

REF SEQUENCEVR

CE Class I Medical Device

User manual

Distribution mode

Available for direct download at
<http://virtualisvr.com/espace-client/>
Use under license

 **VIRTUALIS**

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DESCRIPTION

SEQUENCEVR is an immersive 3D simulation software based on virtual reality technology, meaning a person can be immersed in a digitally created artificial world.

Software for replicating musical sequences on a virtual piano.

The software is used for the rehabilitation of executive functions of memorization and movement initiation. It can also be used for the rehabilitation of the spine, the upper limb, the rehabilitation of hemineglect and gesture accuracy.

INDICATIONS

Rehabilitation of memorization, gesture initiation, upper limb, spine, hemineglect, gesture accuracy...

CONTRAINDICATIONS

Epileptic patients, children under 15 years of age, pregnant women

FOR USE BY:

Healthcare professionals: Physiotherapists; Ergotherapists; Neuropsychologists; ENT doctors; Neurologists; PM&R physicians (Physical Medicine and Rehabilitation), etc.

Research Centers: CNRS, CHU, INSERM, etc.

WARNINGS AND CAUTIONS

During sessions, stay close to the patient in order to anticipate any loss of balance or discomfort caused by the use of virtual reality.

Define a working area of about 3m² to allow for risk-free movements.

Take a 10 to 15-minute break every 30 minutes of use.

Potential adverse effects are those due to the softwares, namely vomiting, malaise, dizziness, syncope

The accessories required to use the software may emit radio waves that can interfere with the operation of nearby electronic devices. If you have a pacemaker or other implanted medical device, do not use the product until you have taken advice from your doctor or the manufacturer of your medical device.



Any serious incident should be notified in writing to qualite@virtualisvr.com



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1. GENERAL

1.1. Advice for use

These stimulations have the potential to cause a number of disorders: Vasovagal syncope, epileptic seizures, migraines, etc... (Despite a test phase on more than 2000 patients).

The contraindications are identical: Mainly epilepsy and migraines.

As postural reactions can be spectacular, it is VERY STRONGLY advised to place patients in a safe environment and to stay close to them throughout the session.

It is also recommended to increase the duration and intensity of the stimulation very gradually, after an initial short session to check the patient's tolerance to this type of stimulation.

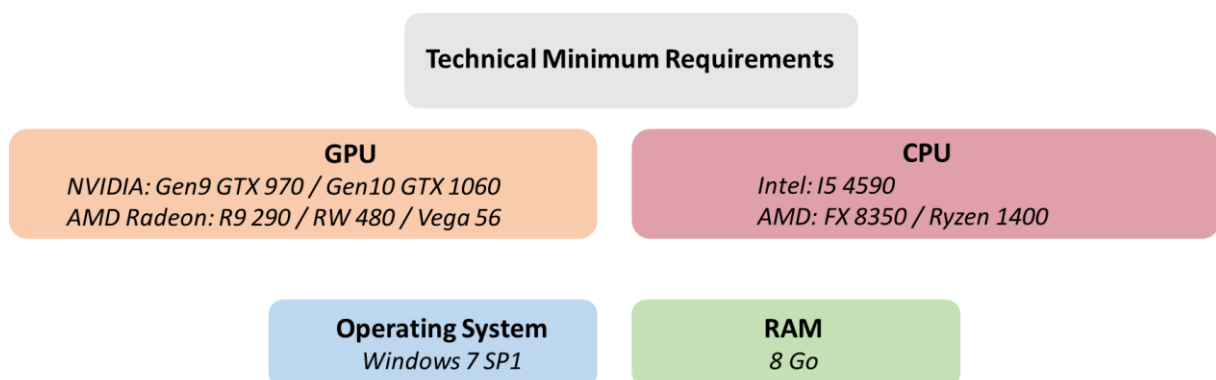
Virtualis declines any liability for any disorders suffered by patients during or after use of its software.

