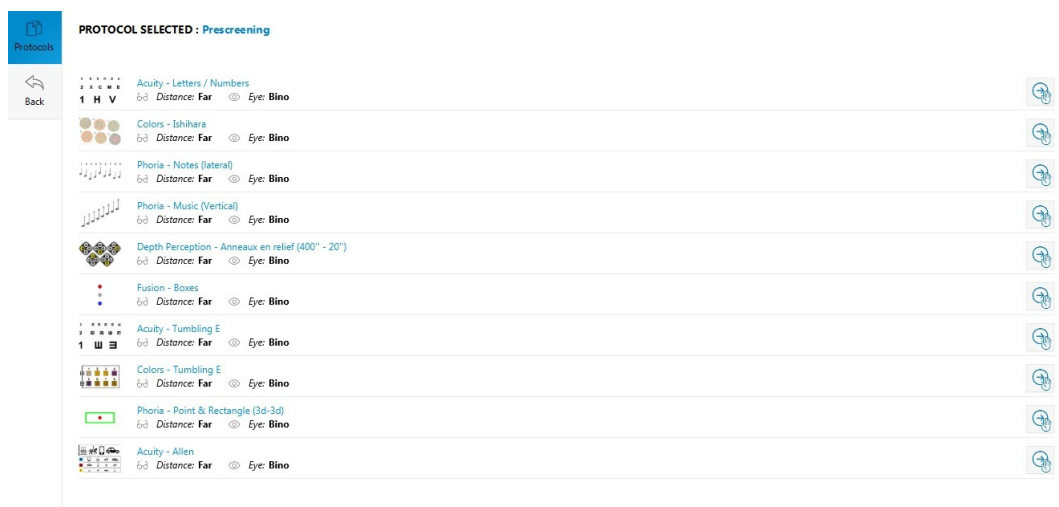


If you have the automatic mode option, you can choose to only display the automatic protocols by clicking on the *Only display automatic protocols* function, in the top right hand side of the screen (according to your product version and model).



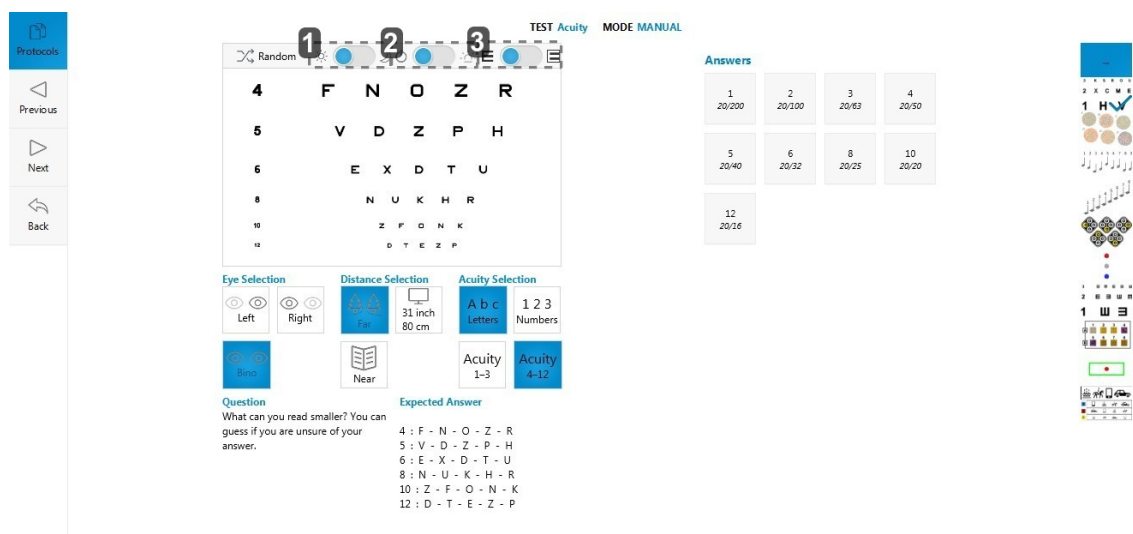
You can view all the tests within a protocol by clicking on .

The following screen will appear:



1 Select a protocol by clicking on  (manual protocol).

> The first protocol test starts.



1. Night vision (mesopic) activation
2. Peripheral glare allowing the glare sensitivity to be set
3. Display of acuities on black or white background



For protocol tests, day vision is activated by default. However, there is also a night version available.



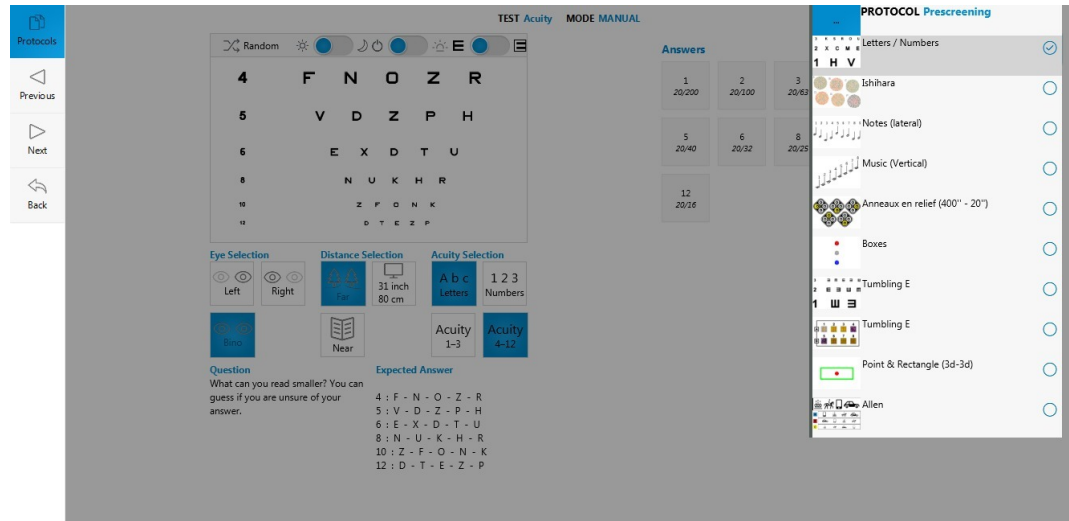
Night vision (mesopic) and the peripheral glare are available only if the options were bought and activated.



You can continue to visualize all the protocol tests in the side menu.

Click on to obtain a more detailed overview.

> The following screen is displayed.

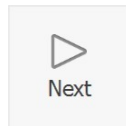
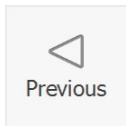


Press again to go back to the initial display.



The test in progress and the tests that have already been carried out are indicated by a tick "✓".

2 Click on:

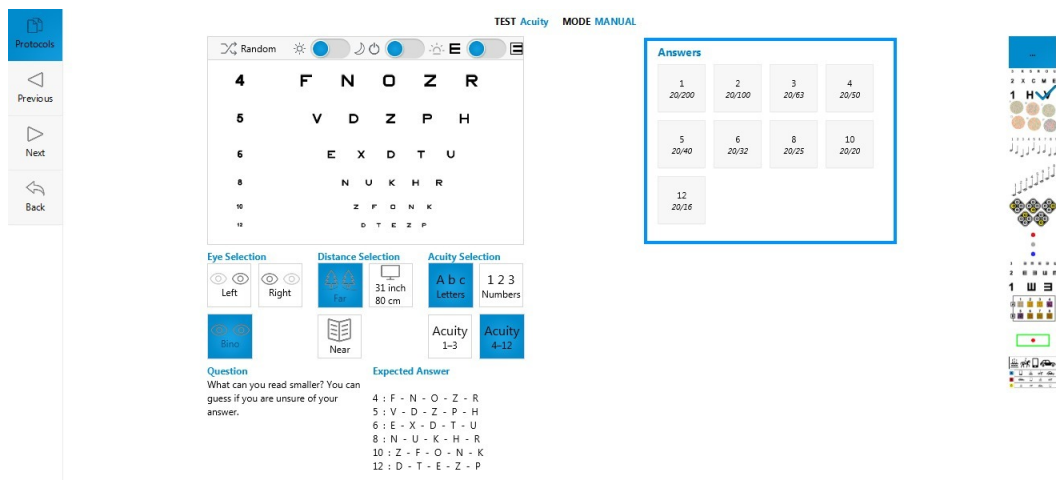


to scroll through the tests.

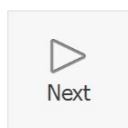


You can also scroll through the tests on the side menu by selecting the test of your choice.

3 Input the results from the *Answers* part.

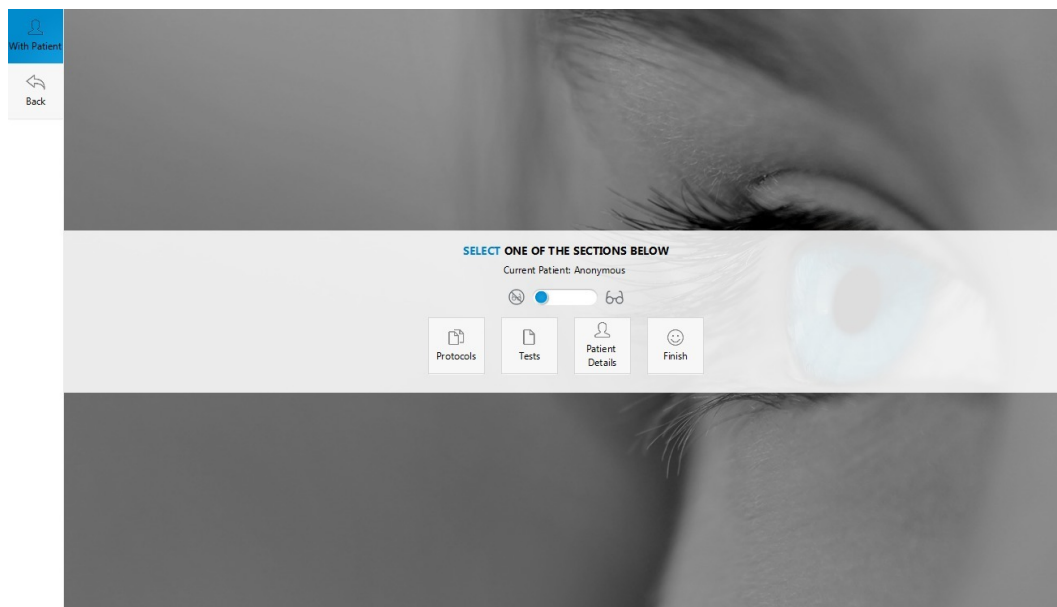


4 Click on:



once the protocol is finished.

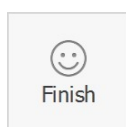
> You are redirected towards the main menu.



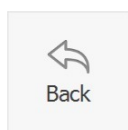
This page allows you:

1. to choose if the patient takes the test with or without glasses (doctor's decision), this must be done before starting the protocols and tests, it will appear on the results page,
2. to access the test list and be able to launch them one after the other; or to select a protocol from the list,
3. to modify information about the subject, to view an information summary or to finish with the patient.

5 Then, press on:



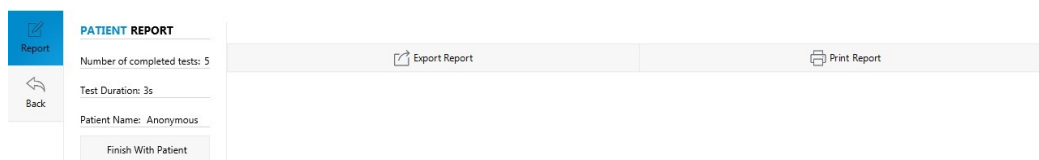
If you need to complete a test or to carry out a new one, you can press on:



if not click on

Finish With Patient

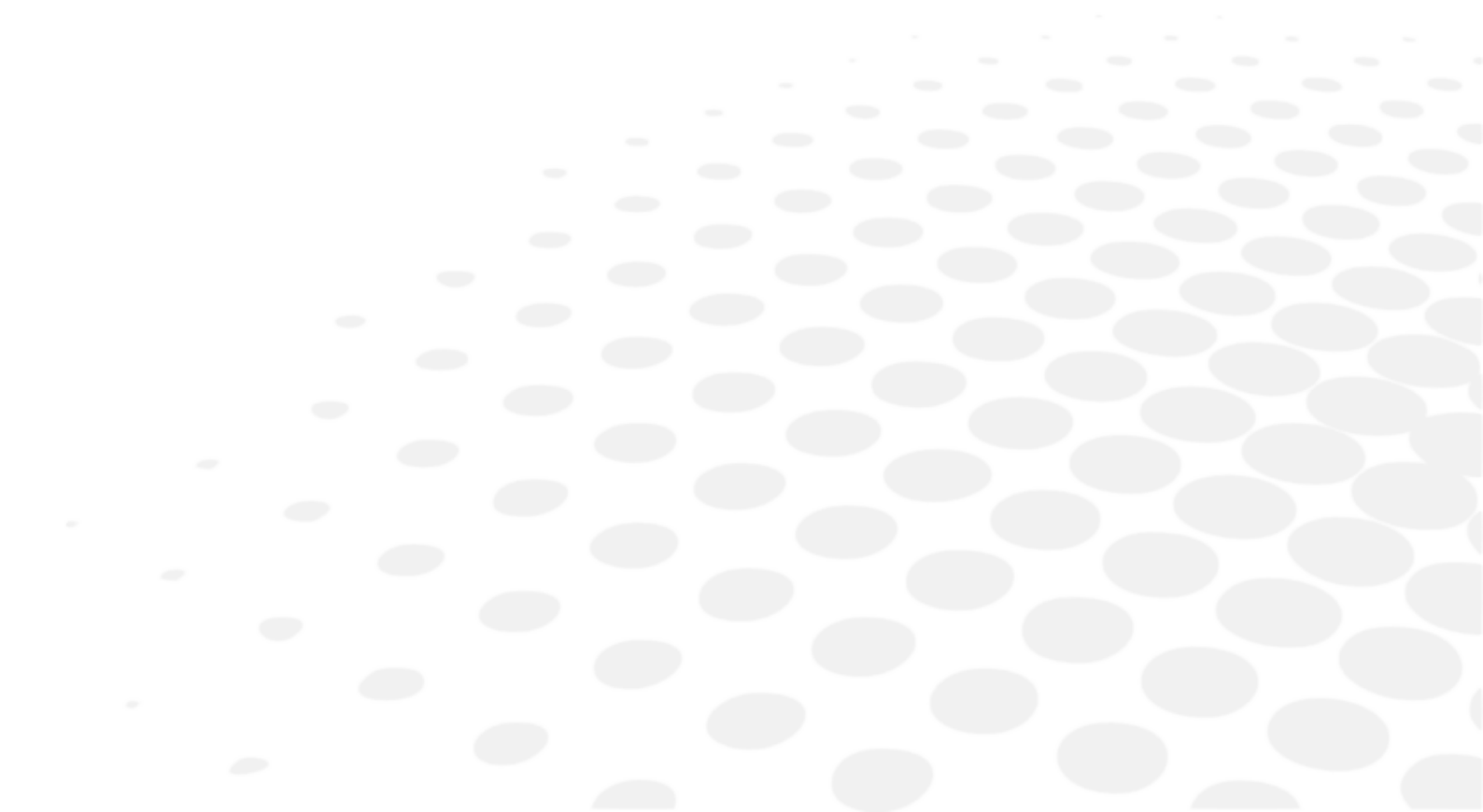
The results report for completed tests opens (unit protocols and/or tests as well as information about the patient).



You can export (XML file), send (PDF) or print these results.



### III. TO INSERT AN ANCILLARY LENS



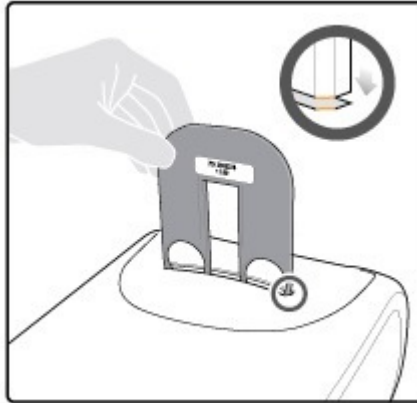


The use:

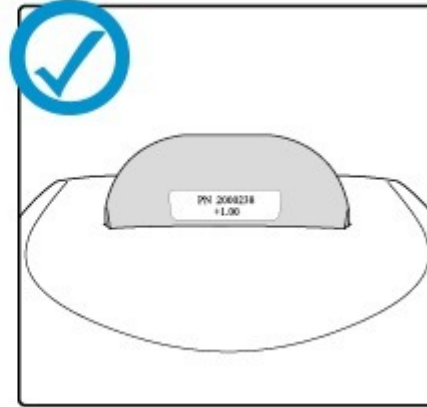
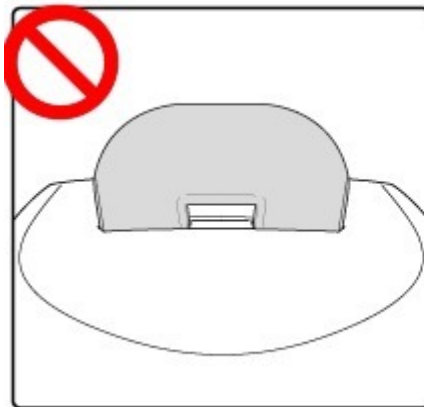
- of two ancillary lens +1.75 and +2.25 is necessary for the screening test of latent farsightedness.
- of two ancillary lens VI 31 inch and VI 26 inch is necessary for the screening test of mid-distance vision.

Insert the ancillary lens into the device then remove once the test has been carried out.

- 1 Take off the rubber cover located at the top of the device.
- 2 Insert the ancillary lens into the slot.



- 3 Ensure that the ancillary lens has been inserted correctly by checking that the label is not visible to the patient.
- 4 Push the ancillary lens downwards until the edges meet the device.



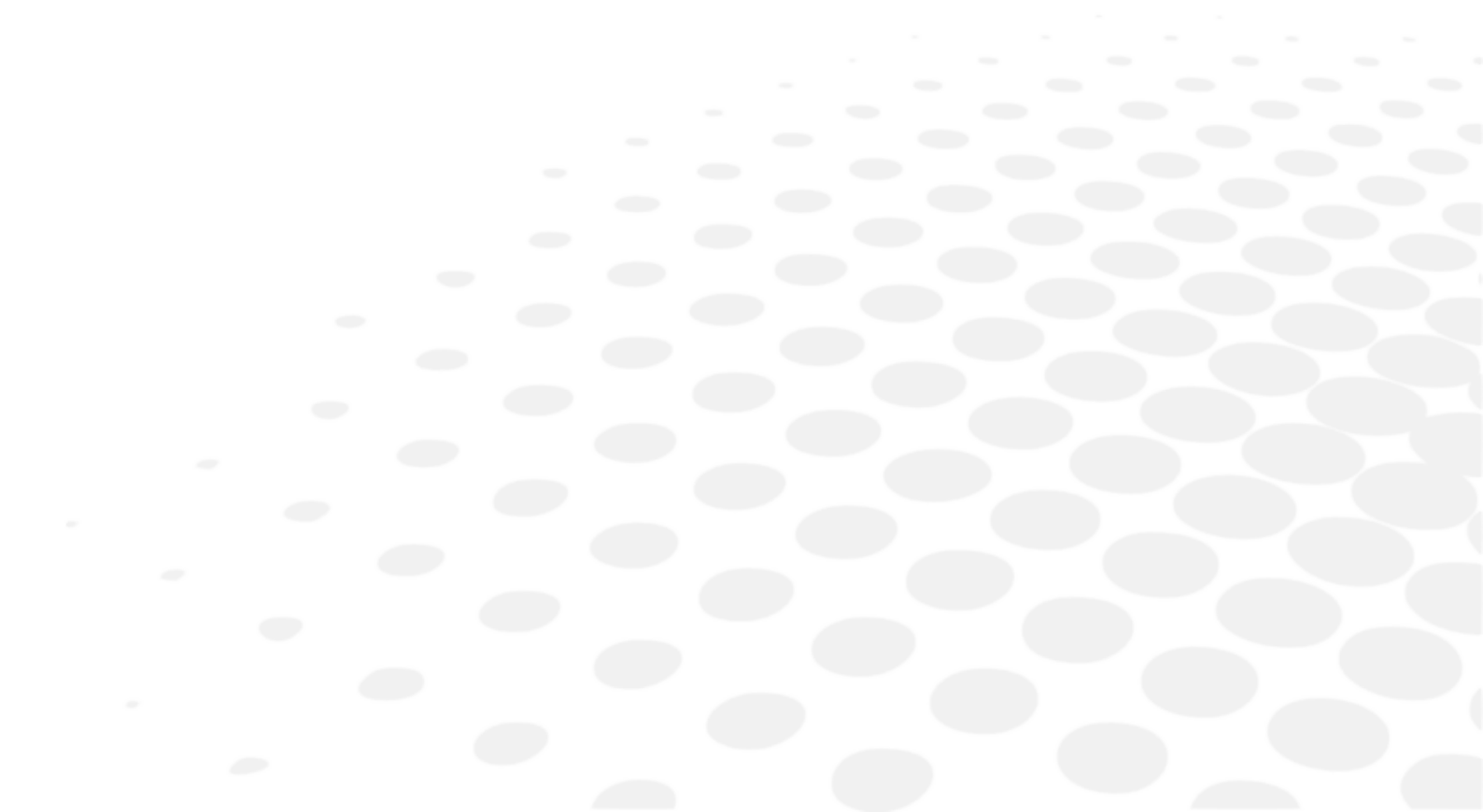
A incorrectly inserted ancillary lens remains stuck. Do not exert excessive pressure on the ancillary lens so as not to damage it.



Do not forget to remove the ancillary lens after use. Forgetting to remove it could distort the other test results.



