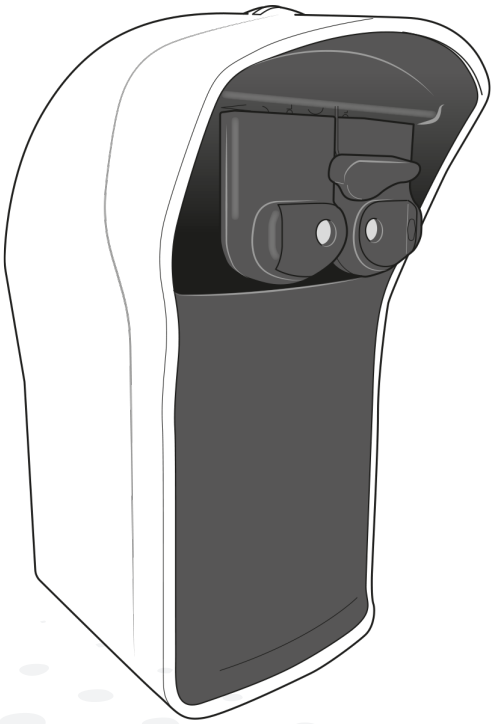
# VISION-S 700

ESSILOR INSTRUMENTS

## ESSILOR Compact Refraction system



# Quickstart Guide

## Introduction

The quickstart guide for the compact refraction system Vision-S™ 700 (VS700 and VS700I) briefly presents the main features of the instrument. It contains essential information about the device, such as essential functions, maintenance and servicing recommendations.
However, it does not intend to provide exhaustive information and does not cover all the details and features of the instrument.

For more information on the mode of usage for all the features of Vision-S™ 700, we encourage you to read the user manual available on a web platform.

| | |
|---|---|
|  | The complete user manual is available on a web space. To access it, please scan the QR code below using a dedicated application. |
|  | Le manuel utilisateur complet est disponible sur un espace web. Pour y accéder veuillez scanner le QR code ci-dessous à l'aide d'une application dédiée. |
|  | Die vollständige Bedienungsanleitung ist auf einem Speicherplatz verfügbar: Für den Zugriff darauf scannen Sie bitte untenstehenden QR-Code mittels einer dafür vorgesehenen Anwendung. |
| العربية الأدبية | تتمكن من الوصول إليه، يُرجى مسح رمز الاستجابة السريعة أدناه باستخدام تطبيق مخصص لذلك. |
|  | O manual do usuário completo está disponível na área web do cliente. Para acessar, scanear o código QR abaixo usando a respetiva aplicação. |
|  | Пълното ръководство за потребителя е достъпно на уеб пространство. За достъп, моля, сканирайте QR кода по-долу с помощта на специално предназначено приложение. |
|  | 操作手册全文可在一个网络空间内查询。如要访问该空间，请使用一个专门的应用软件扫描QR条码。 |
|  | 완전한 사용자 매뉴얼이 웹사이트에 있습니다. 전용 앱을 사용해 아래의 QR 코드를 스캔하면 접근할 수 있습니다. |
|  | Potpuni korisnički priručnik dostupan je na webu. Da biste mu pristupili, skenirajte QR-kod u nastavku namjenskom aplikacijom. |
|  | Den komplette brugermanual findes på et websted.Du får adgang til den ved at scanne QR-koden nedenfor ved hjælp af en dertil beregnet applikation. |
|  | El manual de uso completo está disponible en la web. Para acceder, escanee el código QR que se encuentra a continuación con la ayuda de una aplicación. |
|  | Täielik kasutusjuhend on saadaval veebis. Juurdepääsuks palun skannige allolevat QR-koodi, kasutades selleks spetsiaalset rakendust. |
|  | Täydellinen käyttöohje on käytettävissä verkossa. Avaa käyttöohje skannaamalla QR-koodi asianmukaisella sovelluksella. |
|  | Το πλήρες εγχειρίδιο χρήσης διατίθεται σε έναν ιστοχώρο. Για να μεταβείτε σε αυτόν, σαρώστε τον παρακάτω κωδικό QR μέσω μιας ειδικής εφαρμογής. |
|  | A teljes használati útmutató megtalálható a webes felületen. A hozzáféréshez, kérjük, olvassa le a lenti QR-kódot a megfelelő alkalmazás használatával. |
|  | Panduan pengguna yang lengkap tersedia di web space. Untuk mengaksesnya, silakan pindai kode QR berikut dengan menggunakan aplikasi khusus. |

## Introduction

Il manuale utente completo è disponibile su uno spazio Web. Per accedervi, scansionare il codice QR seguente mediante un'applicazione dedicata.

ユーザーマニュアル完全版はウェブサイト内で閲覧いただけます。そちらにアクセスするには、専用アプリケーションを使用して以下のQRコードをスキャンしてください。

Pilnā lietotāja instrukcija ir pieejama tīmeklī. Lai tai piekļūtu, lūdzu, noskenējiet tālāk redzamo QR kodu, izmantojot tam paredzētu lietojumprogrammu.

Išsamaus naudotojo vadovo ieškokite interneto svetainėje. Kad jį atvertumėte, specialia programėlę nuskaitykite toliau pateiktą QR kodą.

Manual pengguna yang lengkap boleh didapati di ruangan web. Untuk akses, sila imbas kod QR di bawah menggunakan aplikasi yang berkenaan.

Den komplette brukerhåndboken er tilgjengelig på et webområde. For å få tilgang, må du skanne QR-koden nedenfor ved hjelp av en dedikert applikasjon.

De volledige gebruikershandleiding is beschikbaar op een website. U kunt de handleiding bereiken door de QR-code hiernaast te scannen met een geschikte applicatie.

Kompletna instrukcja użytkownika jest dostępna na stronie internetowej. Aby uzyskać dostęp, zeskanuj poniższy kod QR przy użyciu dedykowanej aplikacji.