1.2. Hardware and minimum configuration requirements

Hardware required to use the system:

- VR Ready PC
- VR System: HTC VIVE, HTC VIVE Pro or compatible system
- Lighthouse bases (HTC VIVE tracking)
- HTC VIVE Controller
- XBOX 360 Joysticks
- HTC VIVE Tracker
- USB HUB

In order to install and use our virtual reality applications, we recommend a configuration equal to or higher than the following system requirements:

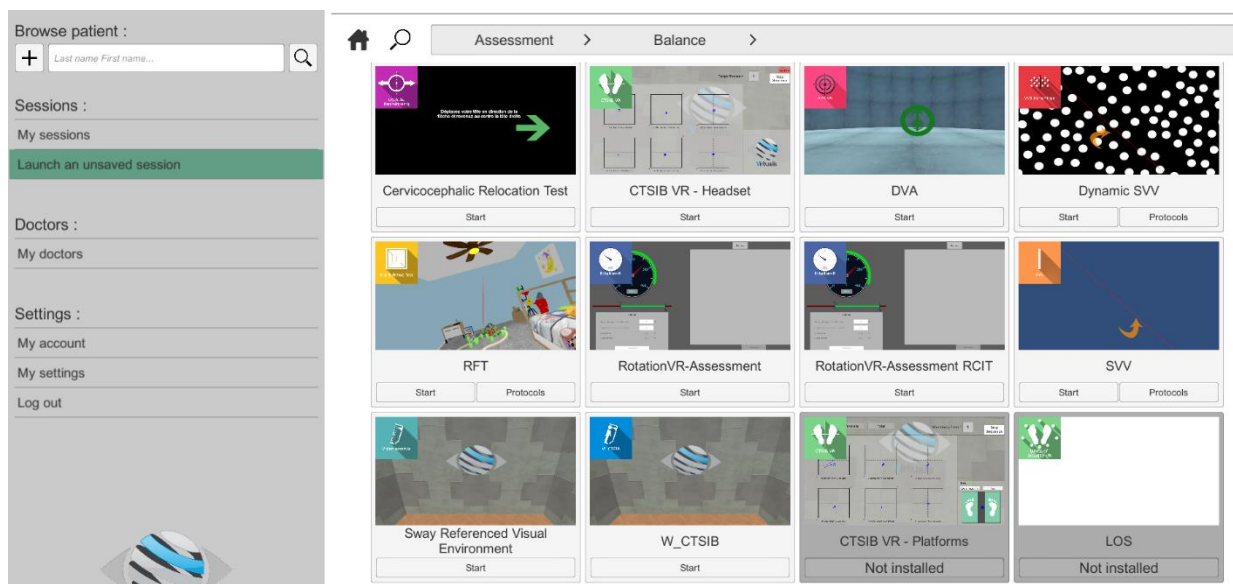


2. USE OF PATIENT MANAGEMENT

Once connected to the Patient Management software, you get to the home page. It is from this home page that you will be able to start your VR software as well as other Patient Management features.

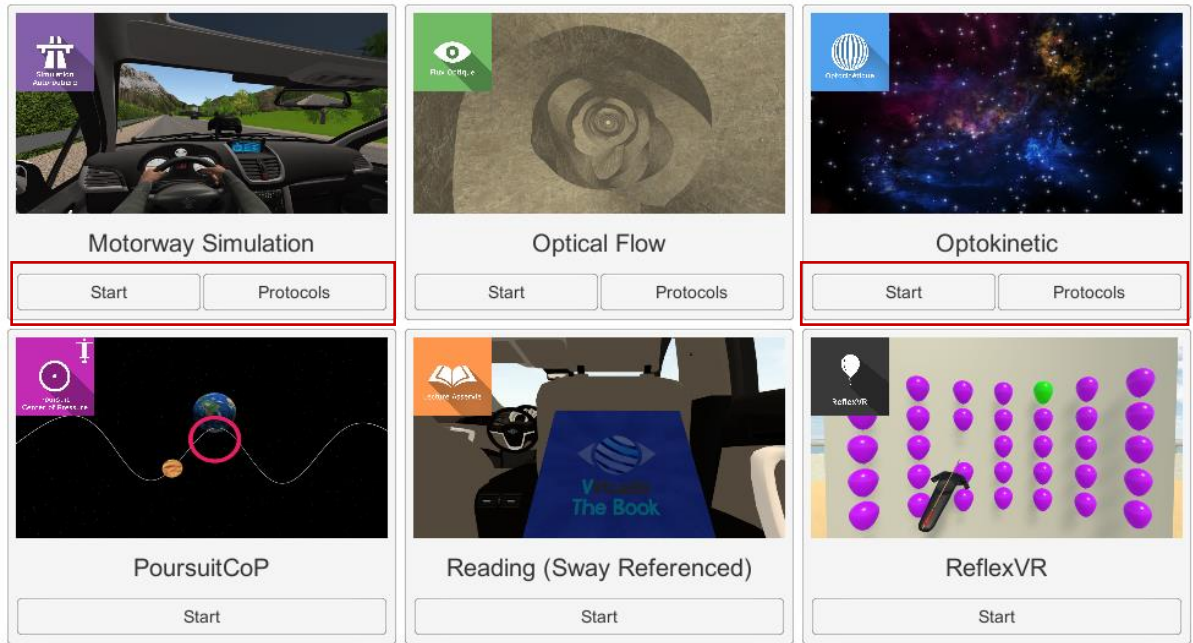
The softwares can be grouped according to criteria such as "Assessment" or "Rehabilitation" and then by pathology type: Neurology, Balance, Functional or Motion sickness.