## IV. TESTS





The *Tests* management menu allows you:

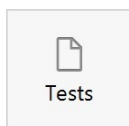
- to start a test (p.23),
- to read the results (p.25).

## 1. To start a test

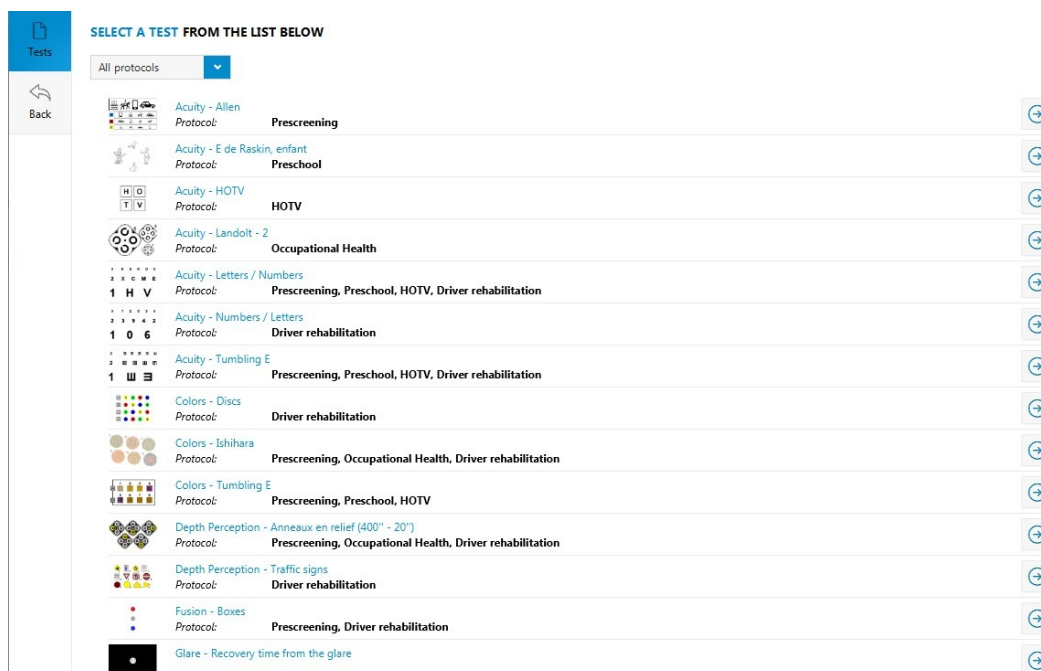
You can choose to complete tests outside the suggested protocols.


1 To do this:

Press:

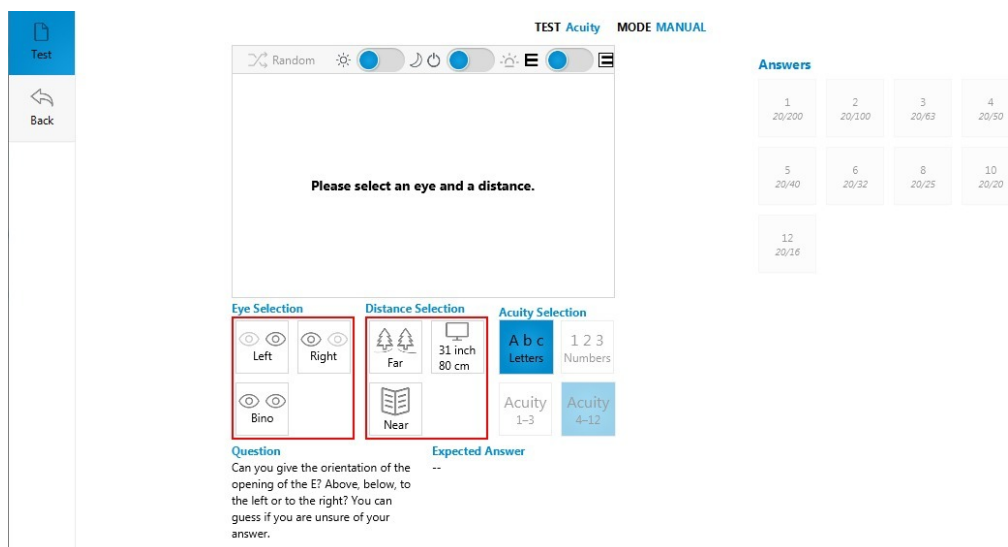


> The list of the tests appears:



2 Select a test by pressing on .








> The *Test settings* window opens.





- A guideline appears in the display square.
- Two guidelines framed in red indicate the elements to be selected so the test is displayed.

3 Select:

|                              |   |
|------------------------------|---|
| - the eye to be tested,      |   |
| Right eye                    | <br>Right   |
| Left eye                     | <br>Left  |
| Binocular                    | <br>Bino  |
| - distance,                  |   |
| Near vision                  | <br>Near   |
| Mid-distance vision          | <br>26 inch<br>67 cm<br><br>31 inch<br>80 cm |
| Far vision                   | <br>Far   |
| - the acuities if necessary, |   |
| 1 to 3/10                    | Acuity<br>1-3   |
| 4 to 12/10                   | Acuity<br>4-12  |



The range of acuities selected by default runs from 4 to 12/10:

Acuity  
4-12



Press  Random for a random display of the optotypes.

This function is available on the following tests:

- Letters or figures and latent farsightedness acuity test (p.26)
- Color vision test: Ishihara (p.33) (random display of groups of characters)
- Test for sensitivity to contrasts: Three levels (p.34) (random display of letters and/or figures)
- Stereoscopic acuity test: Depth perception. (p.37) (random display of dots)

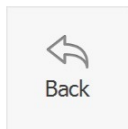
> The test starts.



The test overview is displayed only once all the settings have been selected.

4 Input the results obtained in the part *Answers*.

5 Press:



once the test is finished to return to the list of tests.

## 2. Read the answers

This menu lets you know for each test:

1. which question to ask the patient,
2. what is the result of the test.

### Test list

- Relaxation accommodation test (p.26)
- Allen Acuity test (p.26)
- Letters or figures and latent farsightedness acuity test (p.26)
- HOTV Acuity test (p.28)
- Landolt acuity test (p.29)
- Landolt 2 acuity test (p.29)
- "E" Snellen acuity test (p.30)
- Tumbling acuity test (p.30)
- Tumbling E acuity test (p.31)
- Astigmatism test (p.32)
- Ametropia test (p.32)
- Color vision test: Ishihara (p.33)
- Color vision test: Discs (p.33)
- Color vision test: Tumbling E (p.34)
- Test for sensitivity to contrasts: Three levels (p.34)
- Fusion test (p.35)
- Fusion test: Boxes (p.35)
- Phoria test (p.35)
- Phoria test: Music (side) (p.36)
- Phoria test: Music (vertical) (p.36)
- Stereoscopic acuity test: Depth perception (p.37)
- Stereoscopic acuity test: Road signs (p.38)
- Peripheral field test (p.38)
- Test of the horizontal and vertical peripheral field (p.39)
- Recovery from glare test (p.39)
- Ultra central field test (optional) (p.41)

## a. Relaxation accommodation test

### Question

"Can you see this landscape?"



Check that the patient is looking at the image in the distance.

It is necessary to begin all the series of tests by asking the patient being tested to look in the distance in order to ascertain that the eye does not focus (does not adjust to near vision) during the following tests.

The far vision acuity tests must always follow the presentation of this board.

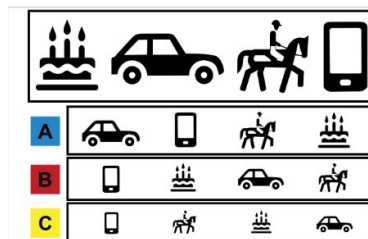


Not presenting this board is likely to induce unreliable results during the first far vision tests.

## b. Allen Acuity test

### Question

"Can you recognize these drawings?"



### Answers

Acuity is good if the subject reads the four lines correctly.



The  Random button enables random display of the optotypes.

## c. Letters or figures and latent farsightedness acuity test

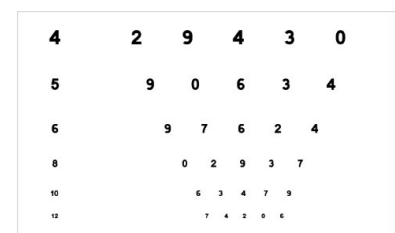
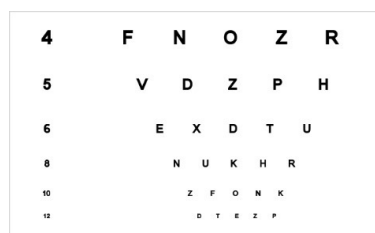
### Question

"You have already been able to read this."

> Then insert the ancillary lens in the upper part of the device and ask:

"With this, what is the smallest line which you can read?"

Is this more blurred than before?"



The range of acuities selected by default runs from 4 to 12/10:

Acuity  
4-12

If the patient cannot read anything, press on:

Acuity  
1-3

to call the acuities of 1 with 3/10° and ask the question again:

“What are the smallest letters you can read? You can guess if you are not sure of your answer.”

### Answers

The answer is valid when 4/5 letters (or figures) are read correctly.

If the operator has the impression that the patient reads figures better than letters (for example: results from a previous test on figures or bad knowledge of the alphabet: illiteracy), press on:

1 2 3  
Numbers

to use the optotype table with the figures.




Press:

A b c  
Letters

to return to the optotype table with the letters.



Press  Random for a random display of the optotypes.

You can configure the acuities display, for that refer to the section: [Set up the monitoring software > Set up the tests \(p.59\)](#)



Press a second time on:

Acuity  
1-3

or

Acuity  
4-12

to display the line of optotypes corresponding to the acuity of your choice.

Choose the line to be displayed via the screen below:

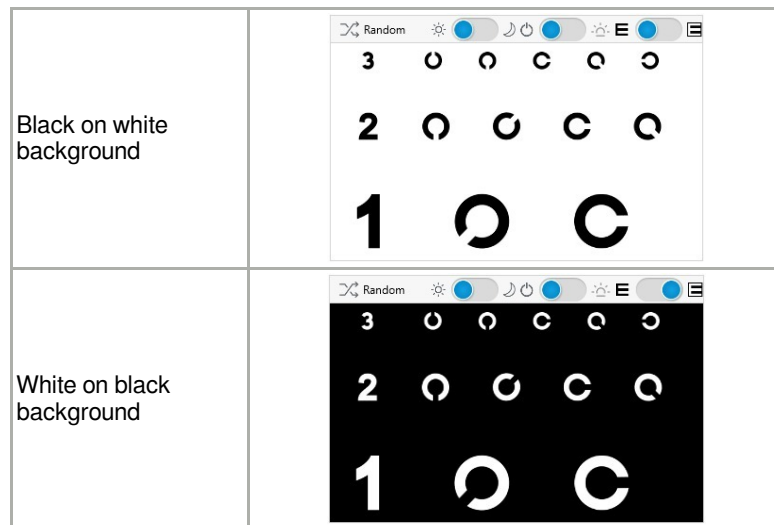
|                |   |           |           |             |
|----------------|---|-----------|-----------|-------------|
| Acuity<br>1-3  | <div>Acuity 1</div> <div>Acuity 2</div> <div>Acuity 3</div> <div>Acuity 1-3</div> |           |           |             |
|                |   |           |           |             |
| Acuity<br>4-12 | Acuity 4  | Acuity 5  | Acuity 6  |             |
|                | Acuity 8  | Acuity 10 | Acuity 12 | Acuity 4-12 |



Make hesitant people make a guess.



The button  allows the test to be displayed:



This button is available only if the option was bought and activated.

### Latent farsightedness

For far vision, if the patient sees as well or better with the ancillary lens, he/she is farsighted which needs more frequent periodic check-ups to screen for eventual early presbyopia.

This test can also be used as confirmation if there is doubt about the red/green test, but it only detects mid -or considerable farsightedness.



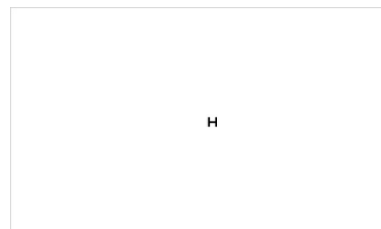
You must use an ancillary lens +1.75 or 2.25 to carry out this test.

Go back to the part: To insert an ancillary lens (p.17)

### d. HOTV Acuity test

#### Question

“What letter can you read?”



#### Answer

The test is successful if the patient reads the letters correctly.



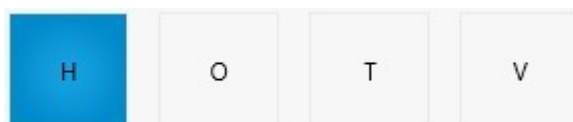
Press  Random for a random display of the optotypes.



Press:



to display the group of characters of your choice via the screen below:





Press:

**Acuity**  
6

to display the line of optotypes corresponding to the acuity of your choice:

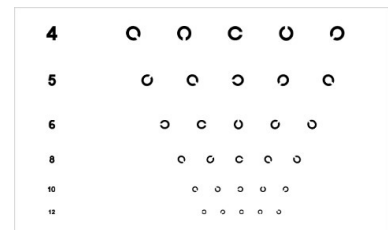


### e. Landolt acuity test

#### Question

“Can you give the direction of the opening to the broken ring: at the top, below, on the left, or on the right, or then in which oblique direction?”

You can guess if you are not sure of your answer.”



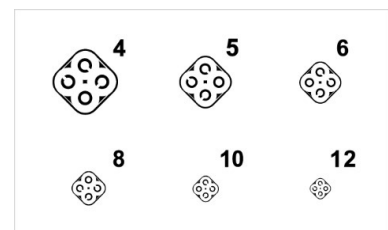
In case of doubt, ask the subject to point in the direction of the opening. Encourage hesitant people to take a guess.

The subjects who are not accustomed to reading the letters (or the figures) will have less difficulty with the Landolt rings or “broken rings” in so far as they are quite lateralized.

### f. Landolt 2 acuity test

#### Question

“In each frame, there are three split rings and a full ring. Can you tell me which one is the full ring?”



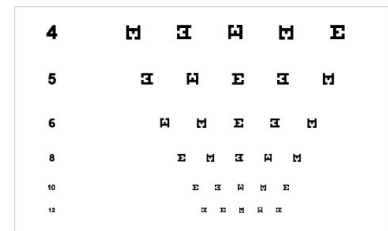
People who are not used to reading the letters (or figures) will have less difficulty with the Landolt rings or “broken rings” as they are well lateralized.

## g. "E" Snellen acuity test

### Questions

"Can you give the direction of the opening of the E? Above, below, towards the left or the right-hand side?"

You can guess if you are not sure of your answer."



People who are not used to reading letters (or figures) will have less difficulty with the letters E as long as they are lateralized well.



Use the "Raskin E" test rather than the "Snellen E" test.



Encourage hesitant people to take a guess.

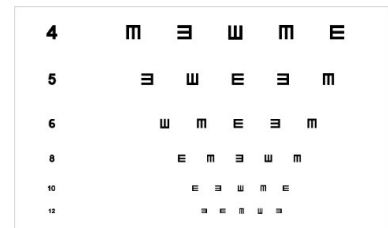
If in doubt, ask them to point in the direction of the lines.

## h. Tumbling E acuity test

### Question

"Can you give the direction of the opening of the E? Above, below, towards the left or the right-hand side?"

You can guess if you are not sure of your answer."



People who are not used to reading letters (or figures) will have less difficulty with the letters E as long as they are lateralized well.



Use the "Tumbling E" test rather than the "Snellen E" test.



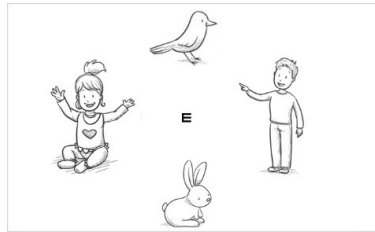
Encourage hesitant people to take a guess.

If in doubt, ask them to point in the direction of the lines.

## i. Tumbling E acuity test

### Question

“The branches of the E are pointing towards which drawing?”



Press  Random for a random display of the optotypes.



Press:

Acuity  
6

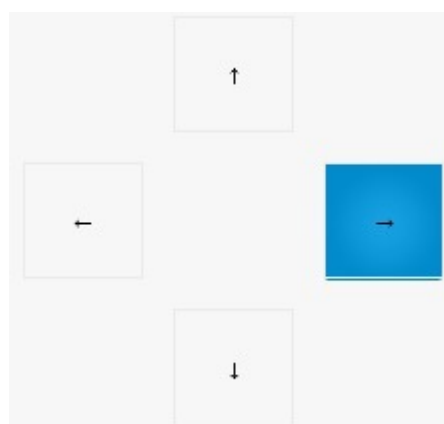
to display the line of optotypes corresponding to the acuity of your choice:



Press:



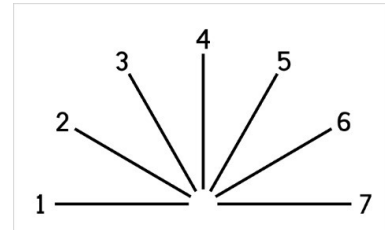
to modify the direction of the branches of the “E”



## j. Astigmatism test

### Question

“Are one or more lines clearer or less clear than the others, or are they as clear as the others?”



### Results

- If all the lines are as clear as the others, there is no astigmatism<sup>(p.92)</sup>.
  - If one or more lines are seen clearer, less clear, or duplicated, there is astigmatism.
  - If the patient sees some lines longer than the others but as clear, there is no astigmatism.
- In this case: check that the patient understood correctly that the lines can be as clear **or** that there can be a difference.



The line no. is not important for screening.

The subjects which have a very good acuity (>12/10) can be more constrained than the others by a small astigmatism. Be particularly attentive if there is a complaint which was noted during the anamnesis.

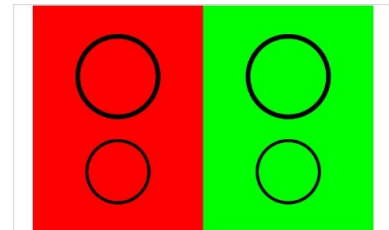
## k. Ametropia test



The ametropia<sup>(p.92)</sup> test must be carried out after the acuity tests in order to remain in far vision.

### Question

“Are the circles clearer with the red background (on the left), on the green background (on the right), or as clear on both sides?”



### Answers

- If the result is clearer in red: myopic tendency<sup>(p.92)</sup> (images in front of the retina).
  - If the result is as clear on both sides: emmetropic<sup>(p.92)</sup> (images on the retina).
  - If the result is clearer in green: hypermetropic<sup>(p.92)</sup> tendency (image behind the retina).
- In this case, automatically carry out the test for latent farsightedness (ancillary lens).



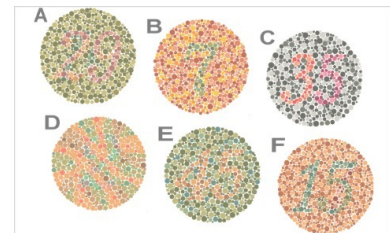
If the patient sees three series of circles instead of two, ask him to look away from the device and start the test again. Very often, the subject will see no more than two of them.

> Input in notes: “Difficulty of fusion on the Red/Green test”.

## I. Color vision test: Ishihara

### Question


“Can you read the numbers at the top from left to right then in bottom from left to right?”



### Answer

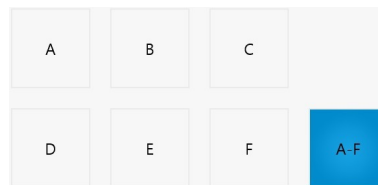
A patient with good color perception will see the reproduced figures clearly.  
Input the figures the patient reads out in the *Answers* part.



Press  Random for a random display of the optotypes.




If the subject has a low acuity, display larger optotypes by pressing on:




By pressing:


- a letter (A, B, C, D, E or F), only one test is displayed,

-  the six tests are displayed simultaneously.



By pressing:

, all the correct answers are displayed

, none of the answers are displayed

## m. Color vision test: Discs

### Question


“For each line, from left to right, which colors can you see?”



### Answer

The patient passes the test if all the lines are read correctly.  
Indicate the colors seen in the *Answers* section.

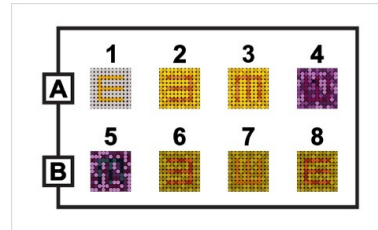


Press  Random for a random display of the optotypes.

## n. Color vision test: Tumbling E

### Question

"Can you tell me the direction of the letters E?"



### Answer

A patient with a good perception of the colors identifies the direction of the "E" in each of the 8 blocks.




If the patient identifies 5 blocks out of 8, his perception of the colors can be considered acceptable.


Blocks 2 and 3 being most difficult to identify, it is recommended to test block 1 then 4, 5, 6, 7, 8 and then return to blocks 2 and 3.

If the patient does not identify the direction of the "E" in blocks 1, 2 or 3, then he will have to take the test again at another time. It is common for the patient to pass the test on his second attempt.



By pressing:

 , all the correct answers are displayed

 , none of the answers are displayed

## o. Test for sensitivity to contrasts: Three levels

### Question

"Can you read the line in the middle?"