O manual do utilizador completo está disponível num espaço web. Para aceder, queira digitalizar o QR code seguinte com a ajuda de uma aplicação dedicada.

Celá uživatelská příručka je k dispozici na webu. Pro přístup k ní oskenujte níže uvedený QR kód pomocí specializované aplikace.

Versiunea integrală a manualului de utilizare este disponibilă pe un site web. Pentru a-l accesa, scanați codul QR de mai jos cu ajutorul unei aplicații dedicate.

Полное руководство пользователя доступно на сайте. Чтобы получить к нему доступ, сканируйте QR-код ниже с помощью специального приложения.

Potpuno korisničko uputstvo je dostupno na vebu. Da biste mu pristupili, skenirajte QR kôd u nastavku pomoću namenske aplikacije.

Celý používateľský manuál je dostupný na internete. Aby ste sa k nemu dostali, naskenujte QR kód nižšie pomocou na to určenej aplikácie.

Celoten uporabniški priročnik je na voljo na spletnem mestu. Za dostop do njega skenirajte spodnjo kodo QR z uporabo namenske aplikacije.

Den fullständiga handboken finns på en plats på Internet. Skanna QR-koden nedan med en lämplig app för att få åtkomst till den.

ม ีค ู่ม ือผ ู้ใช้ฉบับสมบ ูรณ์ให้ท ี่เว็บไซต์ เพ ื่อเข้าถ ึงข้อม ูล กรุณาสแกนรหัส QR ด ้านล่างน ี้ โดยใช้แอปพล ิเคช ันเฉพาะงาน

Kullanma kılavuzunun tamamı internette bulunmaktadır. Kılavuza erişmek için, bu amaca yönelik bir uygulama kullanarak aşağıdaki QR kodunu taratın.

Повний посібник користувача доступний на сайті. Щоб отримати до нього доступ, скануйте QR-код нижче за допомогою спеціального додатку.

Cẩm nang hướng dẫn sử dụng hoàn chỉnh hiện có trên không gian web. Để truy cập, vui lòng quét mã QR bên dưới sử dụng ứng dụng chuyên dụng.

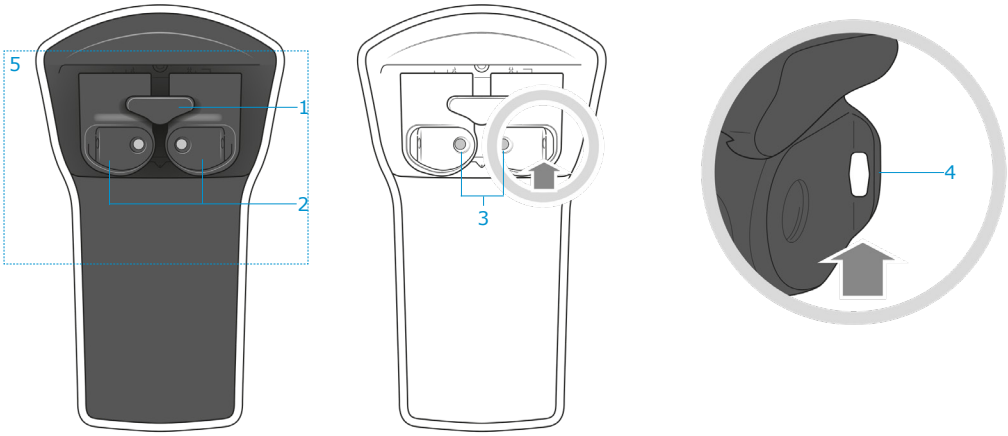
## Introduction

## Contents

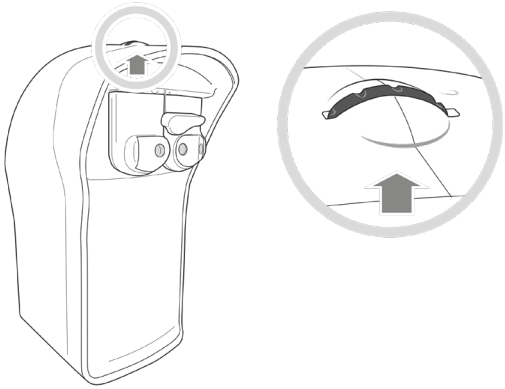
# Description

## 1. Overview

a. Compact refraction unit (Ref. VS01012)



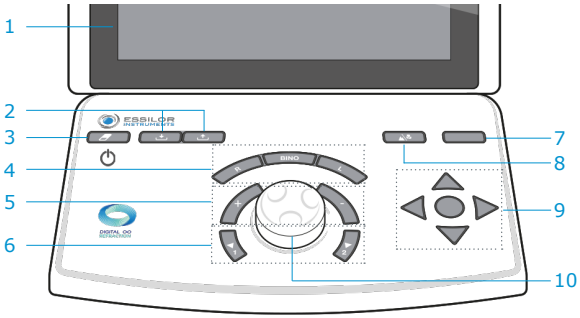

| | |
|---|---|
| 1 | Forehead rest cover* and forehead rest |
| 2 | Movable face shields |
| 3 | Patient side observation windows (SCV module) |
| 4 | Measurement cameras for Vertex distance |
| 5 | Refraction head |



The control knob is used to adjust the forehead rest position and then, to modify the Vertex distance.