You can start or switch from one software to another from the home page by clicking the corresponding "Start" or "Protocols" button.

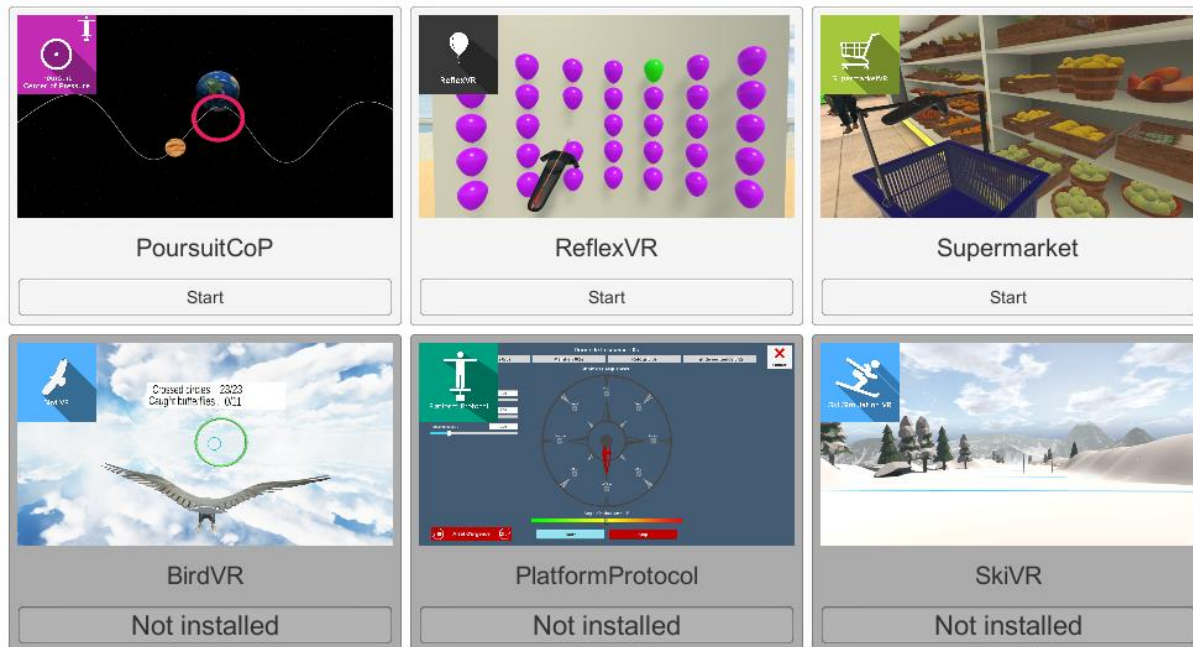


A number of softwares can be started either in **manual mode**, by directly clicking the "Start" button, or in **protocol mode** by clicking the "Protocols" button.