> If all of the middle line has been read:

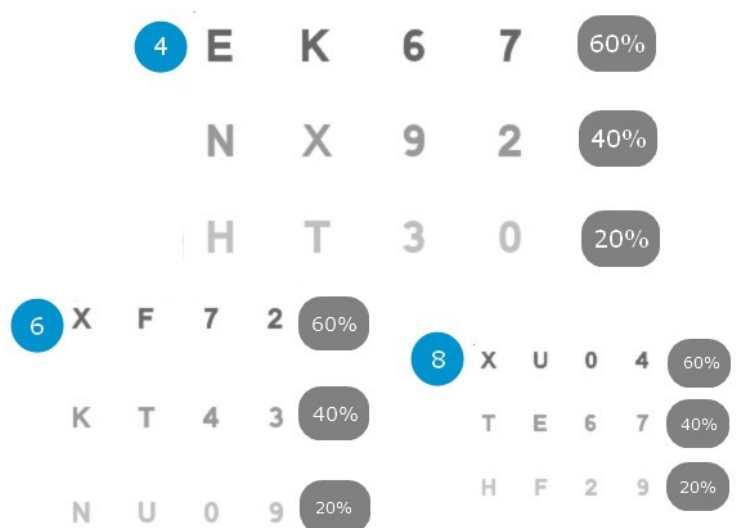
"Can you read the line at the bottom?"

Each block represents a different acuity: 4.6 and 8 /10.

Each line has a different shade of gray: 60%,40% and 20%.






The darkest line is at 60% and the clearest at 20%.



## Answers

Sensitivity to contrasts is correct when the patient reads the 4 letters at 6/10 with 40% of gray.

 Refer to the conversion table to match the various acuity scales and the types of notation. This table is available on the USB key.

 Press  Random for a random display of the optotypes.

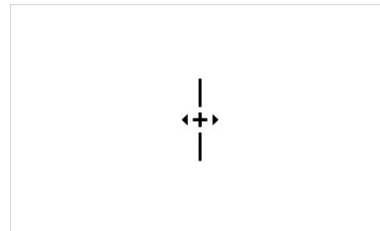
## p. Fusion test

### Question

“Can you see the line at the top?”

“Is it on the left, on the right, or does it continue on the lower line?”

“How many crosses can you see?”




### Answers

Fusion is good if the patient only sees one image of the line at the top, the line in the lower part, only one cross and two triangles.

The subject can say that the two lines are almost aligned, but with a very slight offset while seeing only one cross.

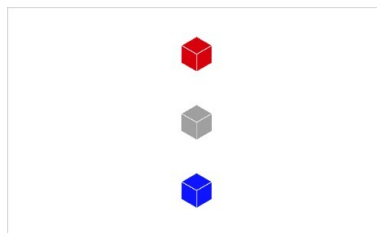
If in doubt, fusion can be considered acceptable: microstrabism.

 Do not carry out this test if the patient is monophthalme or amblyopic (important difference in acuity between the two eyes due to a so-called “lazy” eye).

## q. Fusion test: Boxes


### Question

“How much boxes do you see?”



### Answer

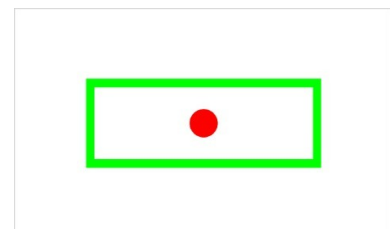
Fusion is good if the patient sees three boxes.

 The test can be carried out only in binocular vision.

## r. Phoria test

### Question

“You can see a rectangle and a ball. When the ball comes to a standstill, tell me where it is compared to the rectangle.”

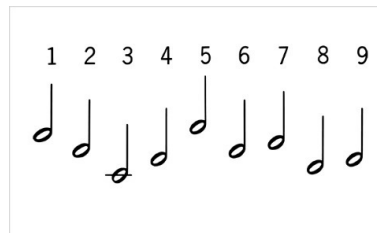


It is necessary to allow some time for the circle to stabilize itself. In 85% of the cases, the circle will not be stabilized exactly in the middle of the rectangle.

Note where the circle is stabilized.

**s. Phoria test: Notes of music (side)****Question**

“On which note of music does the arrow point?”

**Answer**

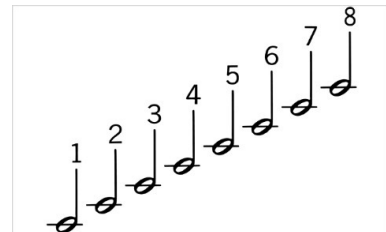
The test is successful if the patient sees the arrow mark on the note of music no. 5.  
However, the acceptable values are located between 2 and 8.



The test can be carried out only in binocular vision.

**t. Phoria test: Notes of music (vertical)****Question**

“What musical note does the horizontal dotted line point to?”

**Answer**

The test is regarded as successful if the line is seen between notes 2 and 6.



If the subject sees the line moving, ask him where the line was initially seen.  
Each note of music number represents half of a diopter of the power prisms:

- 1 to 3 indicating a left hyperphoria
- 5 to 8 indicating a right hyperphoria

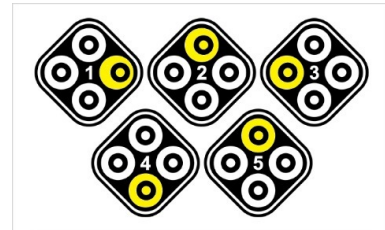


The test can be carried out only in binocular vision.

## u. Stereoscopic acuity test: Depth perception

### Question

“Can you see that in the drawing number 1, the point on the left is closer to you? What is in the other drawings”?



It is possible to modify the angles of relief by clicking on:

400"  
50"

or

40"  
20"



By selecting:

40"  
20"

the reliefs will be more difficult to locate.

### Answer


The answer is correct when the dot is seen nearer or at the same level as the rest of the drawing. It is wrong when the dot is seen on the sides.

It should be checked systematically whether the dot is seen correctly in depth.



Sometimes some people have difficulty understanding the test. In this case, one can “sacrifice” the first answer: say which point is in relief and ask the subject if he sees that it is closer to him than the rest of the drawing or if he sees this point shifted on the sides.



Press  Random for a random display of the points.



By pressing:



, all the correct answers are displayed



, none of the answers are displayed



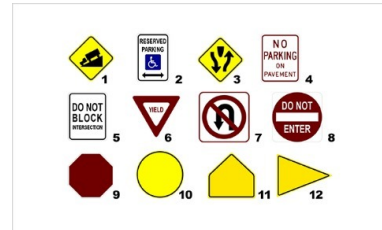
By clicking on the button on the right of visual, you indicate that the patient does not see the point in relief but that it moves.



## v. Stereoscopic acuity test: Road signs

### Question

“On each line, a road sign is displayed in 3D, which one can you see?”



### Answer

The answer is correct if the patient answers:

Line 1: panel no. 3

Line 2: panel no. 6

Line 3: panel no. 11



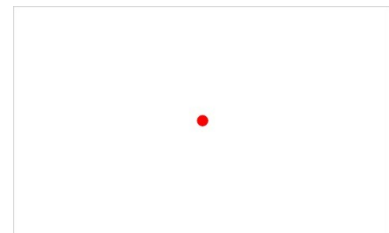
The values between brackets indicate the angles of relief. Here:

- The panel no. 3 has an angle of relief of 581”
- The panel no. 6 has an angle of relief of 323”
- The panel no. 11 has an angle of relief of 145”

## w. Peripheral field test

### Question

“Look at the displayed point. Keeping your eyes fixed on this point, do you see lights flickering laterally? Where can you see them?”



Check that the patient keeps their eyes fixed on the black dot. Choose the lights that will flicker in a random way by mixing both eyes.

## x. Test of the horizontal and vertical peripheral field (optional)



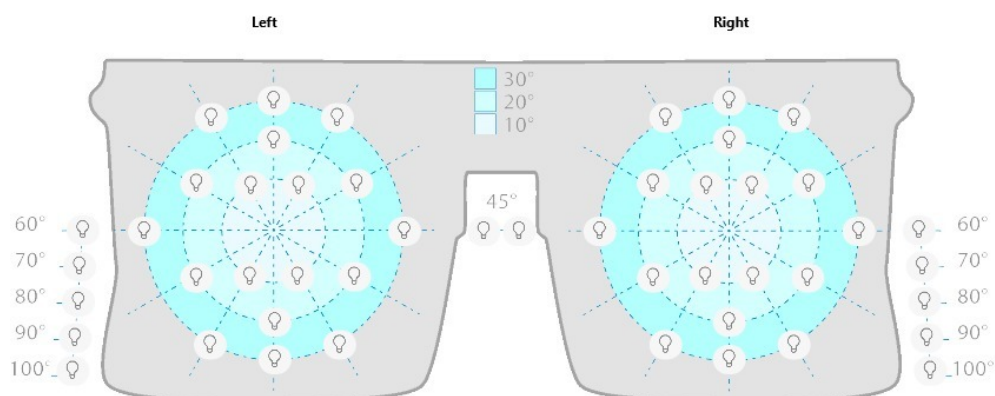
Before starting this test:

1. Use the LED peripheral mask, available in a special kit
2. Turn off the machine
3. Plug the peripheral mask into the product, in the plug designed for this purpose
4. Magnetise the mask below the forehead rest, in the notches
5. Turn on the machine

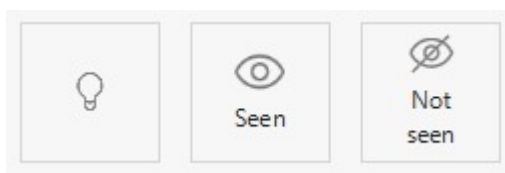
### Question

“Look at the displayed point. While keeping your eyes fixed on this point, you see lights blinking in the periphery of your vision. Where can you see them?”


Check that the patient keeps their eyes fixed on the black dot. Choose the lights that should be blinking by using the diagram displayed on your screen.



By clicking on one of the bulbs, the following window is displayed:

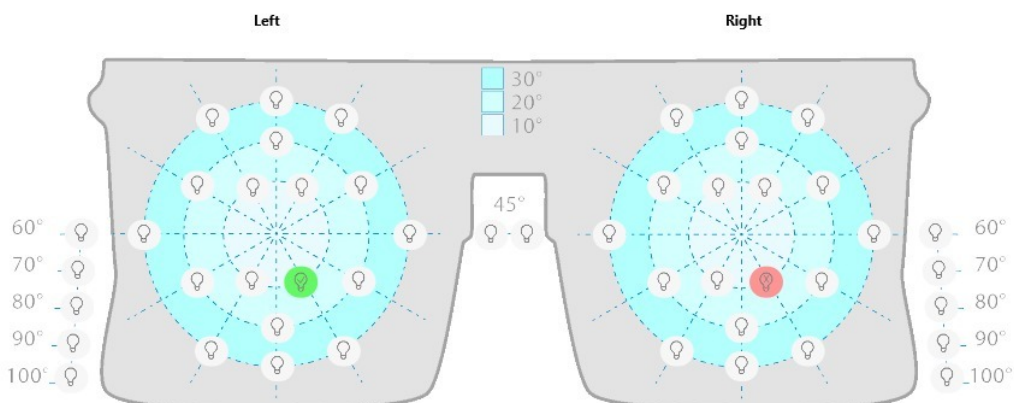


By clicking on:

 , the bulb briefly lights up then goes out. If the technician is not sure that the patient saw the bulb, it is possible to relight it by clicking on this button.

 , the lit LED is seen by the patient. It is displayed in green on the screen.

 , the lit LED is not seen by the patient. It is displayed in red on the screen.

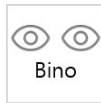


## y. Glare recovery test (optional)



Before starting this test it is important to set up:

- Eye selection:



- Distance selection:



Once these two choices have been selected, the answers section is no longer grey.

### Answers



### Question

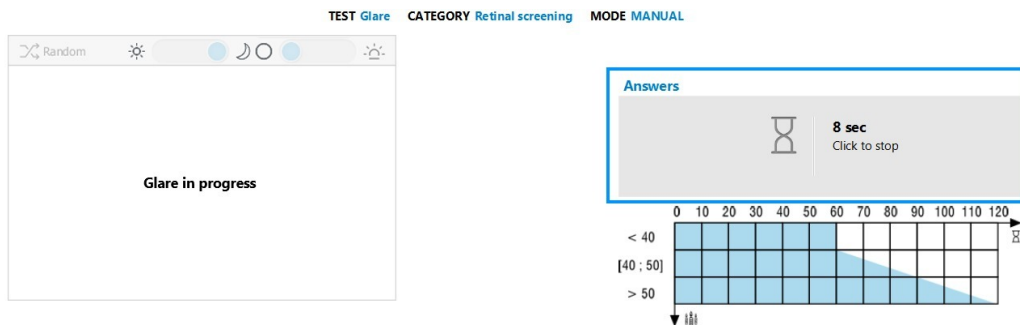
“Stare at the centre of the lamp, without looking away”.



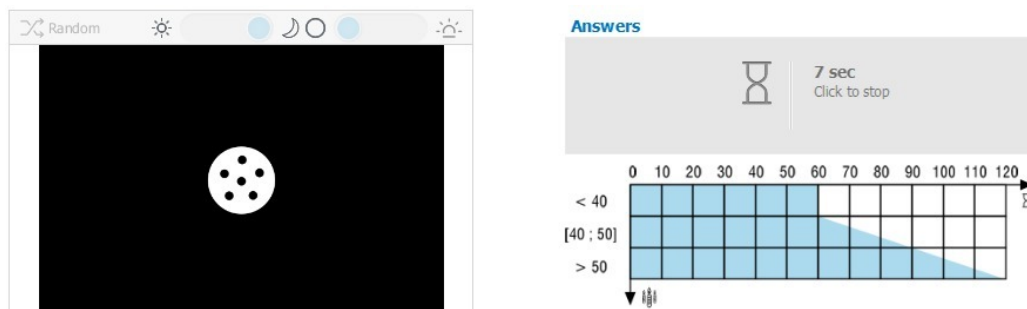
Let the subject know that a bright light will dazzle him for a few seconds.

Click on the answer box to start the glare test.

The calculation starts.



Once the glare test is finished, the following screen is displayed:



## Question

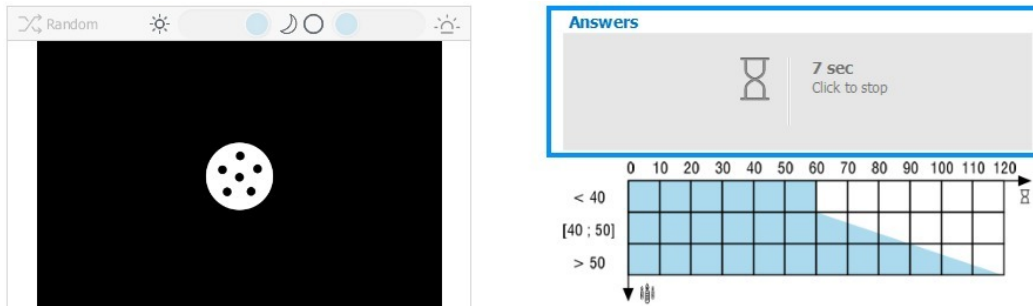
"Tell me how many dots are displayed".

> A stop watch starts.

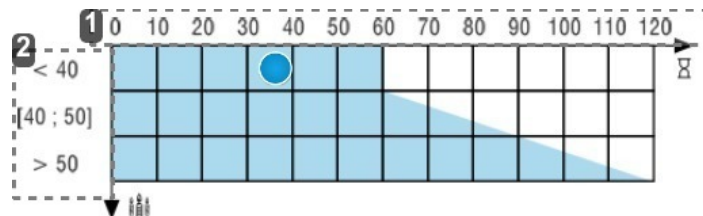


The display of the points and the start of the stop watch are simultaneous.

Click in the answers section, to stop the stop watch when the subject gives his answer.



## Answer



1. Recovery time in seconds

2. Age of patient



The result of the time of recovery from the glare test is displayed in the graph.

If the dot appears in the blue area then glare recovery time is fine.



The dot is not displayed if the patient is anonymous.

## z. Ultra central field test (optional)



Before starting this test it is important to set up:

• Eye selection:



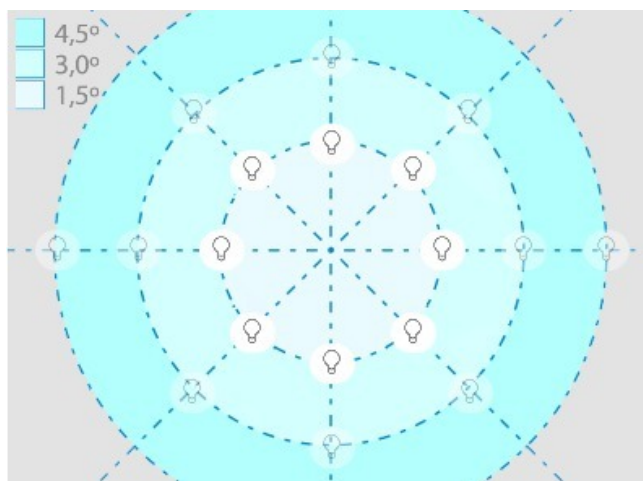
• Distance selection:



## Question

Look at the displayed point. While keeping your eyes fixed on this point, you see lights blinking in the periphery of your vision. Where can you see them?"

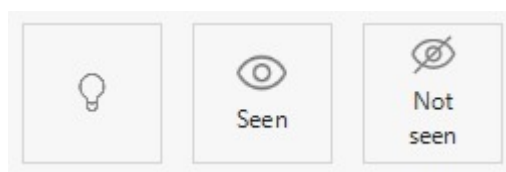
Check that the patient keeps their eyes fixed on the black dot. Choose the lights that should be blinking by using the diagram displayed on your screen.




The enabled bulbs can be lit according to the position of the fixing point.

When you click on the bulb area, it is enabled and the fixing point can be moved. You can turn the light bulb on by clicking on it.


When you click on one of the bulbs, the following window is displayed:

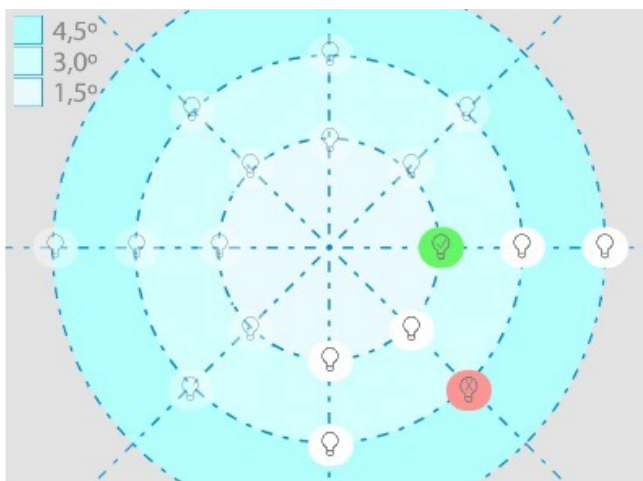


By clicking on:

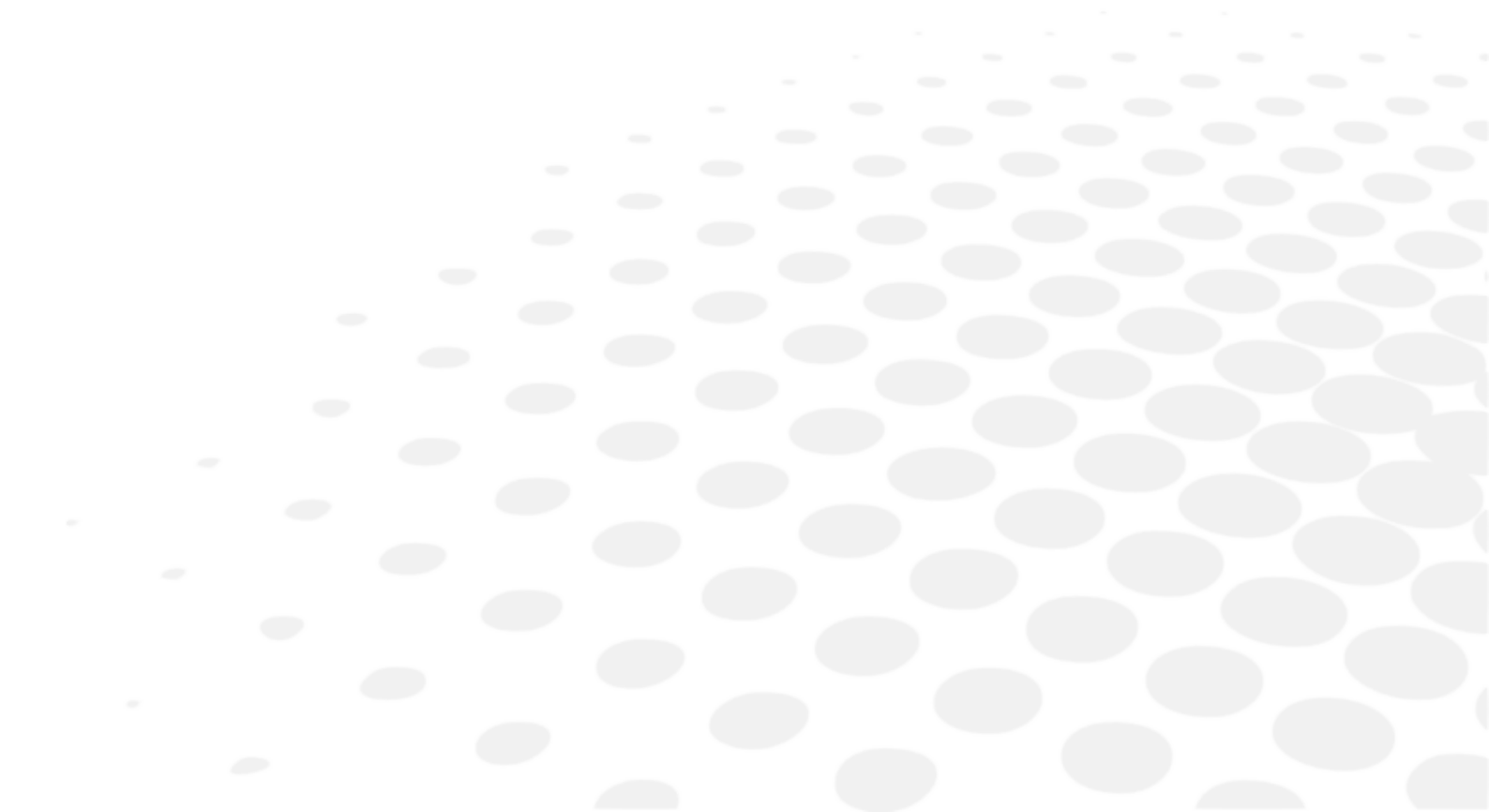
, the bulb briefly lights up then goes out. If the technician is not sure that the patient saw the bulb, it is possible to relight it by clicking on this button.

