



REF MotionVR

CE Class I Medical Device

User manual

Distribution mode

Available for direct download at
<http://virtualisvr.com/espace-client/>
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TABLE OF CONTENT

1. DESCRIPTION	3
2. INDICATIONS	3
3. FOR USE BY	3
4. INTENDED USE.....	3
5. General Maintenance	4
6. PATIENT CONSIDERATIONS PRIOR TO TESTING	5
6.1. OPERATOR RESPONSIBILITIES	5
6.2. MECHANICAL PATIENT SAFETY SYSTEMS : SAFETY RAILING AND PATIENT HARNESS	5
6.3. Security harness settings :	6
7. GETTING STARTED	7
7.1. Your MOTIONVR balance system(s).....	7
7.2. Turning ON/OFF the MOTIONVR system	7
8. EMERGENCY STOP BUTTON	8
9. POSITIONING THE PATIENT	9
10. SYSTEM CONFIGURATION	11
10.1. Options Setup.....	11
10.2. StaticVR settings	11
10.3. MotionVR settings.....	12
11. EMERGENCY STOP OF DEVICE	16

1. DESCRIPTION

MotionVR system is a clinical balance assessment device that collects and analyzes force and moment data from a balance /force plate. The balance plate is seated in a dynamic chassis that can move in up and down directions, under control of the Virtualis softwares. The Patient Manager software contains both assessment and training modules that can be used during each session. The system is intended to be used by trained clinicians in a hospital or clinical (physical therapy or ENT) environment who operate the device via a computer and dedicated software and ensure the safety of the patient. For use during dynamic training, MotionVR platform is fitted with a safety railing or the patient is placed in an optional harness.

2. INDICATIONS

Evaluation and Rehabilitation of balance and postural disorders of multiple origins: vestibular, neurologic, orthopaedic (lower limbs and spine)

3. FOR USE BY

Motion VR is to be used only by qualified and trained practitioners/ physicians.

Healthcare professionals: Physiotherapists; Ergotherapists; Neuropsychologists; ENT doctors; Neurologists; PMR doctors (physical medicine and rehabilitation), etc.

Research Centers: CNRS, CHU, INSERM, etc.

Read Carefully Before Proceeding

4. INTENDED USE

Balance Evaluation and Rehabilitation

The MotionVR system is intended as an objective platform used for gathering and characterizing movement of subjects with balance disorders or instability.

MotionVR systems should only be operated by qualified personnel.



WARNING: To avoid risk of electrical shock, MotionVR system must only be connected to properly grounded power sources.

The successful use of the Virtualis technology requires an appropriate level of professional expertise to set-up proper treatment programs that are specific to the patient and their individual cases. The operators should be confident they understand the operation of the system, can properly administer test protocols, and interpret results.

The patient's center of gravity position (COG) can be monitored real time during all tests and measures.



NOTE: Virtualis equipment must only be serviced by qualified personnel. Please do not attempt to service equipment yourself.



Please contact your local Reseller support service for any service or support requests.



All protocols should be performed in stocking feet with hygienic foot covers.



WARNING: Do not modify Virtualis systems in any way. Modifications will void the warranty.

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

5. GENERAL MAINTENANCE

Virtualis MotionVR platform requires basic maintenance, performed on an as-needed basis.

CLEANING INSTRUCTIONS :

- Wipe down the balance platform with damp cloth or standard cleaning solution.
- For good hygiene, patients should wear footies.

6. PATIENT CONSIDERATIONS PRIOR TO TESTING

6.1. OPERATOR RESPONSIBILITIES

The clinician will be responsible at ALL TIMES for the safety of the patient while using the MotionVR platform.

BEFORE BEGINNING A SESSION MAKE SURE:

- The patient is standing on the platform with feet properly positioned and is facing into the visual surround (if present).

To help ensure patient safety:

- The MotionVR platform is fitted with the safety railing which can be adapted to each patient's needs regarding their height/ size.

Or

- The patient is properly fitted with the harness and the harness straps are attached to the overhead bar with the correct tension (for dynamic systems).

6.2. MECHANICAL PATIENT SAFETY SYSTEMS : SAFETY RAILING AND PATIENT HARNESS

If safety railing is used :

The safety railing must be used at all times: during static and dynamic use of the MotionVR system for evaluation or training.

Safety railing settings :

The safety railing of the platform must be securely closed and its height adapted to the patient's size.

The safety railing height can be modified in two ways (Figure 1): manually by pressing the **Up** and **Down** button or automatically by means of button **2**, **3** and **4** for a predefined position (buttons are located on the front side of the MotionVR platform). The height of the safety railing is displayed on the screen next to the buttons.

Button **2** : the height of the safety railing is 1.15 m

Button **3**: the height of the safety railing is 1.25 m

Button **4**: the height of the safety railing is 1.40 m

Button **1** : allows to go down the safety railing at 1 m

Button **S** : allows to stop the movement of the safety railing at any moment.