The **manual mode** allows users to select settings for each environment. The **protocol mode** offers several sessions with different difficulty levels to test and gradually accustom patients to the VR environment.

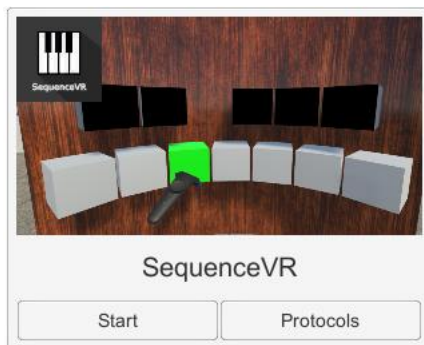


Softwares which are not included in your subscription package are grayed out. If you want to use them, please contact our sales department.



3. SEQUENCEVR

3.1. Start interface



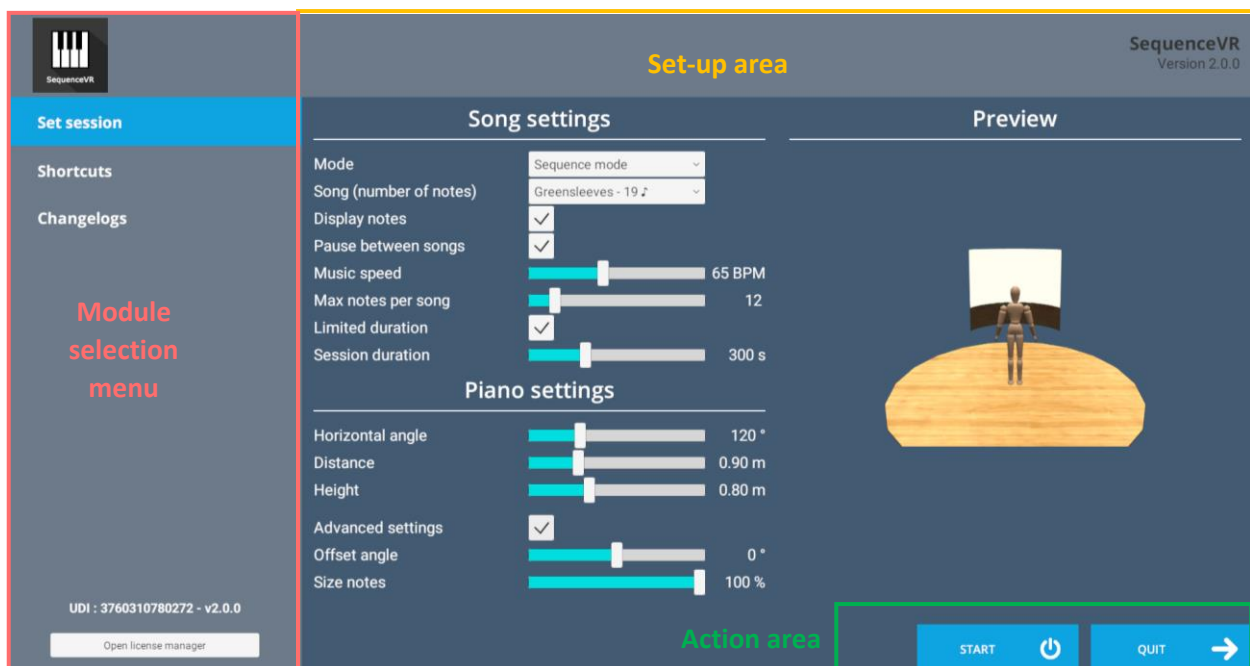
To launch the Sequence VR software from Patient Management you have two possibilities: **manual mode** ("Start" button) or **protocols**.

When launching the software in **manual mode** ("Start" button), it opens a launch interface consisting of a module selection menu on the left, a set up area on the right and an action area at the bottom right.

Depending on the module selected in the left menu, the set up area shows the various possible settings / information.

The general Patient Management menu can be accessed from the start interface by simply clicking the "quit" button located in the action area or by pressing the "escape" key on the keyboard.

The software is launched by simply clicking the "start" button in the action area.