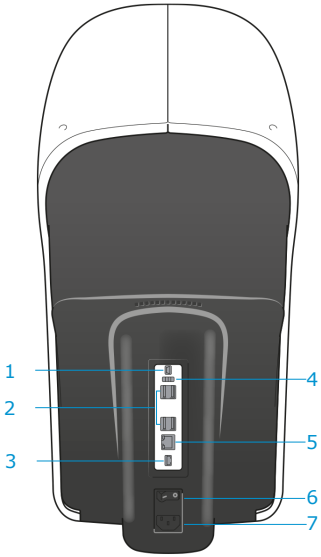
*Applied parts

b. Console (Ref. V01KB1)




| | |
|---|---|
| 1 | Touch screen |
| 2 | Keys [Import/Export] |
| 3 | Key [Clear] |
| 4 | Keys [R/Bino/L] |
| 5 | Keys [+/-] |
| 6 | Keys [Position 1/Position 2] |
| 7 | Key [Bluetouch] |
| 8 | Keys [Far vision/Near vision] *Not used* |
| 9 | Acuity navigation keys |
| 10 | Central button |

c. Electrical connection




| | |
|---|---|
| 1 | Service technician socket |
| 2 | USB port |
| 3 | Console connection port |
| 4 | Information indicator lights |
| 5 | Ethernet port |
| 6 | On/Off switch |
| 7 | Power cable socket |

## 2. MAIN FEATURES OF THE DEVICE

The Essilor device named Vision-S™ 700 (VS700 and VS700I) is a Compact Refraction System used to determine the refractive error and binocular functions of the visual system.

VS700I is a VS700 with printer.

The refractive error exam is commonly referred to as the subjective refraction.

Subjective refraction: an attempt to determine, using the patient's cooperation, the combination of lenses that will provide the best corrected visual acuity.
The Vision-S™ 700 incorporates the entire refraction room and consists of, an automated phoropter, console and chart screens.

- The compact refraction unit controls the combination/power of lenses to determine what correction is needed for the best visual acuity.
- The console controls all the actions during the refraction process (phoropter and chart screen).

The Vision-S™ 700 is a controlled testing environment as the refractive error and binocular function can be calculated, at controlled distances, monocularly or binocularly, and environment light condition. Combining these with the continuous optical changes (sphere, cylinder, axis and prism), the best correction or diagnosis is possible.

# First steps

## 1. Instrument inspection

- Inspect the instrument (once a week) to ensure that it is assembled correctly and the console is properly connected.
- If the cover is dirty, gently wipe it with a soft, slightly damp cloth. Wipe any stubborn stains with a little water or neutral detergent.

## 2. Installation and connection

This instrument must be installed by a specialized technician. To install the instrument or to change its connection, please contact your Essilor dealer.

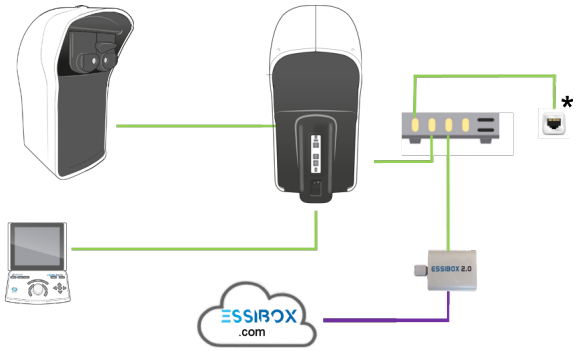
**Respect the precautions below**:

- Do not install the instrument in a location: where dust or dirt accumulates, directly exposed to the rays of light, oxygen rich, displaying extreme temperatures and humidity levels, likely to undergo strong oscillations or sudden shocks.
- Do not use the instrument with flammable anaesthetics or in conjunction with flammable agents.
- The instrument should not fall; that would likely cause malfunctions. If it does fall, the instrument could also crush your body or feet.
- Do not hold the product by the refraction head part.

### a. Installation

1. Take the compact refraction system out of the box.
2. Install the compact refraction unit on an elevation table.
3. Set the console on the same table or separate one depending on the position.
4. Loosen the locking metal plate on the side of the compact refraction unit.
5. Switch on the device.

b. Connection




With:

| | |
|---|---|
| | Cable connection |
| | Web connection |
| * | Wall plug RJ-45 |

## 3. Transport

1 Clear the session.

2 Switch off the compact refraction unit by clicking on the [Clear] button and on the power switch in the back of the unit.

3 Remove logo plate on the left side of the compact refaction system.

4 Untight the sliding metal plate and lock the system. Then, tight the lower screw.

5 Place the unit in it's box.

Never transport the compact refraction system outside of it's box. Always lock the transport locking plate.

## 4. Turn on and turn off

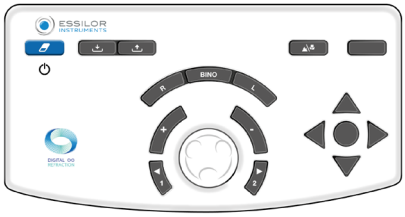
a. Turning on the instrument (first time)

1 Press the ON/OFF switch on the back of the compact refraction unit.

› The system is initialized (compact refraction unit and console).

b. Turning on the device

1 Press the [Clear] button on the console to switch on the system.




c. Turning off

1 Press and hold the ON/OFF switch [Clear] on the console.

› The screen turns black.

## 5. Setting up the patient

Before each refraction examination, perform various adjustments.

First adjust the height of the elevation table so the patient is comfortably seated (with his forehead on the forehead rest).

The adjustment below can be carried out via the touch screen.

It is advisable to adjust:

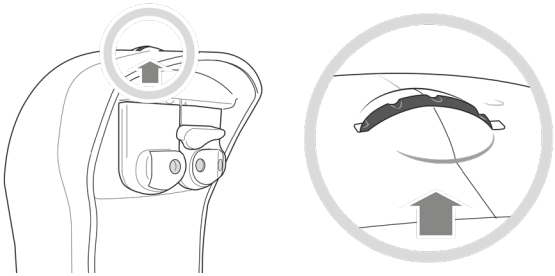
- The forehead position and the Vertex distance  .
- Monocular or binocular pupillary alignment  (distance).

Correct installation must:

- Allow the patient to have a comfortable posture which guarantees his or her stability throughout the examination.
- Preventing the patient from being in contact with optics (lashes for example).

a. Adjusting the forehead rest and Vertex distance

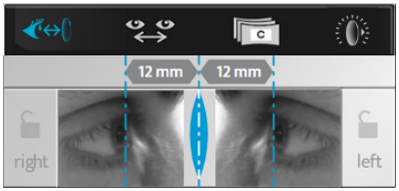
- The forehead rest adjustment is performed manually thanks to the knob located at the top of the device.