, the lit LED is seen by the patient. It is displayed in green on the screen.

, the lit LED is not seen by the patient. It is displayed in red on the screen.



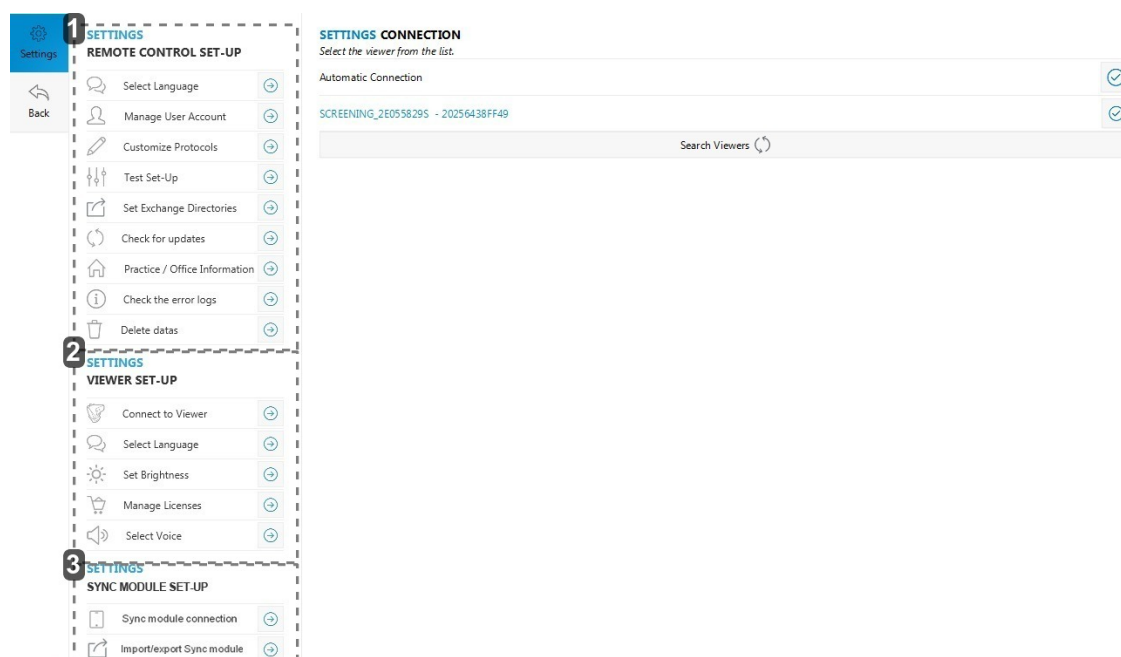
# V. SETTINGS





The *Settings* menu allows you to:

- to set up the monitoring software (tablet or PC) (p.46)
- to set up the device (viewer) (p.62)



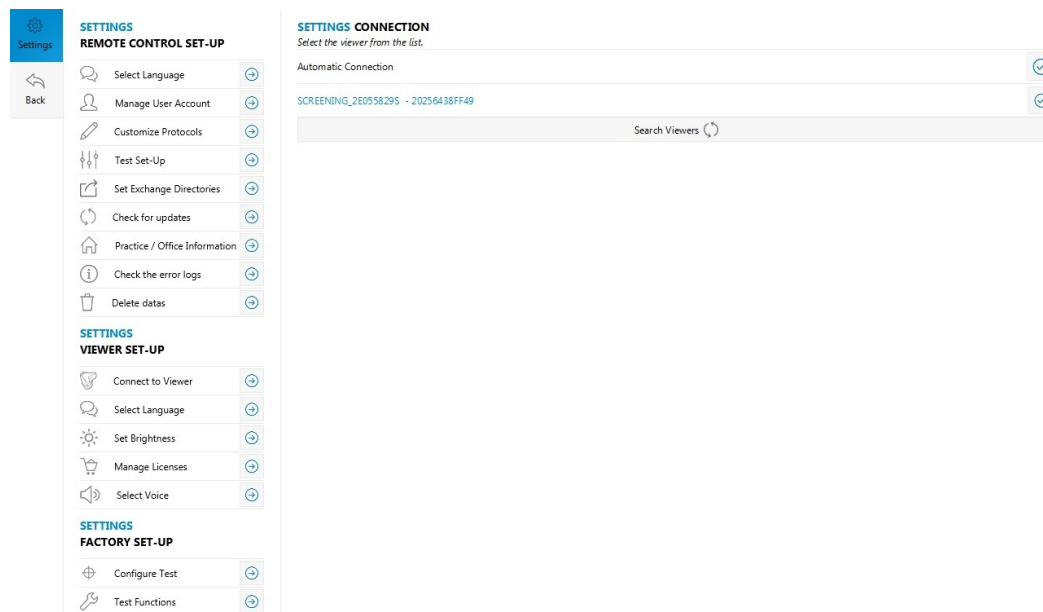
1. *Driving software setting*
2. *Device setting*
3. *PC synchronisation software setting*

## 1. To set up the monitoring software (tablet or PC)

The *Settings* menu allows you to setup your software settings.

1 Click on *Settings* in the side menu.

> The Settings menu appears.



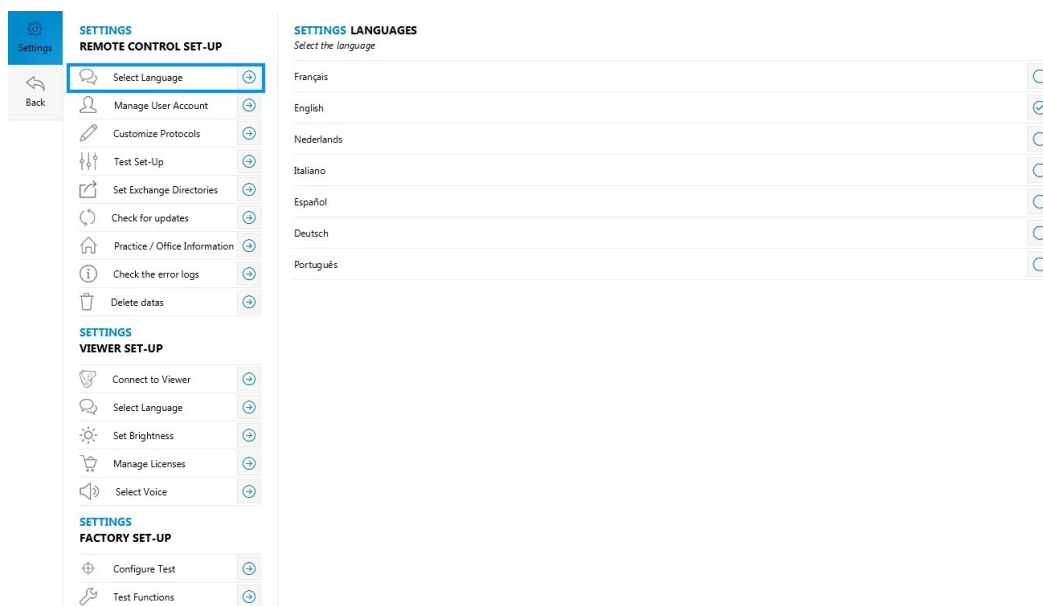
2 Select one of the following actions:

- to choose a language (p.47)
- to manage user accounts (p.48)
- to create or modify a protocol (p.51)
- to create data exchange folders (p.56)
- to manage software updates (p.56)
- to set up the tests (p.59)
- to set information of the medical centre (p.60)
- to remove data (p.61)

## a. To choose a language

You can change the software language.

- 1 Click on *Select Language* to open the menu *Settings language*.



- 2 Check the box ☐ to select the language of your choice.

> The language of the interface changes immediately.

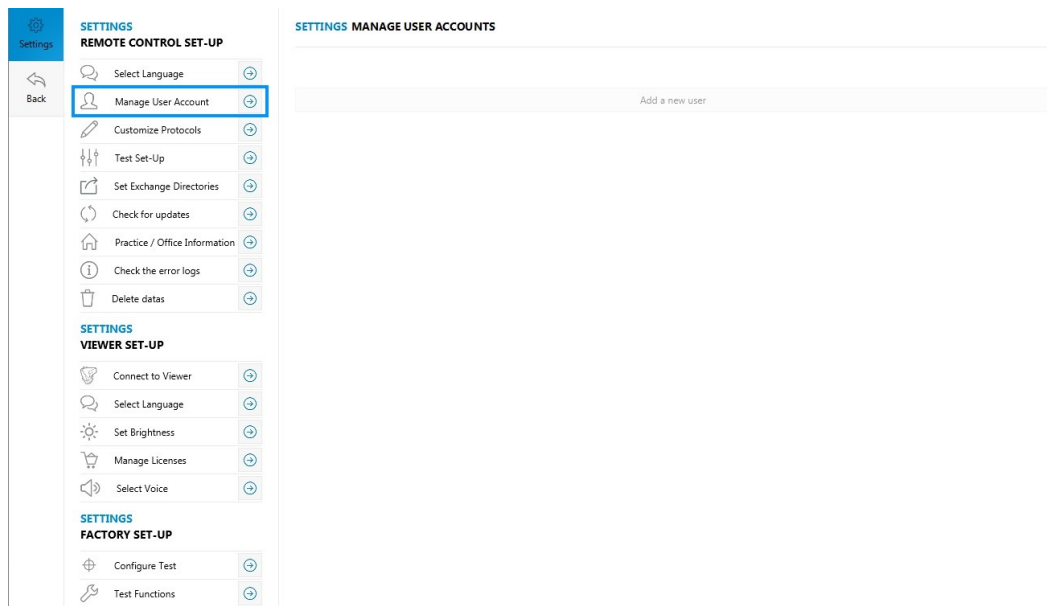
## b. To manage the user accounts

The software has user profiles, with individual rights. Depending on the chosen user profile, you have access to certain software features or not.

There are 3 user profiles:

- administrator: unrestricted access to profile, protocols and data management,
- company doctor: operator access, with specific access, see below
- operator: medical staff, who carries out tests and protocols on the patients.

1 Select *Manage user account*.



> A window opens:



The default password is: 0000.

2 Click *OK*.

> You now have access to the user account settings.


3 Click on *Add a new user* to add a new user account.

4 Input the necessary information and click on *OK* to save.






The table below indicates each profile's access.

| Rights   | Administrator | Doctor | Operator |
|--|---------------|--------|----------|
| Setting up data transfers                              | Yes           | No     | No       |
| Manage licences  | Yes           | Yes    | Yes      |
| Management of profiles and passwords                   | Yes           | No     | No       |
| Delete data  | Yes           | No     | No       |
| Protocol management                                    | Yes           | Yes    | Yes      |
| Creation of <i>operator</i> and <i>doctor</i> profiles | Yes           | No     | No       |
| To run the protocols and tests                         | Yes           | Yes    | Yes      |
| To view the reports                                    | Yes           | Yes    | No       |

**To change the administrator password**

- 1 Click on  on the right of *Manage user accounts*.

**SETTINGS** **MANAGE USER ACCOUNTS**


|                        |   |
|------------------------|---|
| Admin System - admin   |    |
| Dr Day - doctor        |   |
| Jean Durand - operator |   |


Add a new user

> The following window is displayed:


**MODIFICATION** **USER**


ID: 1

First Name: Admin 


Last Name: System 

**USER** **PASSWORD**


Password: 

Password Confirmation: 

**STATE OF THE ACCOUNT**

Activate Account: 

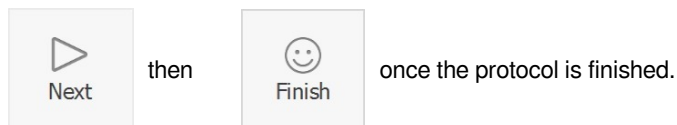
BACK OK

- 2 Click on  located on the right of **Password** in the *User password* part.
- 3 Enter your new password.
- 4 Click on *OK* to save the changes.

### c. Creating or modifying a protocol

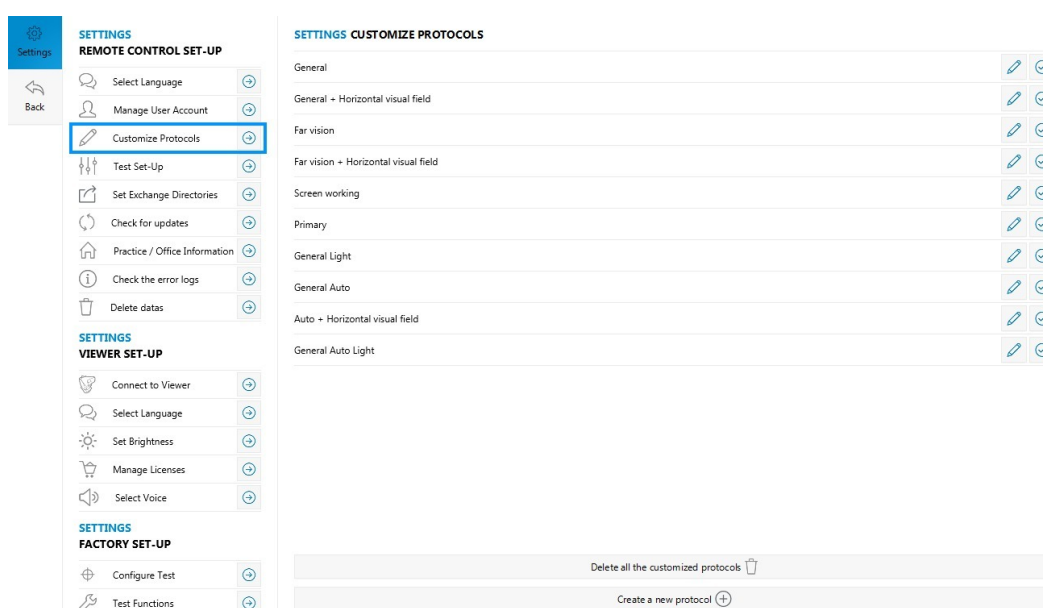
You can create your own test protocol. There are two types of protocols available:

- The **manual protocols** you allow to create a list of tests and to display them using the software launched on your computer or the Elite tablet. You move manually from test to test by clicking on:



- The **automatic protocols** also allow you to put together a series of tests compatible with the automatic mode. Once the protocol has been started, moving from one test to the other as well as stopping the protocol is done automatically (according to the version and the model of your product).

#### 1 Select *Customize Protocols*.



#### 2 Select *Create a new protocol*.



If you wish:

- to modify an existing protocol, click on located on the right of the protocol to be modified then, carry out the changes while following the same procedure used to create a protocol.
- to display a protocol, check the box ☐ if not un-check the box.

> A window is displayed.

The screenshot shows the 'NEW PROTOCOL' dialog box. It has a title bar 'NEW PROTOCOL'. Below the title bar, there is a 'Protocol name' label and a text input field. Below the input field, there is a 'Protocol type' label and two radio buttons: 'Auto (Audio)' and 'Manual'. To the right of the radio buttons, there is a 'Testing format' label and two radio buttons: 'Static' and 'Random'. At the bottom, there are two buttons: 'Cancel' and 'OK'.

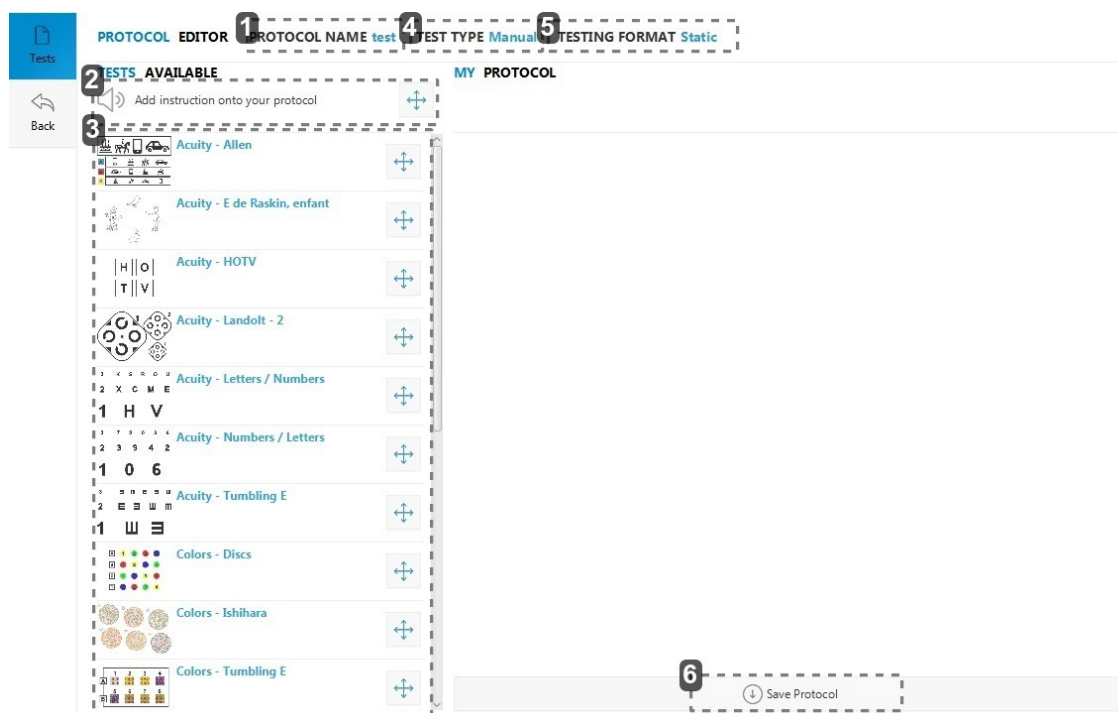
#### 3 Enter the name of your protocol and choose if it will be automatic or manual and static or random.



You can constantly modify or remove your protocols by clicking on or .

4 Press OK.

> The protocol editor opens.



1. Protocol name

2. Addition of guideline

Possibility of adding new vocal setpoints (if automatic mode is activated), a window is displayed (if manual mode is activated):

#### GUIDELINES CHOOSE YOUR SENTENCE

If you wear readers, please put them on now. Press the button once you have on your readers. If you do not have readers, press the button now.

Please wait for the operator before testing further.

If you wear readers, take them off. If you don't, press the button. When you are ready, press the button.

If you have far vision glasses, put them on. If you don't, press the button. When you are ready, press the button.

If you have far vision glasses, take them off. If you don't, press the button. When you are ready, press the button.

CANCEL

3. Tests

4. Mode

- automatic (if function available)
- mode

5. Type of board

- static: for each test and each eye/distance combination, the same board is displayed
- random: for each test, if this one allows it, the display of the boards is random

6. Save the protocol

5 Drag and drop the tests (and/or vocal setpoints) to be integrated into the entitled right part **My protocol**.

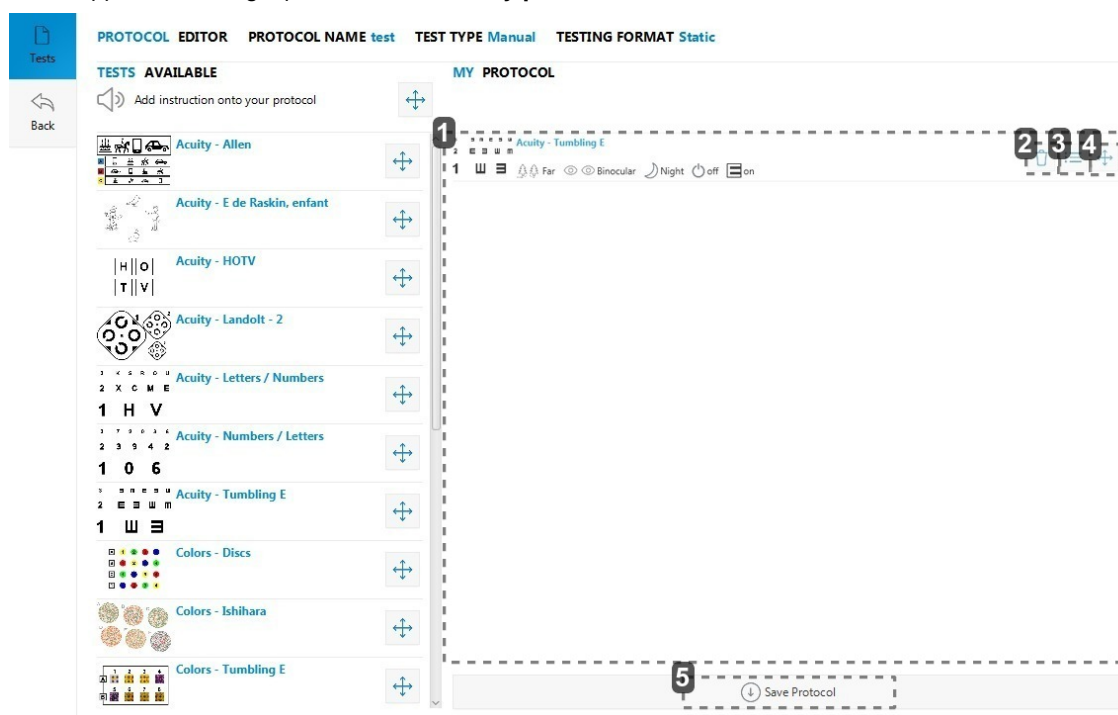


Carefully select the test by pressing .



The vocal setpoints are to be chosen among the list proposed by the software (if the function available).