Once this button has been pressed, the software is launched, taking into account the specified settings. You can also modify a number of settings after the software has been launched, using the mouse or the keyboard.

The Start / Quit buttons are used to play or stop the environment entirely to adapt the experience to the patient's perception.

When you start the software from Patient Management in **protocol mode**, you get to a home page from which you will find various types of protocols with difficulty levels ranging from level 1 to level 5.



For each proposed protocol, the different options are already set. Just validate the selected protocol to start the application.

Select a template		
[Hémiplégie MS] Niveau 5	Advanced settings	Yes
[Hémiplégie MS] Niveau 4	Flat wall	No
[Hémiplégie MS] Niveau 3	Horizontal angle	200
[Para/Tétra MS] Niveau 2	Note's size	70
[Hémiplégie MS] Niveau 1	Offset : Wall angle	0
[Hémiplégie T&T] Niveau 4	Sequence choice	Fantasia
[Hémiplégie T&T] Niveau 1	Sequence speed	50
[Para/Tétra T&T] Niveau 5	Show notes	Yes
[Hémiplégie T&T] Niveau 3	Vertical wall size	0,4
	Wall distance	0,7
	Wall height	1,1
	Wall texture	Wooden wall
	<input type="button" value="Cancel"/> <input type="button" value="Start"/>	

Once an environment has been selected, it launches in the headset, and you can see and track what is happening in your patient's headset using the software window.

3.2. Software field of application

This software is used for neurology work: Strokes, CCT, Ataxia, Neurodegenerative diseases, at the cognitive and motor levels.

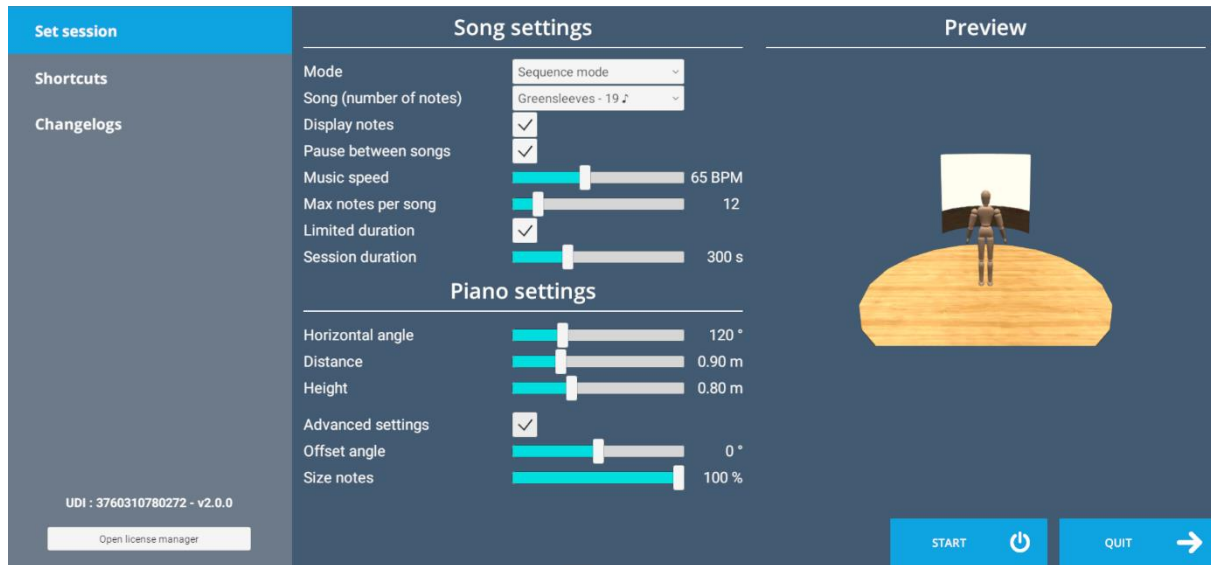
For orthopedics, rheumatology: Upper limb, cervical spine, global spine, ...

3.3. Installing the patient

Standing or seated.