Adjustment of the forehead rest affects the Vertex distance. So, it is better to place the refraction head in order to have a Vertex distance between 10 and 20 mm.

- The inspection of the Vertex distance is performed on the touch screen by pressing on  .

Images of the patient's right eye and the left eye appear at the top of the console screen.




> Adjust the position of the vertical lines on the corneal apex of each eye using the central button or the incrementation keys (+/-) on the console keyboard.

The Vertex distance can be modified by adjusting the forehead rest using the knob located at the top of the device.

After adjusting the Vertex distance, check that the patient's face is not in contact with the face shields of the device.

b. Monocular/Binocular pupillary alignment (distance)

Place the patient in front of the refraction head (and ensure that the patient is comfortably seated).

The adjustment of the inter-pupillary distances is carried out via the console touch screen by pressing on  .

> The reticles are placed in front of the patient's eyes and the right and left distance values are displayed.

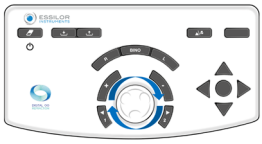
It is possible to adjust the pupillary distances in far vision and near vision.
The value:

- Of an eye corresponds to monocular half PD alignment,
- Of the two eyes corresponds to the total binocular PD alignment.

By default, the step is 1 mm for the total distance.

The adjustment of the inter-pupillary distances can be carried out on the console:

- By turning the central button clockwise or counterclockwise.



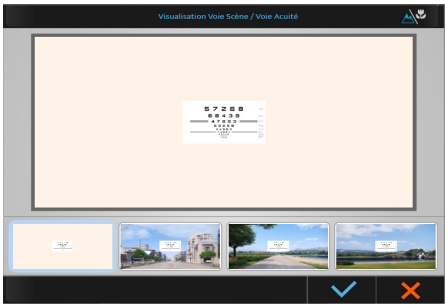
- By pressing on the keys [+/-].

c. Choosing the background scene

The Vision-S™ 700 refracting system allows you to perform the eye tests in a real life environment. The background screen gives the patient a unique experience while promoting certain visual aspects.

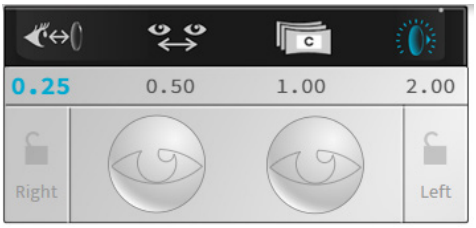
The background screen can be selected by pressing on  .

- White background
- Urban background
- Natural background
- Lake background



d. Choosing step value of dioptric change

The choice of step value of dioptric change is performed on the touch screen by pressing on  .




e. Changing from far-vision mode to near-vision mode

To change from far vision to near vision, click on the tab near vision and select a test.

Switching to near vision mode modifies, the inter-pupillary distances, the convergence of the refraction head and the distance of the screen.

The icon corresponding to the selected mode is displayed in blue on the interface:

-  for far-vision mode.
-  for near-vision mode.

# Main screen

The main screen is divided into five areas:


**Zone 1**: Test display, favorites and test programs. Select:

to display the list of the tests

to display your favorite tests

to display the test programs

**Zone 2**: Patient set-up management. Select:

| | |
|---|---|
|  | to adjust the Vertex distance |
|  | to adjust the pupillary distances |
|  | to display the background scene |
|  | to modify the step value of dioptric change |
|  | to lock an eye or the other and lock down values |
|  | to mask an eye and/or select the filters |

**Zone 3**: Management of the controlled settings. Select:

| | |
|---|---|
|  | to select and modify the verified setting in monocular vision (right eye and left eye independently) |
|  | to select and modify the verified setting in binocular vision (right eye and left eye together) |
|  | to save the data in one of the available memories and select it |

**Zone 4**: Display and management of the test in progress. Select:

| | |
|---|---|
|  | to choose a contrast type for the test in progress |
|  | to display the visual acuity values |
|  | to choose the display type of the optotypes (table, column, line or isolated optotype) |
|  | to change the displayed optotypes (6 possible choices) |

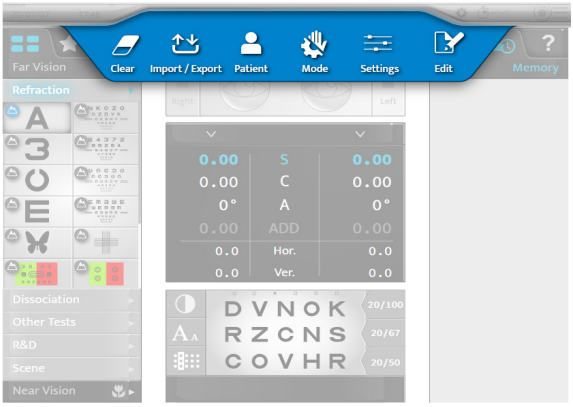
**Zone 5**: Patient data management and user help display. Select:

| | |
|---|---|
|  | to manage patient data |
|  | to display patient refraction data saved in one of the memories |
|  | to display the contextual assistance |

In the majority of these adjustments, access can be performed via the touch screen and/or the keyboard on the console.

# Main menu

The main menu is located in the top right of the main screen and can be accessed by pressing: .