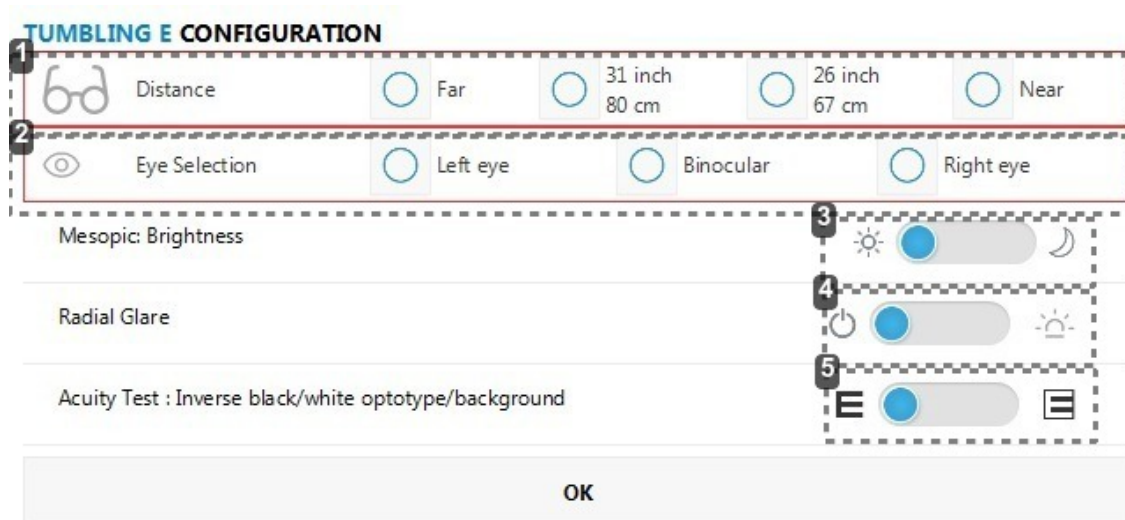
- > The protocol appears in the right part of the screen **"My protocol"**.



1. Selected tests
2. To delete the test
3. Configure the test
4. To move the test
5. Save the protocol

- 6 Click on to set up your test.

- > The Test Set-Up window is displayed.



1. Vision selection

Check the box ☐ to select the far vision, the mid-distance vision 80cm (31 inch), the mid-distance vision 67cm (26 inch), the near vision.

2. Eye selection

Check the box ☐ to select the left eye, the right eye or both.

### 3. Selection of day or night vision

Click on the button to select day or night vision.

(Only available if the option is activated).

### 4. Glare resistance selection

Click on the button to select the glare resistance.

(Only available if the option is activated).

### 5. Selection of reversed acuity

Click on the button to display acuities: black on white background or white on black background

(Only available if the option is activated).










7 Click OK.

> Your choices are displayed on the screen.

#### MY PROTOCOL



The icons below are displayed for each selected test.

|                                  |  |
|----------------------------------|--|
| Near vision                      | <br>Near   |
| Mid-distance vision              | <br>26 inch<br>67 cm<br><br>31 inch<br>80 cm |
| Far vision                       | <br>Far  |
| Right eye                        | <br>Right  |
| Left eye                         | <br>Left   |
| Binocular                        | <br>Bino   |
| Day vision                       |    |
| Night vision                     |    |
| Glare                            |    |
| Glare stop                       |    |
| Black on white background acuity | <b>E</b>   |
| White on black background acuity |    |

 Click on *Save protocol* to save the protocol.



You can reorganise the order of your tests or vocal setpoints by dragging and dropping them while pressing .

#### d. To create data exchange folders

It is necessary to create data exchange folders for communication between the device and connected medical software.



Only a profile administrator can have access to this section.  
The default password is 0000.

1 Press:



2 Press ( **Import file** ) to create an exchange folder for the medical software connected to your device's monitoring software.

> A browser is displayed, select the file of your choice.

3 Click *OK*.

4 Press on ( **Export file** ) to set an exchange file for your device's software to the connected software.

> A browser is displayed, select the file of your choice.

5 Click *OK*.



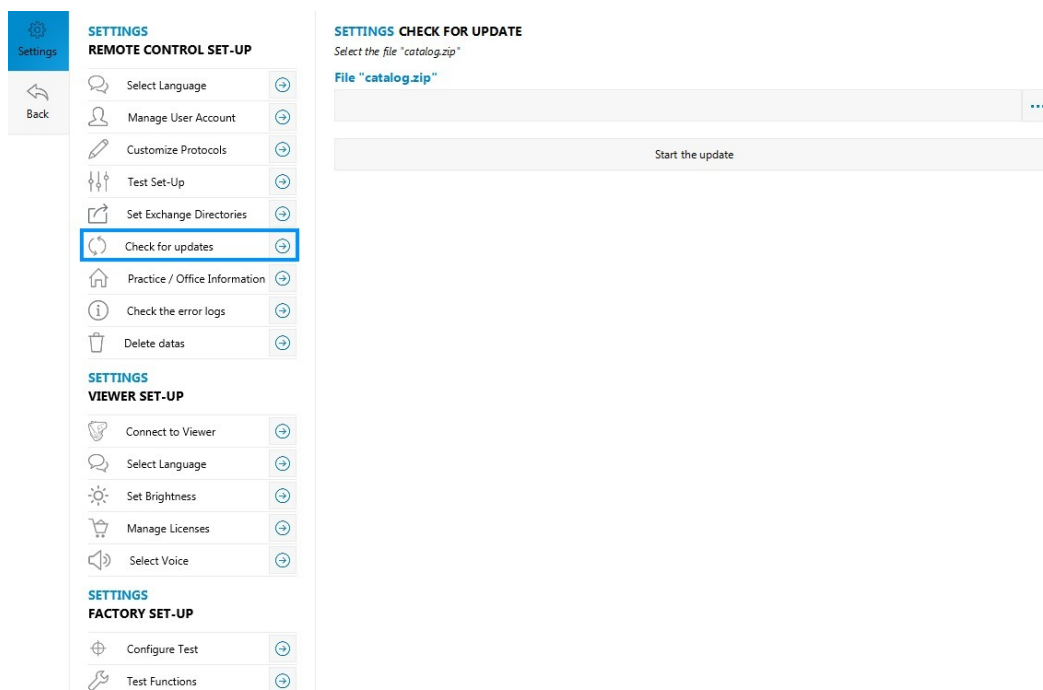
You can export several results simultaneously by ticking the box "AAAAMMJJ\_HHMMSS\_NomFichier." Each file will be given different names.  
If you do not tick the box, the new exported file will write over the previous one.


#### e. To manage software updates

##### Viewer

You can install the updates *via* your remote control (tablet or PC).

1 Click on *Check for updates*.

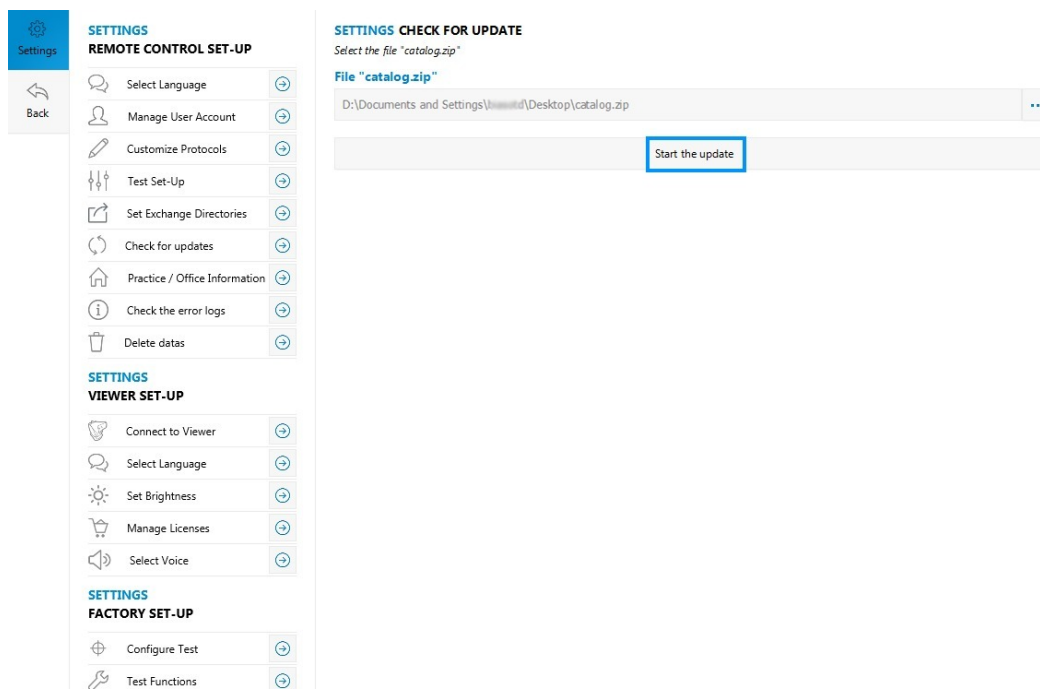


- 2 Press  to find the “Catalog.zip” update.

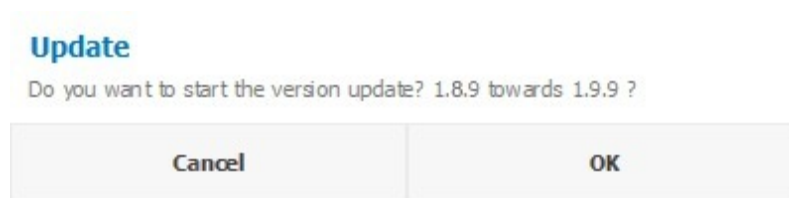


The “Catalog.zip” update file is recovered *via* USB stick or on the Internet.

- 3 To start the update click on *Start the update*.



- > A window is displayed:



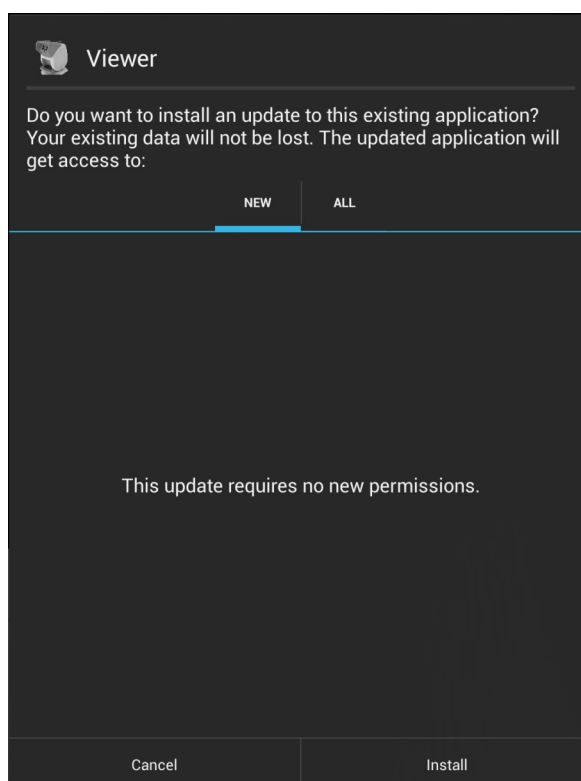
- 4 Click *OK*.

- > A window is displayed:



The update can take a few minutes.

The following screen appears on the viewer:



- 5 Click on **Install** to finalize the update.



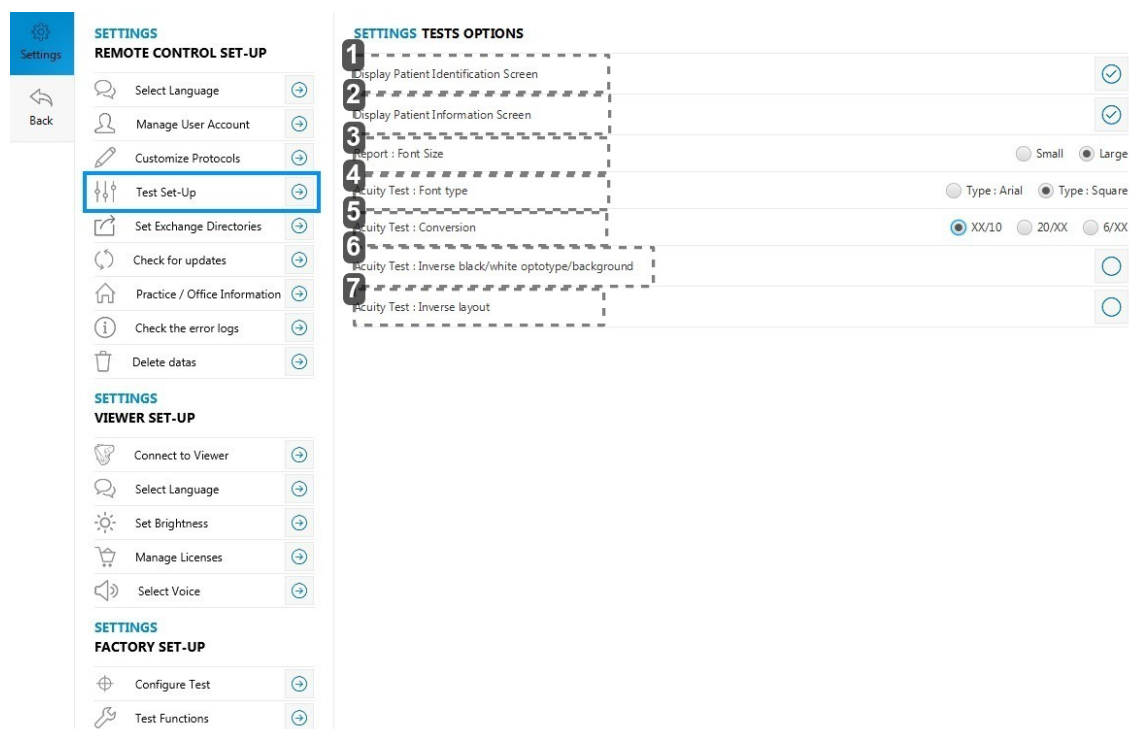
Once the update has finished, restart the device.

#### **PC remote control**

To install PC remote control updates, you must first uninstall the old versions. You will then be able to install the new version by following the steps of the *Software Installer (p.8)* section.

## f. Setting up the tests

The *Test Set-Up* allows you to manage the patient information you intend to input and display.



### 1. Display the identity section of the patient

If you un-check the box ☒ : when you click on *Test patient*, the screen “Patient identification” will not appear.

### 2. Display information section of the patient

If you uncheck the ☒ box: when you click on *Test patient*, the “Patient information” screen will not be displayed.

### 3. Display size

Allows you to choose the display size the test reports: small or large

### 4. Display font

Allows you to choose the type of font for the display:

- Arial
- Square

### 5. Display of the format of acuities

Allows you to choose the format of acuities:

- In xx/10 (by default)
- In 20/xx
- In 6/xx

### 6. Display of the white optotypes on black background

If you check the ☐ box: the optotypes will be displayed in white on black background

### 7. Order reversal of the acuities display

If you:

- Check the box ☐ : the optotypes will be displayed from largest (on top) to the smallest (on bottom)
- Un-check the box ☐ : the optotypes will be displayed from the smallest (on top) to the largest (on bottom)

Click on the features you wish to activate: the icon ☒ appears close to the activated features.

**g. To set up the medical centre information**

This part contains information on the center where the tests are carried out. This information appears in particular on result reports, once printed.

- 1 Click on *Practice / Office Information*.

Settings

Back

SETTINGS

REMOTE CONTROL SET-UP

Select Language

Manage User Account

Customize Protocols

Test Set-Up

Set Exchange Directories

Check for updates

Practice / Office Information

Check the error logs

Delete datas

SETTINGS

VIEWER SET-UP

Connect to Viewer

Select Language

Set Brightness

Manage Licenses

Select Voice

SETTINGS

FACTORY SET-UP

Configure Test

Test Functions

SETTINGS PRACTICE / OFFICE INFORMATION

Name Of Practice / Office:

Phone number:

Fax:

Address 1:

Address 2:


Zipcode:

City:

Country:

e-mail :

OK

2 State the information you want to display by clicking on .

3 Click on *OK* to save.

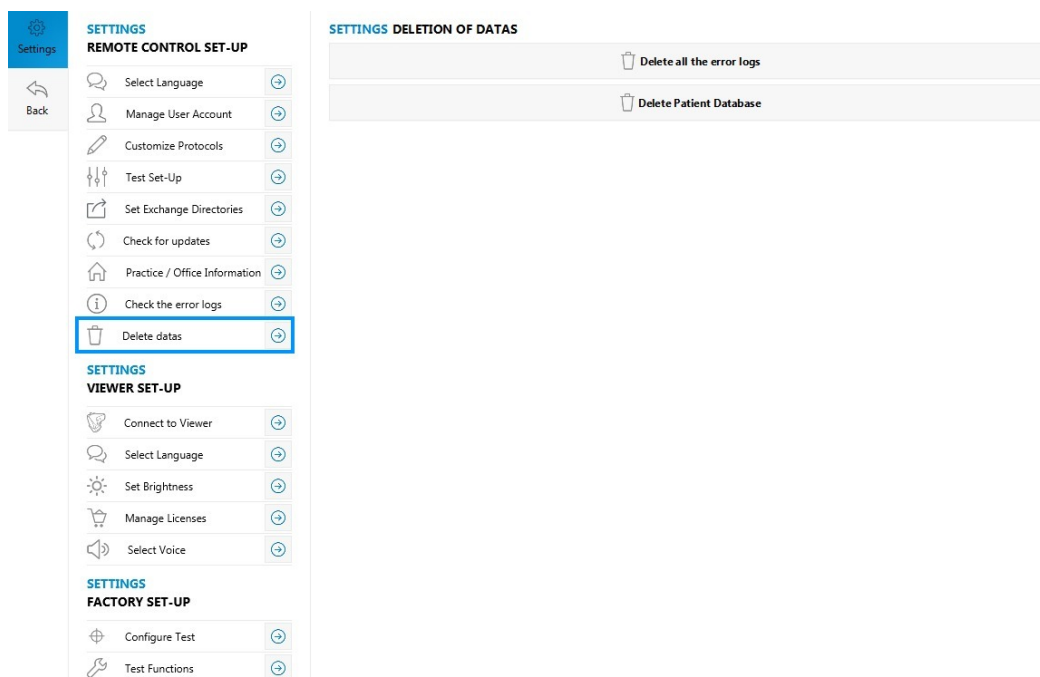
60

Optec Plus > V4 - 04.17

## h. To delete data

This menu allows you to remove the totality of the reports or the subjects.

- 1 Click on *Delete datas*.



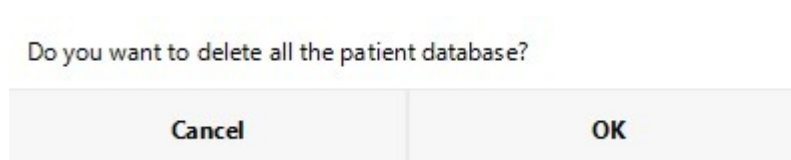
- 2 Click on *Delete all the error logs* to delete all the reports.  
Click on *Delete patient database* to delete all the people.



This choice is irreversible.

It allows you nevertheless to make the application more reactive.

> A window is displayed:



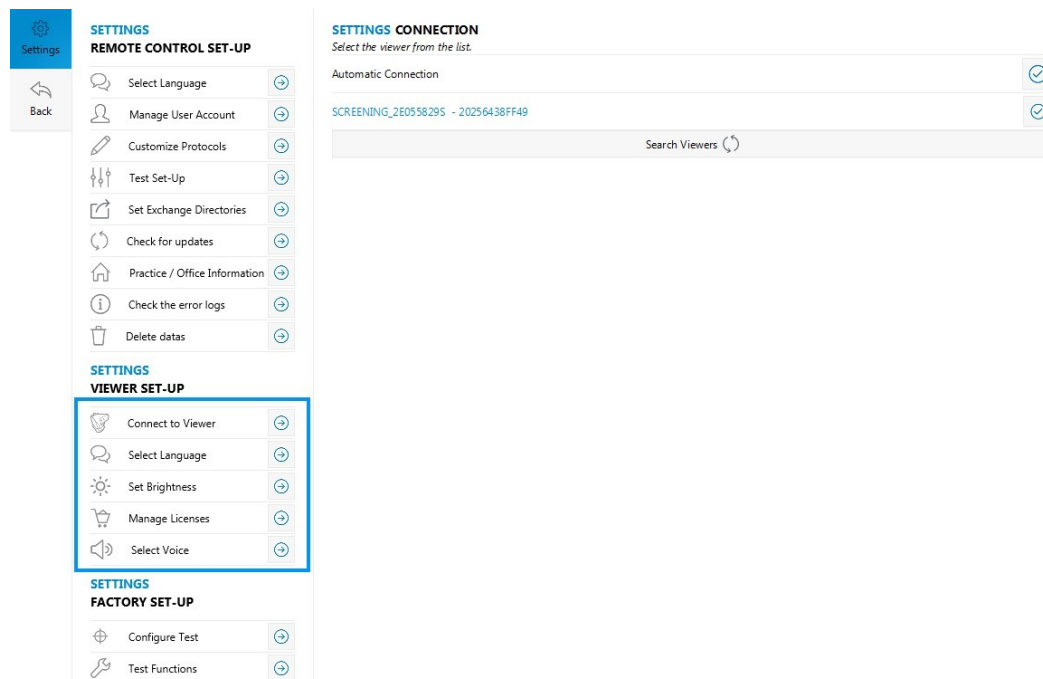
- 3 Click *OK* to confirm your choice.

## 2. To set up the device (viewer)

The *Settings* menu allows you to configure your device settings (viewer).