3.4. Session settings



The software's variable settings are as follows:

Song settings

Mode: there are three modes available: free mode, sequence mode and step-by-step mode

Free mode: is used to touch notes freely

Sequence mode: the notes can be shown or not: after visualization, the patient will have to touch the notes in their order of appearance, thus working on motor skills. If the "show notes" box is unchecked, there will be memorization work involved. During the session you can always activate or deactivate note display for increased memorization work.

Step by step mode: the song is played progressively, adding a note to each sequence

Song (number of notes): this is used to select the song for each session; each song contains a different number of notes and a different number of piano keys

Display notes: the display of the visual cue above the piano keys to be played can be activated or deactivated at any given time

Pause between songs: it is possible to activate or deactivate the automatic sequencing of songs

Music speed: this is used to modulate the speed at which the notes appear, expressed in beats per minute

Max notes per song: this is used to modulate the maximum number of notes to be taken in the score

Limited duration: it is possible to activate or deactivate the session duration

Session duration: this is used to define the duration of the session



Piano settings

Several settings are possible by directly using the relevant cursors:

Horizontal angle: this is used to select the angular width of the piano

Distance: this is used to select the distance between the patient and the piano

Height: this is used to select the height of the piano from the floor

Advanced settings

The following settings can be changed by activating "Advanced settings":

Angle offset: the position of the piano with respect to the patient can be turned (for example: hemineglect)

Note size: this is used to select the length of the piano keys

Tracker settings

For patients who are unable to hold the controllers, a wrist-mounted tracker can be used.

Score

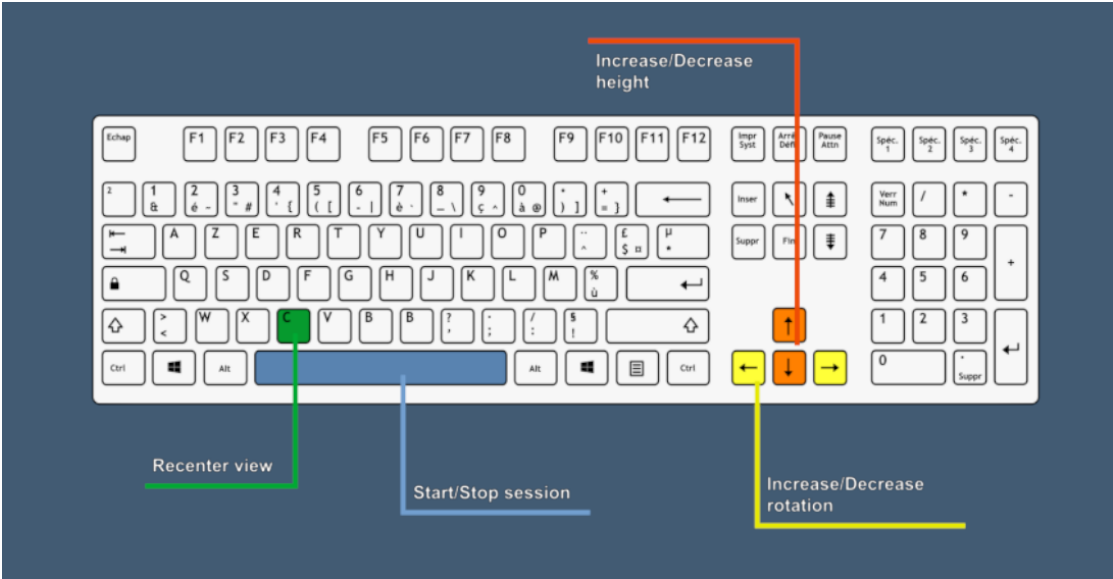
At the end of the exercise, the user will get the results of his session, showing the total number of notes touched, the number of correct notes and the success rate.

For the purpose of playfulness, scores for the current music are displayed, based on both the accuracy of the notes hit by the patient and compliance with the song's rhythm.

3.5. Shortcuts

Keyboard or joystick shortcuts can be accessed in two ways:

- using the "Shortcuts" tab available in the launch interface
- in the software, by clicking the joystick icon in the upper right corner of the screen



3.6. Data processing

Data retrieval and analysis is done using the Patient Management software.