It accesses various sub-menus. Select:

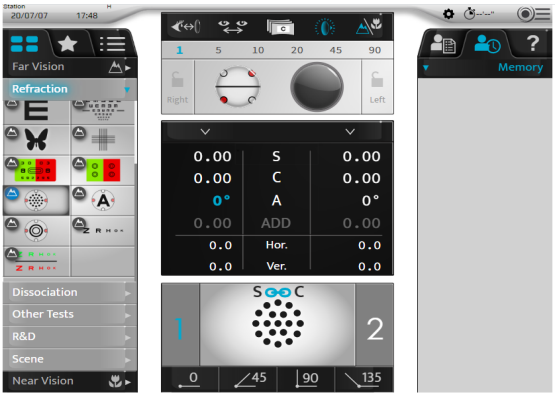
| | |
|---|---|
|  | to erase the data of the last patient and clear the session |
|  | to import and export data |
|  | to enter patient’s data |
|  | to go from the automatic mode to the manual mode and vice versa |
|  | to access the instrument’s settings |
|  | to access tests, favorites and programs |

## 1. PERFORMING A STANDARD TEST

To perform a standard test in far vision, select a test in the list in the [Refraction] tab.
If you want to perform a test in near vision, select a test in the list [Near Vision] tab.

1 Press  .

› The cross cylinder test is displayed in the test visualization zone at the bottom of the touch screen on the console.




› The corresponding table is displayed on the optotype screen.

2 Ask the patient the question corresponding to the test. Here:

"*Look at the dots. Do they appear clearer, darker, more contrasted in position 1 or position 2, or do they appear identical in both positions.*"

› In cylinder mode, if the answer is:

| | |
|---|---|
| Position 1 |  |
| Position 2 |  |

› In cylinder mode, if the answer is:

| | 2 options on the console: by pressing on one of the increment keys or by rotating the central button | |
|---|---|---|
| darker on the position 1, add +0.25 D |  |  |
| darker on the position 2, add -0.25 D |  |  |

## 2. PERFORMING AN AUTOMATIC SMART TEST

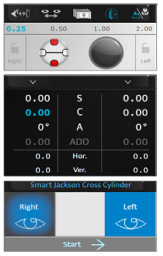
A smart test is a semi-automatic test using an algorithm that can determine at the end of a smart program (a test suite) the subjective refraction of the patient. All the answers are saved and integrated automatically in order to determine the final value.

The smarts tests are identifiable through the two arrows located on the right of the icon .

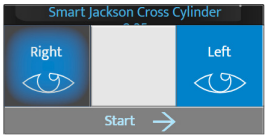
A smart test is always done in same manner. Below the example with the cross cylinder smart test:

1 Press  .

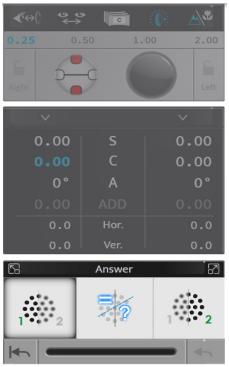
› The test-view window in the bottom of the touch screen of the console allows you to choose under which conditions the test will be performed (Right Eye, Left Eye or Binocular if allowed). In this case, only Right and Left are available).



2 Select which eye to test and start the test by pressing on [START] or on the central button.




› The cross cylinder smart test is shown in the display area in the bottom of the console's screen.




› The corresponding table of optotypes is displayed on the test presentation screen.

3 Ask the patient the question corresponding to the test. Here:

"*Look at the dots. Do they appear clearer, darker, more contrasted in position 1 or position 2, or do they appear identical in both positions*"

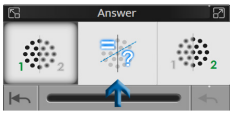
You can display the positions 1 and 2 by pressing switches 1 and 2 of the console.

› To show the position only with the console:

| | |
|---|---|
| Position 1 |  |
| Position 2 |  |

4 Enter the patient's answer.

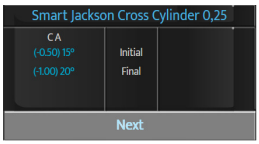
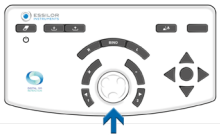
› If the answer is:

| | On the touch screen | On the console |
|---|---|---|
| darker on position 1 select: |  |  |
| darker on position 2, select: |  |  |
| equality or does not know, select: |  |  |

5 Repeat the test and follow its progress on the progress bar.

› The test stops automatically when a value is found.

6 At the end of the test, move to the following test by pressing on [Next].

| On the touch screen | On the console |
|---|---|
|  |  |

If the auto link is selected, it will go directly on the next test. It is not necessary to press [Next] button.

# Cleaning & Maintenance

- To disinfect these area likely to be in contact with the patient (forehead rest cover), use disinfectant wipes for medical use.
- Disinfect this area between testing each patient.
- To avoid any incidents, unplug the device before cleaning.

- Always use a slightly damp soft cloth (microfiber, silicone), to clean the elements of the compact refraction unit and console.
- Do not clean the observation windows (patient side) with liquid, nor compress them with a clamp or a screwdriver due to the risk of damaging the optical surfaces.
- Do not spray liquid on the touch screen or the keyboard of the console, regardless of the liquid, in order not to risk damaging the electronic boards.
- If you find that this device is dirty, you can clean it as often as you want.
- Do not use benzene, thinners, organic solvents, ether or gasoline to clean the instrument.

In order to ensure safety and the performance of the instrument, all maintenance operations, unless otherwise specified in this manual, must be carried out by qualified maintenance technicians.

- This instrument is a high precision optical device. Handle it carefully at all times.
- Take care to handle the instrument carefully in order to avoid any scratches (covers for example).
- Do not touch the optical parts (the observation window for example) with your fingers, and take care to clean off any dust buildup which would be likely to distort the result of measurements.

- Essilor will make available on request circuit diagrams, component part lists, descriptions, calibration instructions, or other information that will assist the dealer to repair those parts of this device that are designated by ESSILOR as repairable by the dealer.

To clean the SCV modules (patient side observation windows):

The SCV modules need to be checked after each patient. Visually check if traces of dirt are present on the window of the SCV module (patient side).

1 Take one of the cleaning swab (provided with the product).

› Change the cleaning swab for the second module.