1 Click on *Settings* in the side menu.

> The Settings menu appears:



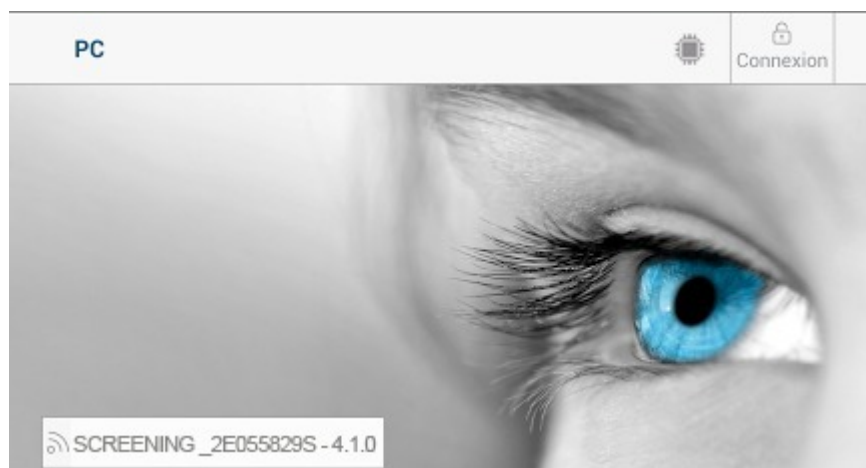
2 Select one of the following actions:

- to connect the monitoring software to the device (p.63)
- to choose a language (p.64)
- to set-up the screen (p.65)
- to manage the licenses (p.66)
- to select the voice synthesis (p.67)

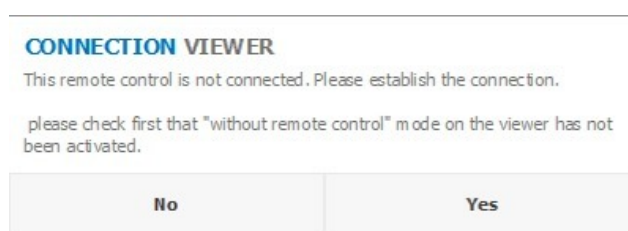
## a. To connect the monitoring software to the device

To start your first tests, you must synchronize the computer with the device.

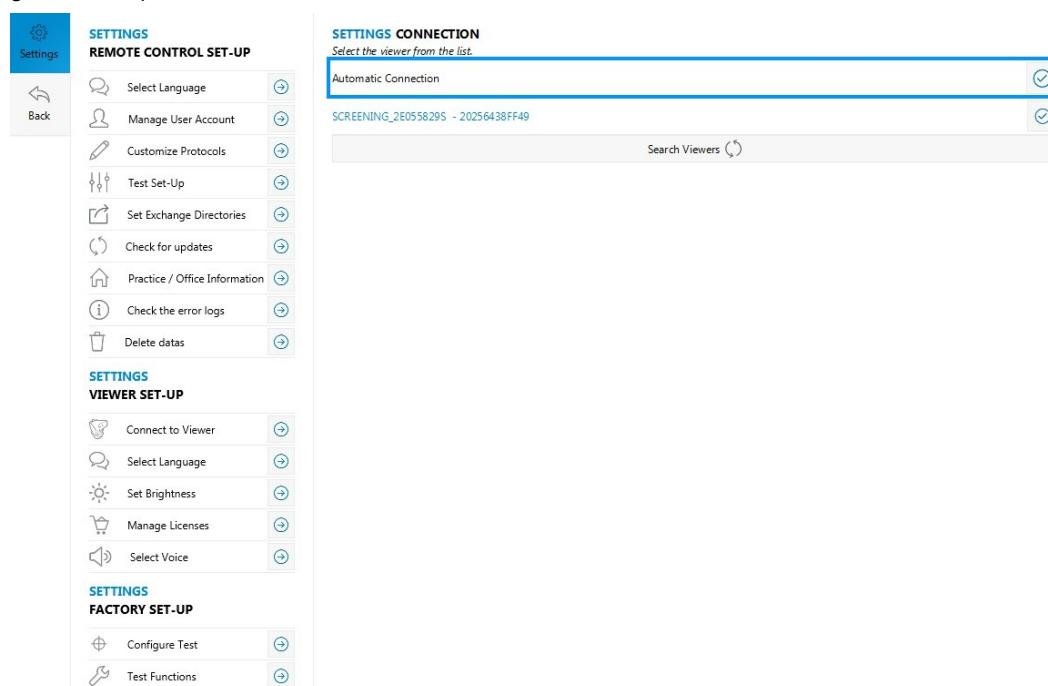
- 1 Switch on the device.
  - > The device name is displayed on the screen.



- 2 Start the software on the computer.
  - > The following message appears: *This remote control is not connected. Please establish the connection. Please first check that the "without remote control" mode on the viewer has not been activated.*



- 3 Click on Yes.
  - > The *Settings* window opens.



- 4 Click on *Search viewers (devices)*.



By checking the *Automatic connection* box at each remote control start-up, it will try to reconnect automatically with the last connected device (viewer).

> A list of the devices (viewers) appears on the screen.

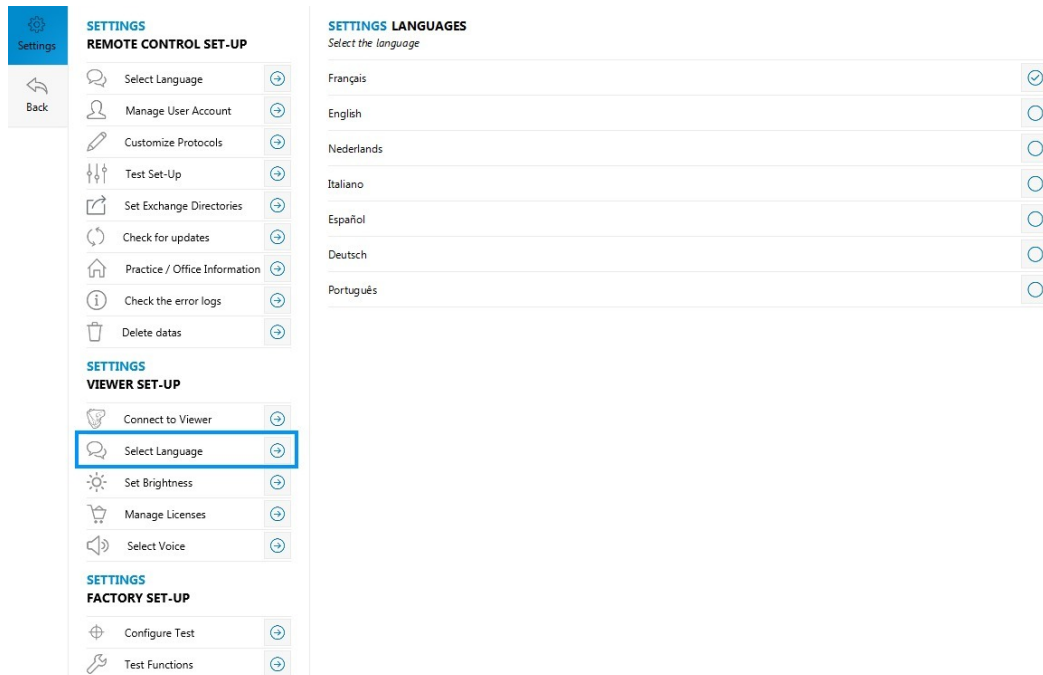
5 Select the device name (viewer).

> The device (viewer) and the remote control (tablet or PC) are connected.

## b. To choose the language

You can change the language of the device.

1 Click on *Select Language*.

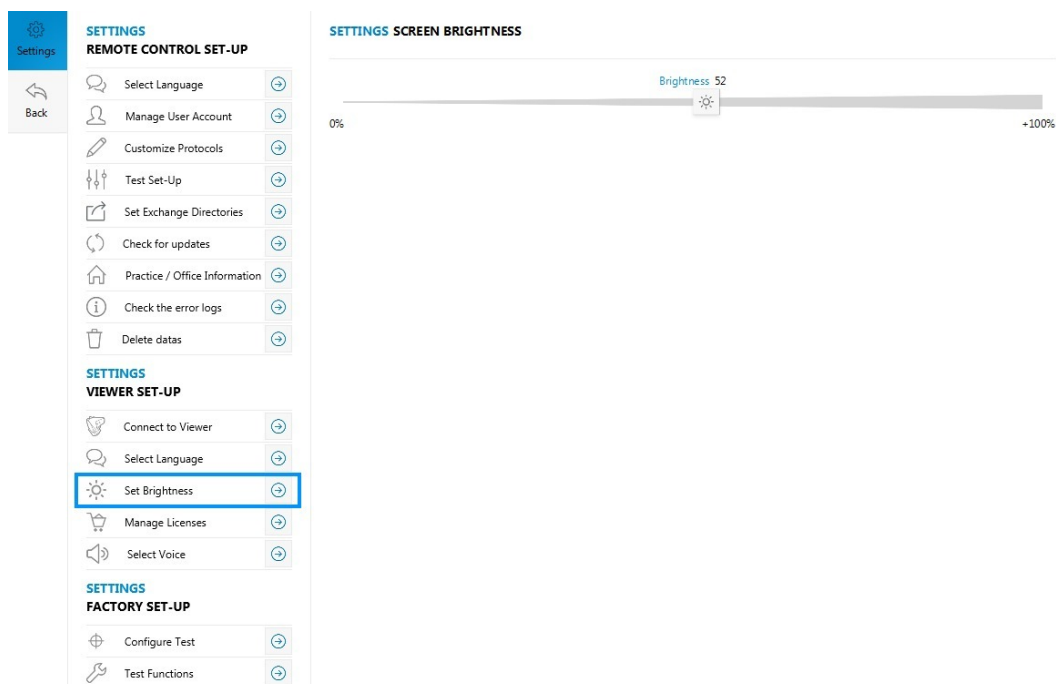



2 Check the box ☐ to select the language of your choice.

### c. To set-up the screen

The *Settings* menu allows you to manage the screen brightness of the device.

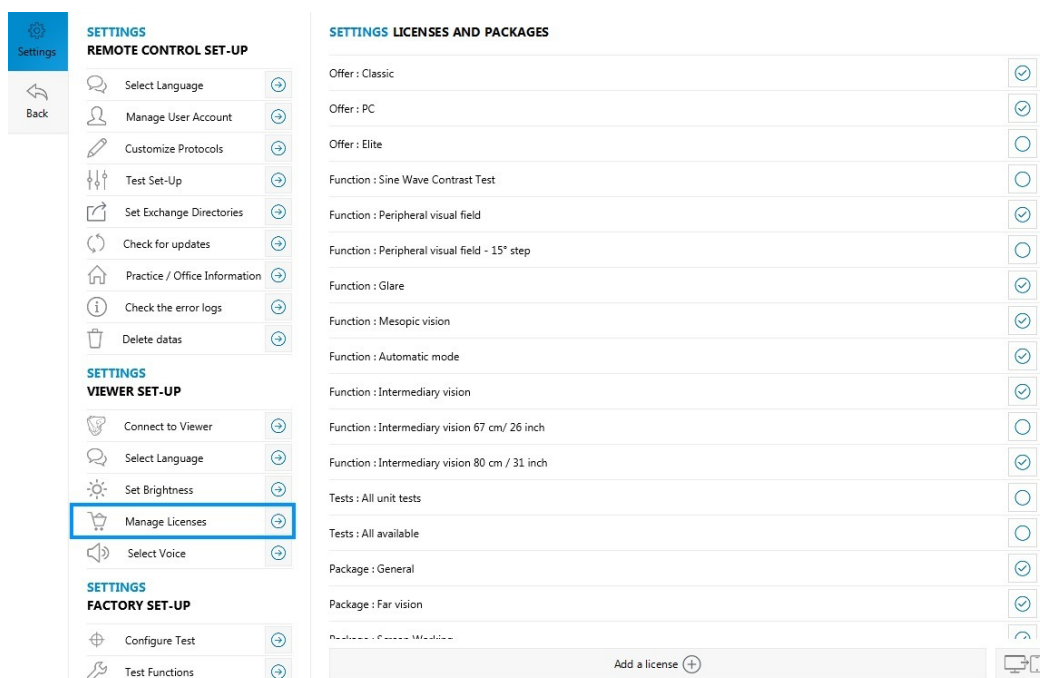
- 1 Click on *Set brightness*.



- 2 Select the  logo and slide it from left to right to increase or decrease the brightness.

## d. To manage the licenses

- 1 Click on *Manage licences*.



- 2 Click on **Add a license (+)**.

> The license key window appears:

### ENTER THE NEW LICENSE KEY


Cancel
Confirm

- 3 Enter the license key provided.

- 4 Click on *Confirm*.

> ☒ is displayed to indicate to you that the option is activated.



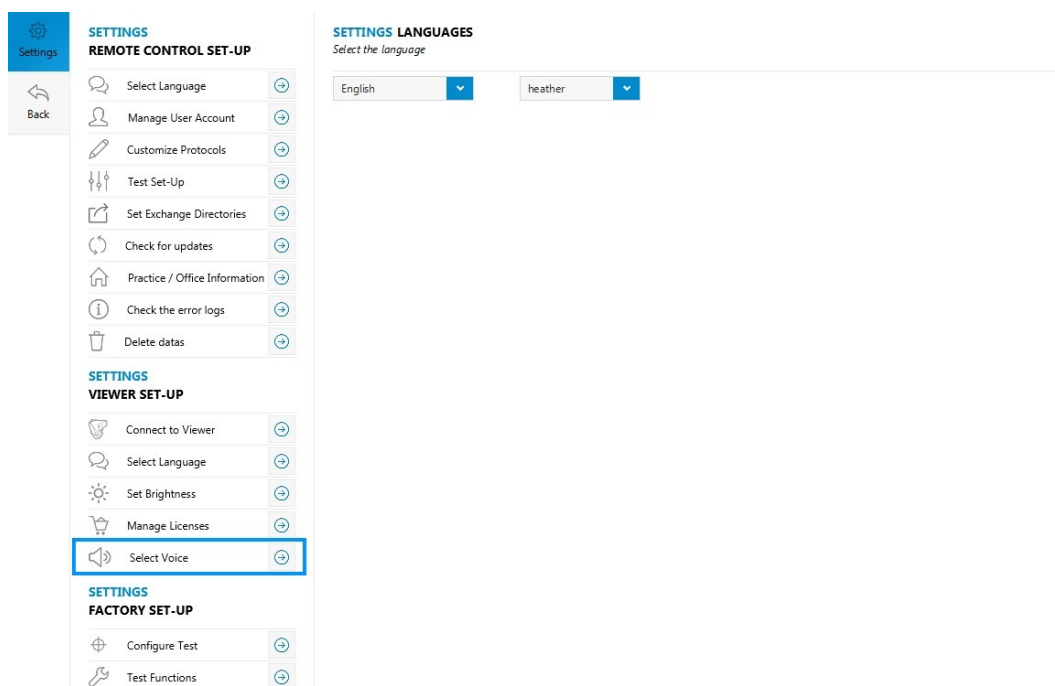
The button  allows the importation of an activation key into the product without needing to enter it. This file will be sent to you and it will be necessary to save it on the computer desktop.

## e. To select the voice synthesis

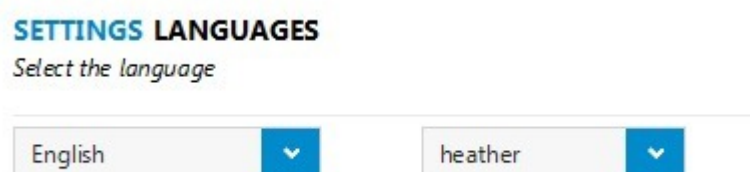
This function allows you to choose:

- the language of the voice syntheses,
- the profile of the voice synthesis: man or woman.

1 Click on *Select voice*.

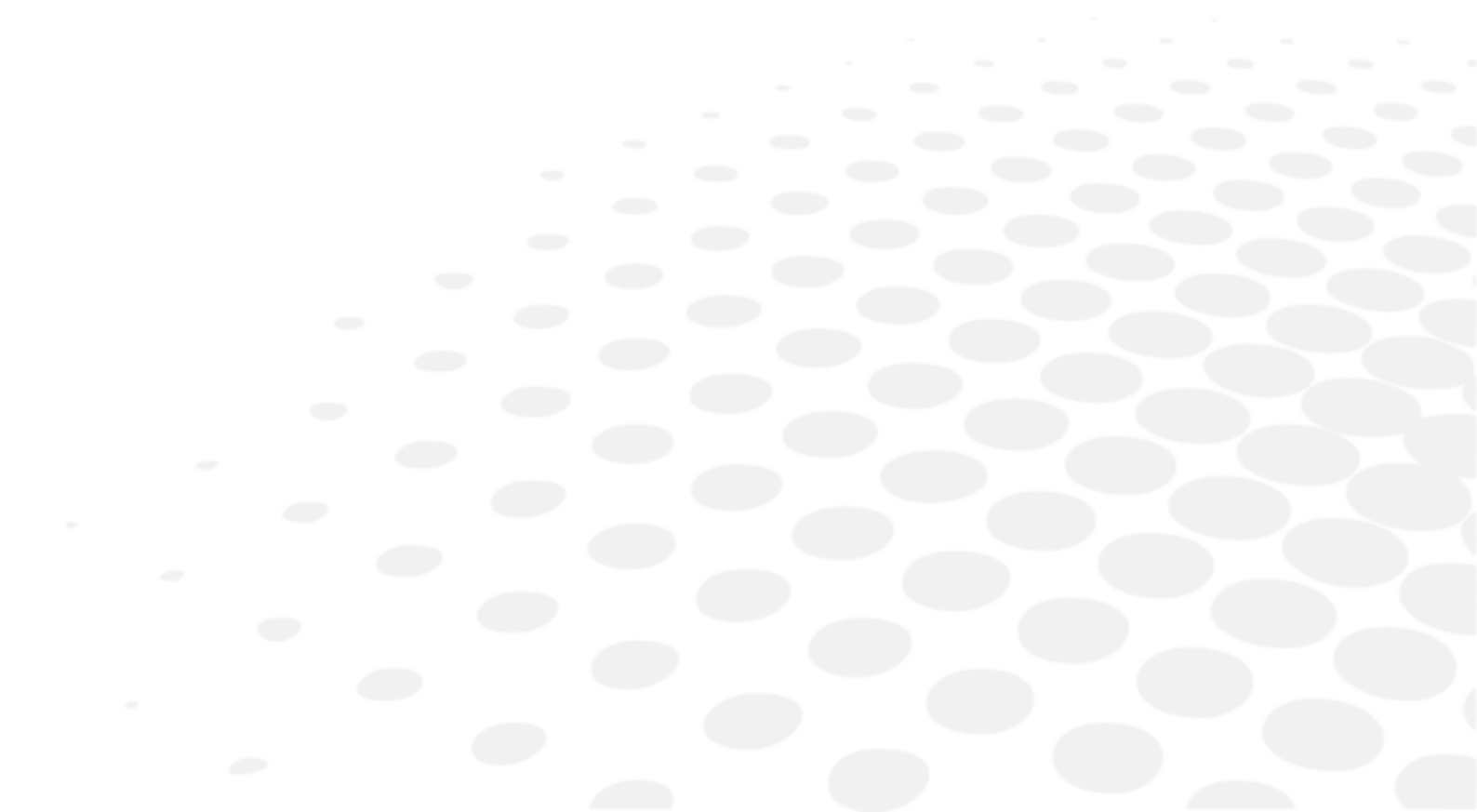


2 Use the drop-down menus to choose the language and the profile of the voice synthesis.





## VI. STARTING WITH A PATIENT





This function enables you to enter any relative information about the patient, who is being screened.



You can setup this menu. For more information, refer to the Settings > setting up the tests (p.59) section

1 Click on *Test patient* located on the side menu.

> The following menu appears:

The screenshot shows the 'Test Patient' interface. On the left is a sidebar with a 'Test Patient' button and a 'Back' button. The main area is divided into two columns. The left column is titled 'PATIENT IDENTIFICATION' and contains the text 'Please select a patient, or create one.' Below this are three buttons: 'Import Existing Patient', 'Create New Patient', and a search bar labeled 'Search Patient By Name'. Below the search bar is a list of three patients: Megan Garcia, Richard Fablan, and Lily Morris, each with a circular selection icon and a trash icon. The right column is titled 'PATIENT INFORMATION' and contains several input fields: 'ID:', 'First Name:', 'Last Name:', 'Gender:' (with radio buttons for 'Man' and 'Woman'), and 'Date of Birth:'. Below these are four sections: 'PATIENT COMPANY', 'PATIENT POSITION', 'PATIENT DOCTOR', and 'PATIENT OPERATOR', each with an input field and an edit icon. At the bottom of the right column are two buttons: 'Confirm Patient' and 'Anonymous Patient'.

2 Choose from the following actions:

- importing a profile that already exists (p.72)
- creating a new profile (p.72)
- creating an anonymous patient (p.74)

## 1. Import existing patient

The *Import existing patient* menu enables you to import a patient, who is currently being examined from connected medical software.

1 Click on *Import existing patient*.

- > The fields are automatically filled in,
- > Information about the patient is displayed on the screen.

This screenshot shows the 'Test Patient' interface after selecting 'Import Existing Patient'. The 'PATIENT IDENTIFICATION' section on the left remains the same. The 'PATIENT INFORMATION' section on the right now has pre-filled data: 'ID:' is 'screening\_3', 'First Name:' is 'Megan', 'Last Name:' is 'Garcia', 'Gender:' is 'Woman' (selected), and 'Date of Birth:' is '29/06/1989'. The 'PATIENT COMPANY', 'PATIENT POSITION', 'PATIENT DOCTOR', and 'PATIENT OPERATOR' sections are still empty with their respective edit icons. The 'Confirm Patient' and 'Anonymous Patient' buttons are at the bottom.



To set up the exchange directory with the connected medical software refer to section Settings > Setting up the software > Definition of the data exchange files (p.56).

## 2. Creating a new profile

The *Create new patient* menu allows you to input information about the patient to be tested:

- identity of the Patient (p.72)
- correction worn and the patient's work environment (p.73)

### a. Identity of the Patient

1. Number identifying the patient

2. First name:

3. Name

4. Sex

5. Date of Birth

6. Company

7. Job

Press to enter job position held.

8. Occupational Health doctor

Press on to select the registered medical practitioner.

It is necessary to complete the user profiles beforehand in Settings > Managing user accounts (p.48) menu

9. Operator

Press on to select the relevant operator.

It is necessary to complete the user profiles beforehand in Settings > Managing user accounts (p.48) menu

> Press on **Confirm Patient** to save information about the identity of the patient.



At any time you can edit the information relating to the subject by clicking on .

## b. Correction worn and the patient's work environment

This page allows you to input more detailed information about the patient to be screened and their work environment:

### 1. Correction

Check the box ☐ to indicate that the subject wears a correction.

### 2. Type of lenses worn

If the subject wears a correction, select the lens type worn:

- ☐ Single vision lens
- ☐ Bifocal lens
- ☐ Progressive lens
- ☐ Mid-distance lens
- ☐ Half-moon lens

### 3. Contact lenses

Check the box ☐ to indicate that the subject wears contact lenses.

### 4. Surgery

Check the box ☐ to indicate that the subject underwent a surgical operation.

### 5. Ophthalmologist appointment

Press  to enter the date of the check up with an ophthalmologist

### 6. Medical examination

Press  to input the date of the last medical examination.

### 7. Conditions related to the workstation

Tick the relevant boxes to the working conditions of the patient:

- work distances,
- visual angles.

### 8. Near vision

Acquisition of information at reading distance.

### 9. Mid-distance vision (screen)

### 10. Mid-distance vision

### 11. Far vision

### 12. High angle

- 13. *Intermediate angle*
- 14. *Primary angle*
- 15. *Low angle*

> Press on **Confirm Information** to save the whole profile.



Info-bubbles were added to specify the icons representing the various lenses the patient is likely to be wearing.

**VISUAL INTERFACE**

Glasses (From the list) ☒

☐ ☐ ☒ ☐ ☐

☐ ☐ ☐ ☒ ☐

Contact Lenses ☐

Refractive Surgery ☐

"Progressive Lens"

### 3. To create an anonymous patient

If you do not wish to save information about the patient, you can choose the option *Anonymous patient*.

- 1 Select *Anonymous patient*, on the right of the screen.

> A new window opens.

**Patient Details**

**PATIENT INFORMATION**  
Please complete the patient's details  
Last Name: **Anonymous**  
**VISUAL INTERFACE**  
Glasses (From the list) ☐  
☐ ☐ ☒ ☐ ☐  
Contact Lenses ☐  
Refractive Surgery ☐  
**MEDICAL APPOINTMENTS**  
Last Eye Exam:   
Last Medical Exam:

**COMMENTS**  
**USE OF THE VISUAL INTERFACE**  
  

Confirm Information  
Skip This Step

- 2 Input the necessary information for the tests and press **Confirm Information**.

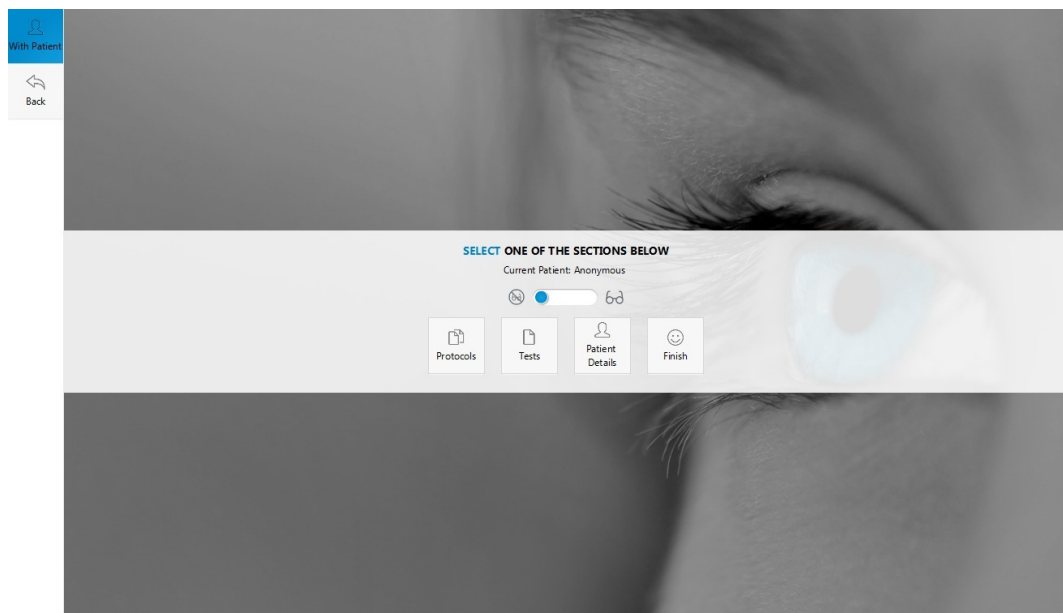


For more information, consult the section *create a new profile > Correction worn and the patient's work environment (p.73)*.



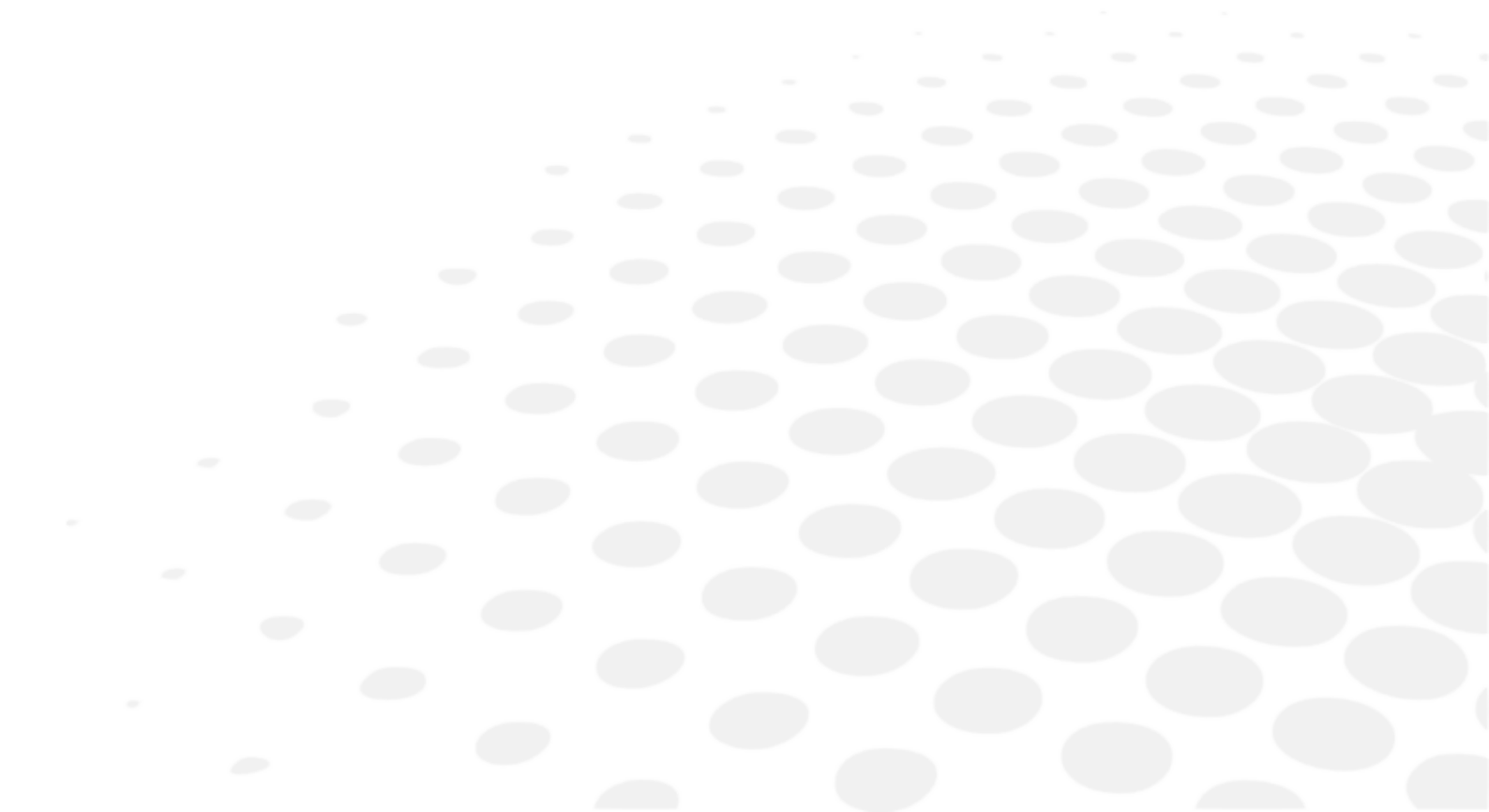
You can choose not to enter any information about the Patient. Then, select *Skip this step* to directly access the tests and protocols.

- > You are redirected towards the main menu.





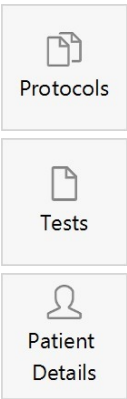
VII. MAIN MENU





The main menu allows you to:

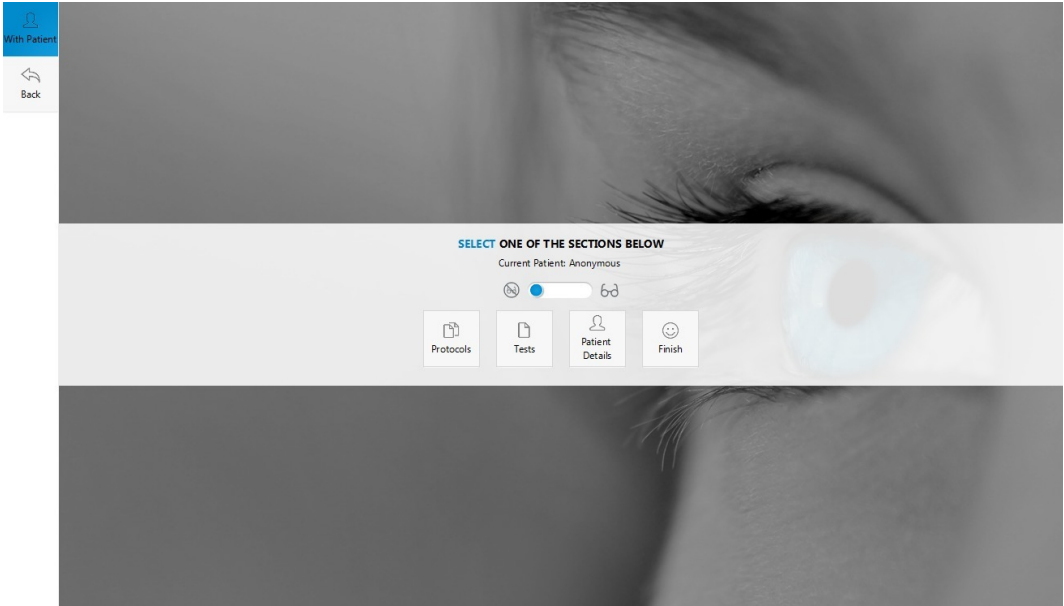
- start a protocol: (p.11)
- directly start a test: (p.23)
- access information about the patient: (p.73)



Press:

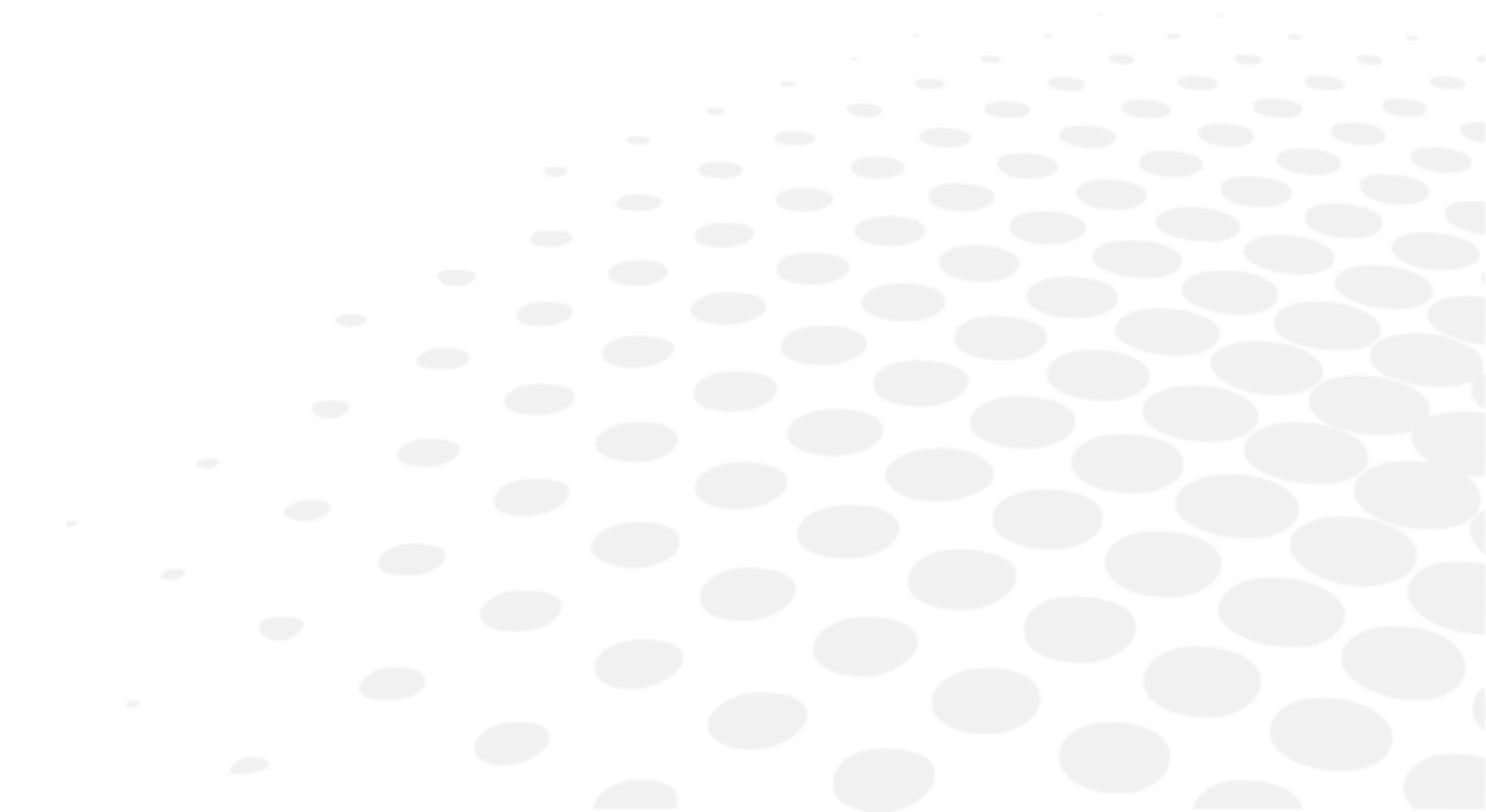


to visualise the summary of the tests done on the patient and finish the session.



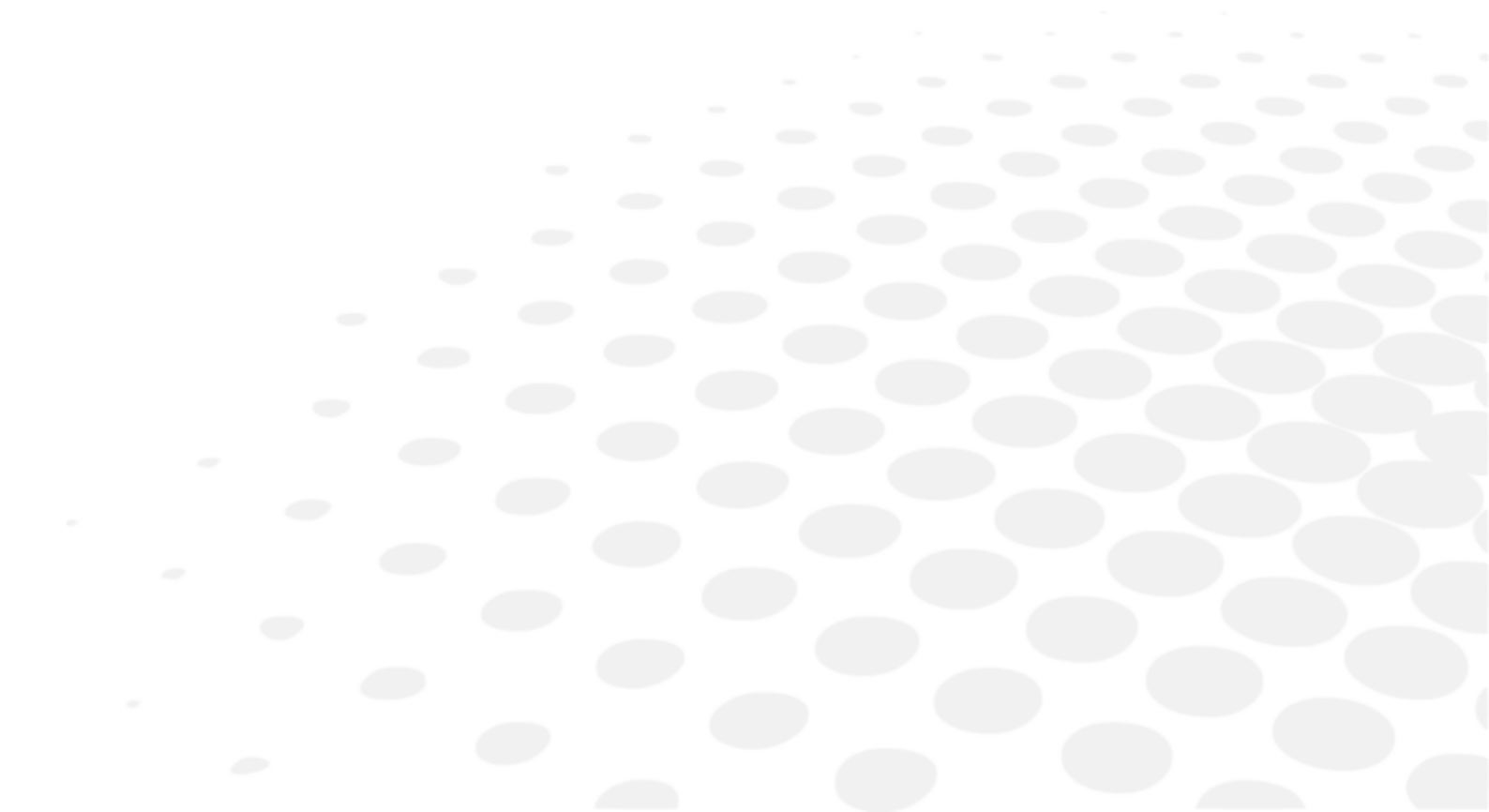


## LIST OF ERRORS



- This device does not have Bluetooth
- The remote control is not connected
- Remote control has lost connection to the viewer.
- An error appeared during reception of reply. Please check the connection.
- An error appeared during the sending of the request. Please check the connection.
- The password is incorrect
- Wrong key. No change applied.
- We cannot add the patient. The family name and/or the first name must be input.
- The password is not the same.
- The role of the user was not selected.
- This name has already been used
- The name has not been input.
- An error occurred whilst importing the patient.
- No import directory found.
- No import file found.
- A problem occurred. Please check your import directory and file.
- Impossible to launch an update. Please check the existence of an update file.
- An error occurred in the description file. Please contact your support team to check.
- An error occurred during package checking. Please contact your support team to check.
- The selected file does not exist.
- The update file ("catalog") does not exist.
- The name of the XML file must be higher than 0.
- The coding control does not match the apk.
- An error occurred during the reading of the XML file. A tag must be missing.
- Check your viewer - connection impossible

# TECHNICAL DATA



This device is a class I medical device without measurement function.

#### The device

- Dimensions: 483 x 283 x 456 (mm) or 19.0 x 11.2 x 18.0 (in)
- Weight: 6.700 Kg or 15 lb
- Power supply:
  - AC Input : 100-240 VAC, 1.9A max, 47-63 Hz
  - DC input : 24.0 V, 2.70A
  - Maximum output power: 65W
- Product: Input 24V, 50VA

#### Accessory list

- Microfibre cloth
- Supply ref. MVC 65 NR 24E and cord (cable length: 1.50m)
- Protective cover
- Ancillary lenses\*: Europe +1.00 δ/ USA +1.75 δ, +2.25 δ/VI (Mid-distance vision)
- USB key
- Bluetooth key
- Headset (cable length: 1 m)\*
- LED peripheral mask\*
- Transportation case\*
- Ancillary lens Kit VI (67cm and 80 cm) \*
- Automatic option\*

(\*) These options are included or at extra cost.