2 Spray Isopropyl alcohol (cleaner, antiseptic and disinfectant) on the tip (white part) of the cleaning swab.

› Do not dip or soak the cleaning swab directly in alcohol.

3 Fold the nozzle, in order to have a larger cleaning surface.

4 Apply the tip in the center of the module and clean the module with a circular motion (snail types).

› Spiral movement from the center to the outside of the module.

- Do not use wipe.
- Do not use a tool to clean (screwdriver, pen tip).
- Do not clean directly with your fingers.

# Troubleshooting

If a problem is detected, refer to the table below in order to take the appropriate measures.

| Symptoms | Causes and measurements |
|---|---|
| The compact refraction unit does not initialize itself | No power<br>• Check that the power cable connected to the back of the compact refraction unit is set<br>• Check that the power switch on the back of the compact refraction unit is on |
| The console does not initialize itself | No power<br>• Check that the power switch on the back of the compact refraction unit is on<br>• Check that the [Bluetouch] is on |
| Frozen console screen | No power<br>• Check that the first Led on the back of the compact refraction unit is on<br>• Turn the product off with the [Clear] switch on the console and the switch button on the back of the compact refraction unit. Then, restart the product. |
| Rainbow on the screen | Video cable error<br>• Check that the console cable is correctly plugged into the back of the compact refraction unit |

If the problem has not been resolved after taking the measures listed above, contact your local distributor immediately.
Your dealer has been trained by Essilor.

## 1. Operating and storage conditions

Avoid condensation conditions.

| | Temperature | Humidity | Atmospheric pressure |
|---|---|---|---|
| Use | [+15°C; +30°C] | [30 %; 90 %] | [800 hPA; 1060 hPA] |
| Storage | [- 10°C; + 55°C] | [10 %; 95 %] | [700 hPA; 1060 hPA] |
| Transport | [- 10°C; + 55°C] | [10 %; 95 %] | [700 hPA; 1060 hPA] |

## 2. Disposal

Instructions for the disposal of the instrument in accordance with Directives 2012/19/EU and 2011/65/EU regarding the limitation of dangerous substances in electrical and electronic equipment and the disposal of electrical and electronic waste. When it reaches the end of its lifetime, the instrument should not be thrown out with the household refuse. It can be disposed of at a waste management center operated by the municipality or the retailers who offer this service. The separate disposal of an electrical device avoids any damage to the environment or health that could result from a non-compliant disposal, and also allows the materials it is composed of to be recycled in order to save energy and resources. The pictogram of the wheeled container appears on the label of the instrument. It indicates the obligation for separate collection and disposal of end-of-life/out-of-use electrical and electronic equipment.

The user must take into account the potentially harmful effects on the environment and human health that could result from the non-compliant disposal of the instrument in its entirety or some of its components.
To avoid the release of dangerous substances into the environment and to encourage the preservation of natural resources, the manufacturer facilitates, in the event that the user wishes to dispose of the instrument at the end of its lifespace, the reuse, recovery and recycling of the instrument and its components. Before disposing of the instrument, the requirements of European and national regulations must be taken into consideration.

- Do not dispose of the instrument with household waste, but dispose of it separately by giving it in a company specialized in the disposal of electrical and electronic equipment or at the local administrative services in charge of waste collection.
- By joining a consortium for the waste of technological equipment, the manufacturer covers the treatment and recycling costs of the used instrument.

- The supplier or manufacturer is required to recover the old equipment.

The manufacturer undertakes to provide the user with all the information relating to the dangerous substances contained in the device and the methods of recycling these substances, and to inform them of the existence of recycling of the used equipment.
The law provides for severe penalties in case of infringement.

## 3. Cautions & Warnings

- Essential performances: From regulatory stand point, the product has no essential performance.
- Do not install the instrument next to wireless devices (TV, radio, etc.). The instrument may cause interference.
- Never attempt to dismantle the instrument. This may cause a malfunction or fire.
- If the instrument does not work properly, do not touch the inside. Disconnect the plug from the outlet and consult your dealer.
- To avoid pinching injuries when moving the monitor, please do not put your hand between the monitor and the main unit of the console.
- If liquid spills onto the instrument or foreign objects get inside, unplug the plug from the outlet and consult your dealer.
- If any abnormalities occur (noise, smoke, etc.), unplug the plug from the outlet and consult your dealer. Continued use may result in fire or personal injury.
- The continuous time of usage with one patient should not exceed 70 mins.
- The results and/or technical data resulting from the handling or use of instruments must be analyzed by professionals experienced in various fields of application of the instrument in order to avoid any risk of misreading or incorrect analysis of the data.
- Diagnostics are carried out under the responsibility of the user and Essilor declines any responsibility for the results of these diagnostics.
- The user must use another product before completing the final prescription.
- The presence of fingerprints or dust on the optical parts, for example on the observation windows, affects the accuracy of measurements. It is therefore recommended not to handle them with your fingers and to keep them away from dust. If there are fingerprints or dust on the optical parts, gently wipe them with a soft cloth.
- Do not put your fingers in the area of the refraction half heads.
- Do not pull the product towards the patient. It could drop from the table to the patient's feet.

- The covers are fragile, handling them while wearing jewellery or having long nails can lead to scratches.
- The white covers may yellow over time when exposed to ultraviolet light for an extended period.
- When the instrument is not in use, protect it using the cover provided.
- The light emitted from this instrument is potentially hazardous. The longer the duration of exposure, the greater the risk of ocular damage. Patient exposure to light from this instrument when operated at maximum intensity will exceed the safety guideline after 70 minutes.

- Do not try to repair or modify the instrument.
- Never try to perform any repairs inside the instrument yourself. In the event of malfunctions, consult your dealer.
- To avoid any risk of electrocution, do not open the cover. Consult your dealer for all repairs.

- There is no limit conditions that the device can tolerate.
- Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

## 4. Electromagnetic compatibility

All of the information listed below is based on normative requirements to which manufacturers of electro-medical devices are subject, as defined in the IEC60601-1-2 Ed4 standard.
The device complies with the applicable electromagnetic compatibility standards, however, the user must ensure that any electromagnetic interference does not create an additional risk, such as radio frequency transmitters or other electronic devices.
In this chapter you will find information necessary to ensure that your device is installed and put into service in the best conditions in terms of electromagnetic compatibility.
The device's different cords must be separated from each other.
Certain types of mobile telecommunications devices such as mobile phones may interfere with the device. Recommended separation distances must therefore be respected.
The device shall not be used in the vicinity of or placed on another device. If this cannot be avoided, it is necessary to check its proper functioning under the conditions of use before using it. The use of accessories other than those specified or sold by the manufacturer as replacement parts may result in an emissions increase or a decrease in the immunity of the device.

In case the device stop working, reset the device, restart from the beginning, do not use the previous data for make prescription.

a. Length of cables, cords, etc.

The length of cables or cords must be greater than 3 meters.

b. Recommended separation distance

The device is intended for use in an electromagnetic environment in which RF radiation disturbances are controlled.
The user or installer of the device can help avoid electromagnetic interference by maintaining a minimum distance, depending on the maximum power of the radio frequency transmission equipment. Portable RF communications devices (including devices such as antenna cables and external antennas) must not be used closer than 30 cm (12 inches) to any part of the device, including cables specified by the manufacturer. Otherwise, the performance of these devices could be affected.

## 5. Computer network

- This instrument can transfer data to a computer or other devices via a USB or RJ45 interface. These devices must comply with the standard IEC 62368-1. Purpose is to refraction data.
- IT Network must be parametered in order to accept the text file from product address (firewall parameters)
- Transfer routines are compliant with FTP protocols.
- No hazardous situation was reported through product design risk analysis.
- Any person who connects external equipment to the device has formed a Medical Electrical System and is therefore responsible for the system to comply with the requirements in clause 16 of IEC 60601-1. If in doubt, contact qualified medical technician or your local representative.

## 5. Computer network

- External equipment intended for connection to signal outputs on the device shall comply with the relevant product standard for such equipment IEC 62368-1 for IT-equipment. In addition, all such combinations – Medical Electrical Systems – shall comply with the requirements stated in clause 16 of IEC 60601-1. Any equipment not complying with the leakage current requirements in IEC 60601-1 shall be kept outside the patient environment (at least 1.5 m from the patient support or shall be supplied via a Separation transformer to reduce the leakage currents).

- A Separation Device (isolation device) is needed to isolate the equipment located outside the patient environment from the equipment located inside the patient environment. In particular such a Separation Device is required when a network connection is made. The requirement for the Separation Device is defined in clause 16.5 of IEC 60601-1.

- Connecting this instrument to a computer network that includes other equipment may result in safety and data protection risks.

- The responsible organization is expected to identify, analyze, evaluate and control these risks.

- Any subsequent changes to the computer network may cause risks and require further analysis.

- These changes include:
  - changing the configuration of the computer network;
  - connection of additional devices to the computer network,
  - disconnection of elements of the computer network,
  - updating the equipment connected to the computer network;
  - upgrading the equipment connected to the computer network.

- Please contact your distributor for detailed information on this instrument.

## 6. Power supply

- Do not use multi-socket power strips, adapters or extension cords to connect the instrument to the mains.
- Make sure the power cord is fully inserted into both the plug and the instrument Failure to insert it properly may result in a fire or electric shock.
- Clean the power cord regularly to avoid dust buildup. If the cord is dirty, it may cause a malfunction or fire.
- If the power cord becomes hot after using the instrument, check that it is not dirty. If it is not, replace the power cord with a new one. Continued use may cause malfunction or personal injury.
- Use the instrument with the appropriate supply voltage. Continued use with a supply voltage greater than the rated power may cause malfunction or fire.
- Hold the plug when you insert or remove the power cord.
- Use only the power cord provided with the device, model H05VV-F cord type 3G 10 mm², provided with VIIG plug. SJT 3x18 AWG provided with hospital grade plug Nema 5-15P HF for US/CAN ; 2 m in length.

- WARNING: To avoid the risk of electric shock this device must only be connected to a supply mains with protective earth.
- Take care to use the power cord grounding cable when connecting to the ground terminal.
- Do not damage the power cord (by bending it, pulling it or placing heavy objects on top of it, etc.). Do not modify it either. If the cord is damaged (loose contact, damaged sheath, etc.), replace it with a new cord. Continued use may result in an electric shock or fire.
- Do not touch the power plug with wet hands. This may cause an electric shock.
- If you do not use the instrument for an extended period, disconnect the power cord from the outlet.

# Technical Data

## Specifications

Centering:

- Interpupillary distance:
  - 49.0 to 80.0 mm at distance (in 0.50 mm steps)
  - 55.0 to 76.0 mm at near (in 0.50 mm steps)
  - Binocular and monocular adjustments
- Convergence: automatic, compared to the position of the target for near vision and to the patient's pupillary distance
- Vertex distance: from 4.0 to 30.0 mm in 0.5 mm steps, monocular, measured by cameras

Measuring range:

- Sphere: from -20.00 D to +20.00 D
- Cylinder: up to 8.00 D depending on the lens combination. Cylinder from -7.00 D to 8.00 D with sphere at 0 D
  - "Standard" mode: 0.25 D increments with adjustable steps
  - In "Intelligent" mode: multiple larger and smaller increments
- Axis: 0° to 180° in 1° increments, with adjustable steps
- Prism: 0 to 20 Δ in 0.1 Δ increments, with adjustable steps

Auxiliary lenses:

- Occluders: dark and translucent
- Pin hole: yes
- Retinoscopic lenses: +1.50 D, +2.00 D (powered by optical module)
- Fog lenses: +1.50 D, +2.00 D and manual (powered by optical module)
- Jackson cross cylinders: +/- 0.25 D, +/- 0.50 D (powered by optical module)
- Fixed cross cylinders: +/- 0.50 D (powered by optical modules)
- Prisms: 3 Δ base up / 3 Δ base down, 6 Δ base up, 10 Δ base in (powered by varying prisms / diasporameters)
- Maddox rods: red, horizontal and vertical
- Red/Green filters: red on right eye, green on left eye

Dimensions and weight:

- Compact refraction unit:
  - Length: 64.0 cm
  - Width: 32.5 cm
  - Depth: 55.0 cm
  - Total weight: 16 Kg
- Console (keyboard + screen):
  - Keyboard: 28 x 22 cm
  - Screen display: 10.4"
  - Total weight: 3.0 Kg

# Technical Data

LEDs:

- Visible white LED (Vertex distance) - Not used at the moment:
  - Color: sunrise
  - Chromaticity CCT: 2700 K
  - Flux: 8 lm à 120°
  - Class: NC
- Visible white LED (Vertex distance):
  - Color: white
  - Chromaticity CCT: 5000 K
  - Flux: 35.9 lm
  - Class: NC
- Infra-red LED:
  - Color: IR
  - Wavelength: 850 nm
  - Radiant intensity: 50mW/Sr
  - Class: NC

Input/Output:

- Compact refraction unit:
  - AC Input: 100-240V; 50/60Hz; 2.3 - 1.1A
  - DC Output: 24V; 141.6 Watt
  - USB port (x4): DC Output 5V; 2A
- Console (keyboard): AC Input 24V, 2A

## 1. ACCESSORIES

Standard accessories

- Communication cables:
  - 1 electric cable running from the console (7 m)
  - 2 CBOX/Vision-S™ 700 network cables running to the local network
- Face shield:
  - Right, ref VS01S75 (x1)
  - Left, ref VS01S76 (x1)
- Forehead rest cover, ref VS01180L (x1)*
- Protective cover: compact refraction unit, ref VS01A01 (x1) and console, ref V01A02 (x1)
- Quickstart Guide (x1)
- Cleaning swab (x20)
- Disinfectant wipes, ref NET021 (x100)

Optional accessories

- Printer
- Printer paper (x5)

Detachable parts

- Power cable 2 m (x1), Europe type
- Power cable 2 m (x1), US type

Vision-S™ 700 is entirely compatible and designed to work with the CBOX test presentation screens.

*Applied parts. It is recommended to replace the soft forehead rest cover every 7500 cleaning with wipes.

The forehead rest cover is applied to improve patient comfort.

## 2. SYMBOLS

| SYMBOLS ON THE INSTRUMENT | | SYMBOLS ON THE PACKAGING | |
|---|---|---|---|
|  | Stand by mode |  | Handle with care |
|  | Obligation to refer to the operating manual |  | This way up |
|  | Manufacturing date (year) |  | Maximum stacking of 1 product |
|  | Manufacturer |  | Fragile |
|  | Applied, type B parts |  | Keep dry |
|  | Alternate current |  | CE Marking (European regulation relating to medical devices) |
|  | D.C. current |  | Indicate the thermal limits to which the medical device can be exposed in complete safety |
|  | Compliant with FCC standards |  | Indicate the humidity limits to which the medical device can be exposed in complete safety |
|  | Waste disposal symbol in accordance with Directives 2012/19/EU and 2011/65/EU |  | Indicate the limits of atmospheric pressure to which the medical device can be exposed in complete safety |
|  | Medical device | | |
| I | ON = Turned-on (power supply connected to the mains) | | |
| O | OFF = Turned-off (power supply disconnected to the mains) | | |

| Symbols present in the document | | | |
|---|---|---|---|
|  | Danger: a hazardous situation that, if not avoided, will result in death or serious injury |  | Note: additional information |
|  | Warning: a hazardous situation that, if not avoided, could result in death or serious injury |  | Tip: practical advice |
|  | Caution: a hazardous situation that, if not avoided, could result in minor or moderate injury | | |

## 3. Modifications

The information contained in this document is non-contractual and provided as a guide. They may be changed without prior 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. Essilor cannot be held responsible for any malfunction or loss of data resulting from such errors or omissions.

## 4. Instrument classification

Vision-S™ 700 is a class I, type B medical instrument.
It contains the label CE.

Date of first marking 2020. Its estimated minimum lifetime is 7 years.

This instrument complies with regulation 2017/745/UE. The design and manufacture of this instrument have meticulously taken care of in terms of ease of use, patient safety and reliability.

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

Those limits are set so as to ensure reasonable protection against interference in a residential environment. This instrument generates, uses and can emit radio frequency energy, which may interfere with radio communications if the instrument is not installed and used in strict conformity with manufacturer instructions. However, there is no guarantee that there will be no interference in certain conditions. This device can be confirmed as the source of interferences with radio or television reception by turning the it on and off.

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.

## 5. Copyright

## 6. Confidentiality of patient data

The instrument is a system that can save, store and share relative information with the patient such as measurements, name or photo. It is the instrument user's responsibility to comply with patient data confidentiality regulations, applicable on their site.

## 7. Intended use

- Intended purpose: this device perform a subjective refraction.
- Indications for use: the instrument allows the user to control the patient's visual acuity.
- Intended patient population: any adult or child with pupillary distance from 49mm to 80mm.
- Intended part of the body applied to the device: front skin is in contact with the device. Skin in the contact with the device must be in healthy condition without wounds, irritation or inflammation.
- Intended user: this instrument is intended for a medical use and can only be used with the instructions of visual health expert authorized by the laws in force in the country concerned, in optometrist or ophthalmologist office.
- Intended condition of use: device must be installed in a refraction environment according to environmental conditions written in this document.
- Operating principle: basic operating cycle is: patient installation / patient's eyes centering / refraction protocol selection & launch / refraction result recovery (data export, printing or manual recording) / removal from patient
- No contraindications.
- No undesirable side-effects.

# Notes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