#### Environment

The temperature and relative humidity of the room where you use your digital system must lie within the following limits:

Operation:

- temperature of +10°C (+50°F) to +40°C (+104°F)
- humidity: 30% to 75%

Storage:

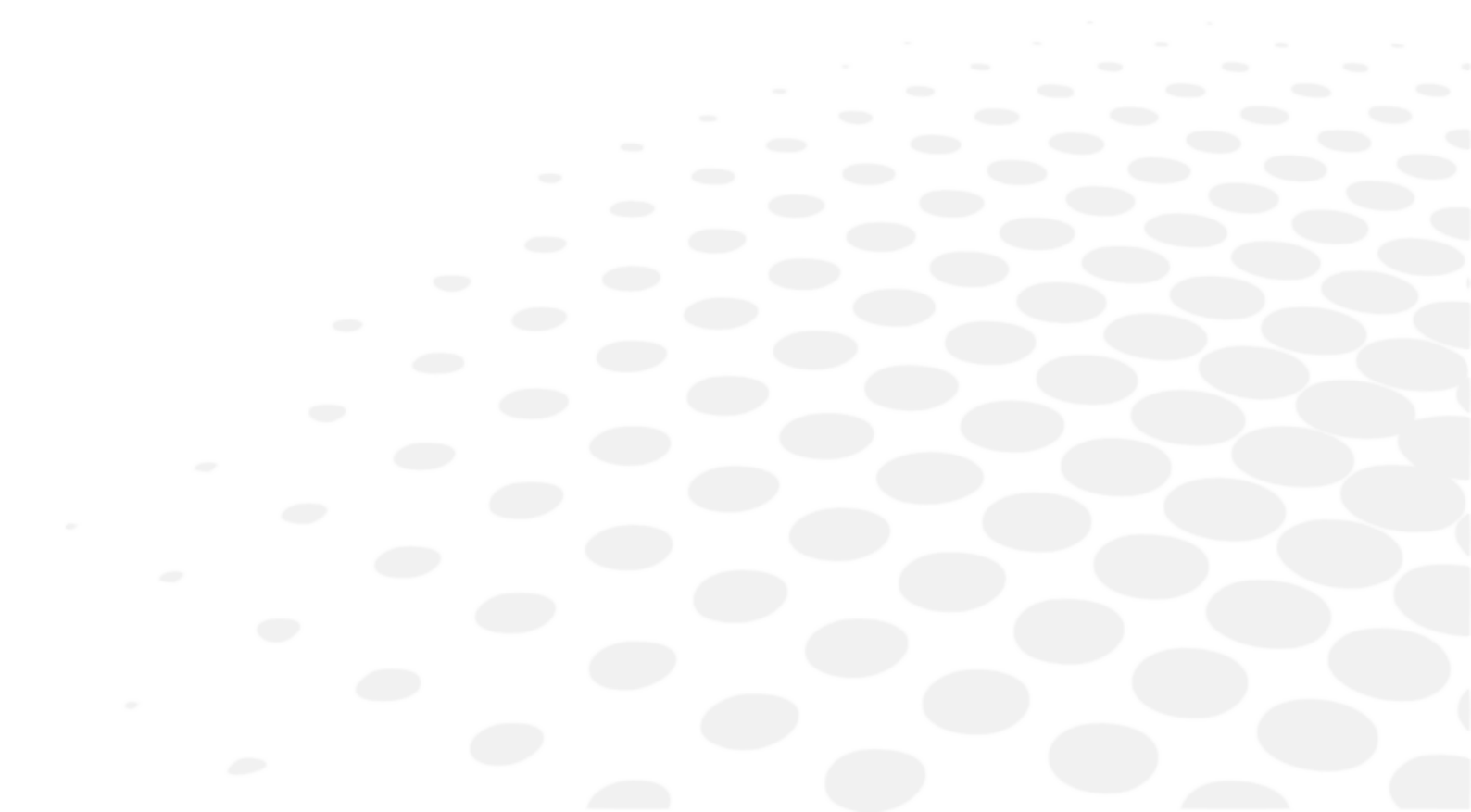
- temperature of -5°C (+23°F) to 50°C (+122°F)
- humidity: 25% to 95%
- Altitude: < 2,000 m (6,562 ft)
- Degree of pollution: 2

Avoid sudden changes in temperature and relative humidity and install your system:

- away from direct sunlight,
- away from all heat sources,
- away from any strong magnetic fields,
- away from all chemical products, corrosive vapours and liquids




















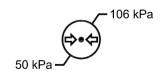
Do not place anything on the device. Avoid exposing the equipment to vibration or impact.





# GENERAL INFORMATION



- Description of the symbols (p.86)
- Modifications (p.87)
- Compliance (p.87)
- Materials and products (p.87)
- Security (p.87)

## Symbols

| SYMBOLS PRESENT   |  |
|---|--|
|    | D.C. current   |
|    | Polarity   |
|    | Separate collection of electrical and electronic equipment             |
|    | NB: read and understand the accompanying documents (user manual, etc.) |
|    | Manufacturing date.  |
|    | Complies with R&TTE standards;   |
|    | Compliant to FCC standards   |
|    | Manufacturer   |
|    | This instrument is a class I type B product                            |
|    | Headset  |
|  | Tablet connector   |
|  | Tweezers/Pushbutton (not for use on this product)                      |
|  | NB: read and understand the accompanying documents (user manual, etc.) |
|  | This side up   |
|  | Fragile  |
|  | Keep dry   |
|  | Do not put in a pile   |
|  | Limited temperature for transportation and storage                     |
|  | Limited humidity for transportation and storage                        |
|  | Limited pressure for transportation and storage                        |

| SYMBOLS PRESENT IN THE DOCUMENT   |   |
|---|---|
|  | Danger: risk of injury                  |
|  | Precaution: risk of damaging the device |
|  | Note: additional information            |
|  | Tip: practical advice                   |

## Modifications

The information contained in this document is non-contractual and provided as a guide. It may be changed without notice. Errors or omissions may occur in this type of document, although the greatest care has been taken to ensure the accuracy of the information provided. The manufacturer cannot be held responsible for any malfunction or loss of data resulting from such errors or omissions.

## Declaration of conformity

Complies with marking: **CE**

Complies with ISO 16284 standards.

Date of first marking: September 2016

Lifetime: 7 years.

This device complies with the limits imposed by Part 15 of the FCC rule. Its use meets the following conditions: (1) this device must not cause interference and (2) must accept interference from external sources, notably that liable to cause malfunctions.

In accordance with the requirements of FCC rules, any modification made to this equipment which is not expressly approved by the manufacturer would nullify the user's right to use this device.

This equipment has been tested and is deemed compliant with the limits imposed for Class-B digital devices according to Part 15 of the FCC rule. Those limits are set so as to ensure reasonable protection against interference in a residential environment. This device generates, uses and may emit radio frequency energy capable of interfering with radio communications if the device is not installed and used in strict accordance with the manufacturer's instructions. However, nothing guarantees the absence of interference under particular conditions. If this device generates interference with radio or TV reception (this can be confirmed by turning it off then on again), the user can eliminate this interference by one or more of the following methods:

- swivel or move the affected receiver or its receiving antenna;
- move the device away from the affected receiver;
- plug the device into a circuit other than the circuit supplying the affected receiver;
- ask for the assistance of the retailer or a qualified radio/television technician.

## Interference and micro-outages

The products have been designed to withstand interference and operate despite its presence and the possibility of micro-outages on the network. However, if these malfunctions are too serious and abnormal, the machine cannot be guaranteed to operate normally.

## Materials and products

Do not place this device in a dusty environment, in a room where the temperature is too high or too low or in a damp place.

Perchlorate material warning applies to the primary Manganese Dioxide Lithium coin cells present in the device. Special handling may apply.

## Safety instructions

### Warning

All mechanical or electronic adjustments and electrical maintenance must be carried out by an after-sales technician approved by the manufacturer.

The use and operation of any accessory or cable other than those recommended in this manual could create a risk for the operators using the product and could lead to an increase in emissions or a reduction in device immunity.

Check the power cable periodically; if damaged, have it replaced by an approved repairer.

Never pull the cables to disconnect them from the power socket.

Your system is a professional tool which must only be used by specialized, responsible operators. It must not be used by anyone other than those operators.

Do not use our system for other uses than those described in this document. Otherwise, the protection ensured by the device may be compromised.

Never try to modify or dismantle this product yourself. Apart from the risk of damaging the instrument, there is a risk of potential injury.

Your device must be carefully maintained, in accordance with the instructions detailed in this document.

Your system is an electrical device which complies with the relevant safety standards. In the event of malfunction, repair operations must be performed by qualified personnel approved by the manufacturer. Otherwise, the user's safety would be at risk.

During extended periods of non-use and before the servicing and/or replacement of certain accessories, you must disconnect your system from the electricity supply, removing power from the device should be done by unplugging the power cord.

The equipment must be connected to an electricity supply with earth connection. The earth connection must comply with public standards and be checked by a technician. Avoid using extension cords or intermediary multiple-socket connectors which might result in poor contact. Removing power from the device should be done by unplugging the power cord.

The equipment is an electric medical device requiring special precautions in terms of electromagnetic compatibility. Please observe the recommendations in this manual during commissioning and use of the equipment. Make sure the wall outlet is easily accessible.

The use of a mobile phone or portable and mobile RF equipment near the device may affect it.

No training, skills or special knowledge is necessary for operating this product.

No known contraindication linked to using the machine.

At the end of the product use, please press on the power switch.

Do not carry out any maintenance whilst the machine is being used by a patient or in use.

The patient is supposed to be the operator.

No maintenance of any kind can be carried out by the patient.

The USB port is only intended for the connection of smartphones and mini-tablets using micro-USB ports to have them recharged. This is especially intended for mini-tablets that would be used as a remote control of the device.

Do not plug in any other device, such as PC.

Make sure that the wall plug can be accessed easily.

After using the product, remember to press the power switch.

Removing power from the device should be done by unplugging the power cord.

The mains plug allows you to turn the device off, it must always be accessible, ensure that your product is installed so you can do this.

There are no known contraindications to the use of the device.

Screening time varies from 2 to 5 minutes depending on the subjects examined. The contact temperature at the forehead could be maximum 41,7°C if the room temperature is 40°C.

#### Use the product as specified in this guide.

No significant risk of reciprocal interference to the machine during the examination.

No potential interference between the machine and others.

Do not plug any other equipment into this product than those specified.

#### Table 1 – Electromagnetic emissions


The device is designed to be used in the electromagnetic environment specified below. The customer or user of the device should ensure that it is used in such an environment.

| Emissions test                             |         |  |
|--|---------|--|
| RF emissions CISPR11                       | Group 1 | The device uses RF energy only for its internal functions. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment. |
| RF emissions CISPR11                       | Class B | The device is suitable for use in all buildings other than homes and premises directly connected to the public low voltage power supply network supplying domestic premises.     |
| Harmonic emissions IEC 61000-3-2           | Class A |  |
| Voltage fluctuations/Flicker IEC 61000-3-3 | OK      |  |

#### Table 2 – Electromagnetic immunity

The device is designed to be used in the electromagnetic environment specified below. The customer or user of the device should ensure that it is used in such an environment.

| Immunity test  | Test level IEC 60601  | Compliance level  | Electromagnetic environment – directives   |
|--|---|---|--|
| Electrostatic discharge (ESD)<br>IEC 61000-4-2   | ± 8 kV on contact<br>± 15 kV in air   | ± 8 kV on contact<br>± 15 kV in air   | Floors should be wood, concrete or ceramic tile. If floor coverings are synthetic materials, the relative humidity should be at least 30%.   |
| Fast transient bursts<br>IEC 61000-4-4   | ± 2 kV for supply lines<br>± 1 kV for input/output lines  | ± 2 kV for supply lines<br>Not applicable   | The quality of the power supply network should be that of a typical commercial or hospital environment.  |
| Transient overvoltage<br>IEC 61000-4-5   | ± 0.5 kV, ± 1 kV between phases<br>± 0.5 kV, ± 1 kV, ± 2 kV between phase and earth   | ± 0.5 kV, ± 1 kV between phases<br>± 0.5 kV, ± 1 kV, ± 2 kV between phase and earth   | The quality of the power supply network should be that of a typical commercial or hospital environment.  |
| Voltage dips, short interruptions and voltage variations on power supply input lines<br>IEC 61000-4-11 | < 5% UT<br>(> 95% dip in UT) for 0.5 cycles<br>40 % UT<br>(60% dip in UT) for 5 cycles<br>70 % UT<br>(30% dip in UT) for 25 cycles<br>< 5% UT<br>(> 95% dip in UT) for 5s | < 5% UT<br>(> 95% dip in UT) for 0.5 cycles<br>40 % UT<br>(60% dip in UT) for 5 cycles<br>70 % UT<br>(30% dip in UT) for 25 cycles<br>< 5% UT<br>(> 95% dip in UT) for 5s | The quality of the power supply network should be that of a typical commercial or hospital environment. If the device user requires continuous operation during power cuts, it is recommended to connect the device to a UPS or a battery.   |
| Power frequency (50/60 Hz) magnetic field<br>IEC 61000-4-8   | 3 A/m   | 3 A/m   | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.  |
|  |   |   | Portable and mobile RF communication devices should not be used closer to any part of the device than the recommended separation distance, calculated using the applicable transmitter frequency equation. Recommended separation distance   |
| Conducted RF disturbance<br>IEC 61000-4-6  | 3 V <sub>eff</sub><br>from 150 MHz to 80 MHz  | 3 V/m   | $d = 1.17 \sqrt{P}$  |
| Radiated RF disturbance<br>IEC 61000-4-3   | 3 V/m<br>from 80 MHz to 2.7 GHz   | 3 V/m   | $d = 1.17 \sqrt{P}$ 80 MHz to 800 MHz<br>$d = 2.33 \sqrt{P}$ 800 MHz to 2.7 GHz<br>where P is the maximum rated output power of the transmitter in Watts (W), according to the transmitter manufacturer, and d is the recommended separation distance in metres (m).<br>Field strengths from fixed RF transmitters, as determined by an electromagnetic site |

|  |  |  |
|--|--|--|
|  |  | survey (a), should be less than the compliance level in each frequency range (b).<br>Interference may occur near devices marked with the following symbol:  |
| NOTE 1: At 80 MHz and at 800 MHz, the highest frequency range applies.   |  |  |
| NOTE 2: These directives may not apply in all situations. Electromagnetic propagation is affected by absorption and reflections of structures, objects and people.   |  |  |
| a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcasting, and TV broadcasting, cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the field strength measured at the site where the device is used exceeds the above applicable RF compliance level, the device should be observed to ensure that operation is normal. If abnormal performance is observed, additional measures may be required, such as reorienting or repositioning the device. |  |  |
| b Over a frequency range of 150 kHz to 80 MHz, the electrical field strengths should be lower than 3 V/m.  |  |  |
| Note: UT is the AC network voltage before application of the test level  |  |  |

**Table 3– Recommended separation distances between portable and mobile RF communication devices and the device**

The device is designed to be used in an electromagnetic environment in which radiated RF disturbances are controlled. The device customer or user can contribute to preventing electromagnetic interference by maintaining a minimum distance between portable and mobile RF communication devices (transmitters) and the device as recommended below, according to the maximum transmission power of the communication device.

| Maximum rated output power of transmitter W | Separation distance depending on the frequency of transmitter m |  |   |
|---|---|--|---|
|   | 150 kHz to 80 MHz<br>$d = 1.17 \sqrt{P}$                        | 80 MHz to 800 MHz<br>$d = 1.17 \sqrt{P}$ | 800 MHz to 2.5 GHz<br>$d = 2.33 \sqrt{P}$ |
| 0.01  | 0.12  | 0.12                                     | 0.23                                      |
| 0.1   | 0.37  | 0.37                                     | 0.74                                      |
| 1   | 1.17  | 1.17                                     | 2.33                                      |
| 10  | 3.69  | 3.69                                     | 7.38                                      |
| 100   | 11.67   | 11.67                                    | 23.33                                     |

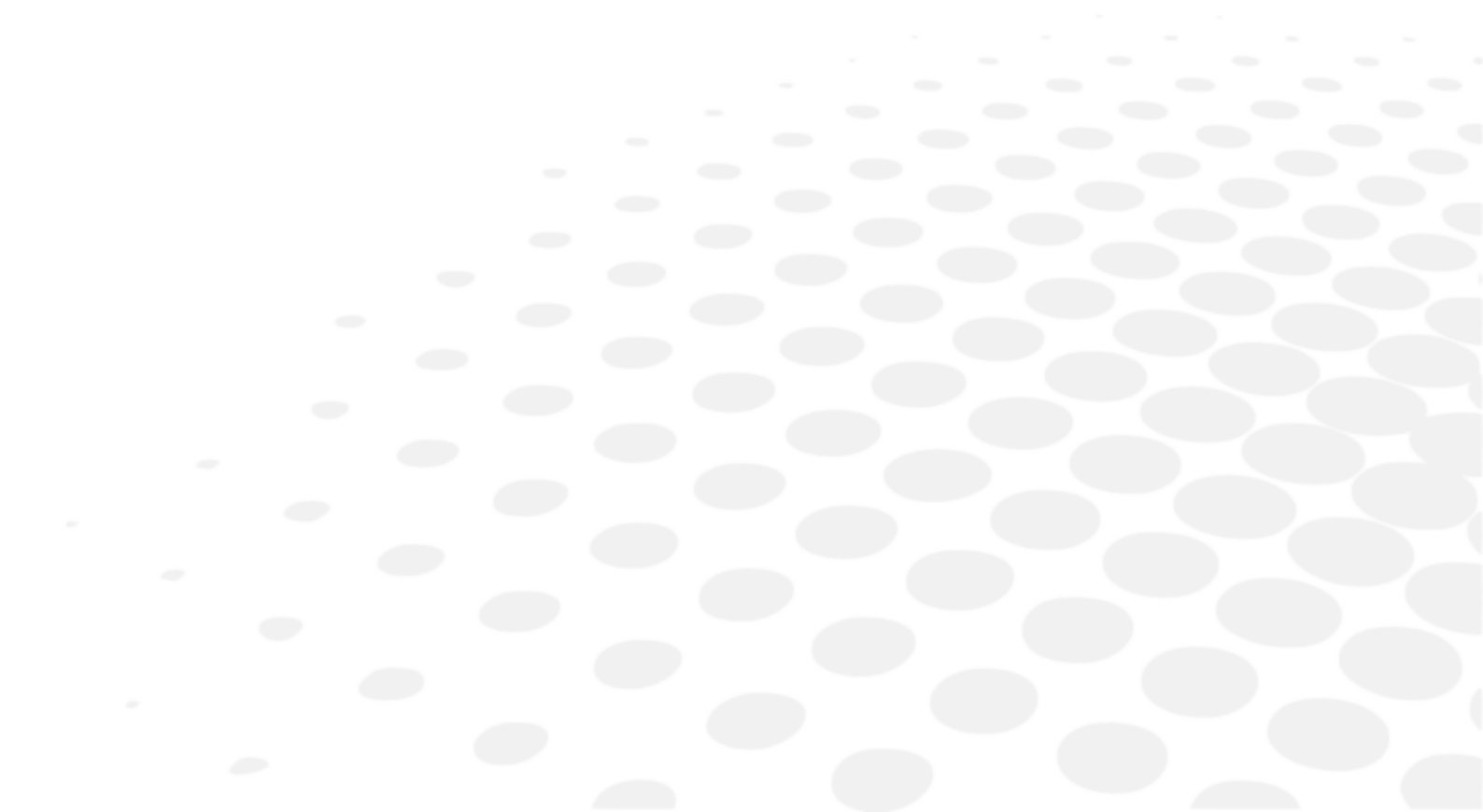
For transmitters whose maximum rated output power is not given above, the recommended separation distance d in metres (m) can be estimated by using the equation applicable to the frequency of the transmitter, where P is the maximum rated output power characteristic of the transmitter in watts (W), according to the transmitter manufacturer.

NOTE 1: At 80 MHz and at 800 MHz, the highest separation distance applies.

NOTE 2: These directives may not apply in all situations. Electromagnetic propagation is affected by absorption and reflections of structures, objects and people.



## GLOSSARY



## AMETROPIA

Any eye is known as being emmetropic (from the Greek: “ametros”: not conforming to measurement, and “ops”: to see) when it presents a refraction anomaly characterized by the fact that the image of a distant object is not formed on the retina of the eye in its unfocussed state but in front of or behind it.

- If the image is formed in front of the retina, the eye is called myopic.
- If the image is formed behind the retina, the eye is called farsighted.
- If the image is formed differently according to the meridian lines, the eye is known as astigmatic.

## ANAMNESIS

From the Greek “Anamnêsis”: to remember.

Before any refraction examination, it is necessary to proceed to the anamnesis or the detailed history of the case history of the patient in order to be aware of the symptoms, which caused this person to consult. Collecting this information is invaluable and allows the vision test to be carried out in an orderly manner.

Initially, the operator should try to understand why the person has come to consult with some open-ended questions to the patient, like:

- Why did you decide to come and see us?
- What visibility problems bother you?

You should then try to get the patient to specify their visibility problems and in particular:

- The true nature of the problem: eyestrain, fuzzy vision, double vision?
- The distance at which it occurs: far, mid-distance, close to, or on the sides?
- etc.

## ASTIGMATISM

An eye is called astigmatic, when it presents a variable power according to the meridian lines and thus presents an ametropia which varies according to the meridian lines.

A astigmatic eye is by definition ametropic and all combinations are possible: it may be short-sighted or farsighted in all the meridian lines (composed astigmatism), emmetropic in a meridian line and myopic or farsighted in the other (simple astigmatism), myopic in a meridian line and farsighted in the other (mixed astigmatism).

The principle behind the correction of the astigmatic eye is to place an astigmatic lens of varying strength depending on the meridian lines in the opposite direction to the astigmatism of the eye.

## EMMETROPIA

An eye is called emmetropic (from the Greek: “emmetropos”: proportioned and “ops”: to see) when the image of an object at infinity is formed on the retina of the eye in its unfocussed state. The image of distant objects is formed on the retina, inverted; the emmetropic eye sees clearly without focusing.

## FARSIGHTEDNESS

The farsighted eye or hyperope (from the Greek “hyper”: beyond and “ops”: to see), is the eye in which the image is formed behind the retina.

The principle of correction is to introduce in front of the farsighted eye a lens of positive strength which moves the image forwards and repositions it on the retina.

## MYOPIA

The short-sighted eye (from the Latin myops” or literally “meaning Greek “μῦψ” who squints the eyes”) is the eye in which the image of an object located at infinity is formed before retina.

The principle of correction is to introduce in front of the short-sighted eye a lens of negative strength which makes the image move back and repositions it on the retina.





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