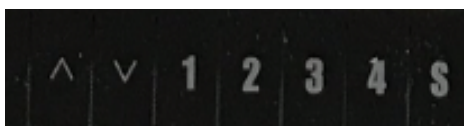


Figure 1. The safety railing control panel

6.3. Security harness settings :

If harness is used :

Patient security can be provided during testing and training with the use of a harness. The patient must wear a securely fitted safety harness connected to the overhead bar by two suspension straps.



Warning: A harness appropriate for the weight of the patient shall be selected to ensure patient safety during use.

Included are:

- A complete harness – already assembled and ready to be worn. The maximum weight capacity is 300 lb.
- Two shoulder straps to connect the harness to the support structure

NOTICE!

Harness straps must be tight enough to stay in place if the patient should fall and therefore prevent injury. Tension should not trigger pain or physical or respiratory discomfort or restrict the required mobility for the correct progress of the evaluation or training.

7. GETTING STARTED

7.1. Your MOTIONVR balance system(s)

Identify all tests and measures that are available to you on your MotionVR system :

- Adaptation Test (ADT)
- BirdVR
- Unilateral Stance
- MazeVR
- Limits of Stability (LOS)
- LOS Rehab
- MatchingVR
- MotionProgram
- Motion Rehab
- Pursuit CoP
- Weight Distribution
- SkiVR
- Sensory Organization Test (SOT)
- Weight Bearing
- Supermarket Scrolling
- Motor Control Test (with Motion+)

7.2. Turning ON/OFF the MOTIONVR system

Do not stand (operator or patient) on the device during system switching ON and OFF.

1. Turning the MotionvVR System ON correctly allows for proper initialization and operation :

MotionVR must be turned on prior to turning ON the computer

- Locate the Power Box on your system and turn it on (Figure 2)



Figure 2. Base turned ON

- Once done, turn ON the computer and start the **Patient Manager** software which allows you to access to all software and operational commands.
2. Turning the System OFF correctly allows for proper system back-up and protection of MOTIONVR operating systems.
- From the launch interface of the software you use, select **QUIT** button
 - The MotionVR system will systematically shut down its' operation.
 - After shutting down the computer completely, turn OFF the Power Box located on the system (Figure 3)



Figure 3. Base turned OFF

8. EMERGENCY STOP BUTTON

The emergency stop button is located on the front of the device under the security railing (Figure 4).

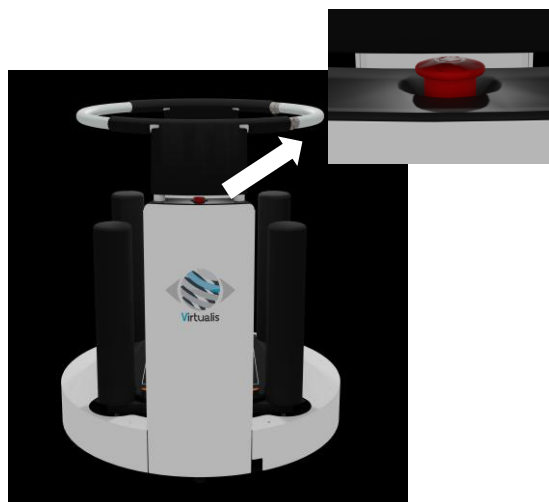


Figure 4. Emergency stop button

1. To stop the device press the button down.
2. To unblock the device after an emergency stop, release the button by turning it 1/4 turn to the right (clockwise rotation indicated by an arrow).

9. POSITIONING THE PATIENT

The device must be correctly turned on and initiated and computer software operational prior to patient positioning on the device.

When standard foot placement is required (applies to all force plates), position the patient as follows:

1. Help the patient step onto the platform base facing forward
2. Center the patients' feet on the force plate. The medial malleolus of each foot should be centered directly over the center horizontal (wide) line on the force plate and the lateral calcanei are aligned with the small (**S**), medium (**M**), or large lines (**L**). (Figure 5)

S = 30-55 inches/76-140 cm; **M** = 56-65 inches/141-165 cm; **L** = 66-80 inches/166-203 cm

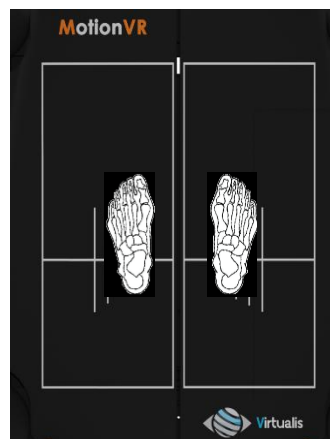


Figure 5. Proper foot placement



NOTICE! It is recommended that all testing be completed in non-slip socks to achieve standardized input from the somatosensory system cues and to compare to the normative data set.

The dynamic force platform performs linear tilting or impulse movements, depending on the chosen parameters.

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

Sessions may be interrupted at any time (if the patient starts to fall, etc.) by selecting the **Pause** or **Stop** button on the control screen.

PAUSE

STOP

10.SYSTEM CONFIGURATION

REAL TIME VISUALISATION AND PARAMETER SETTINGS

10.1. Options Setup

The operator must select the icon in the upper right corner of the screen (**arrow**) to set-up the parameters for MotionVR system (from the clinician home screen of each software).

10.2. StaticVR settings

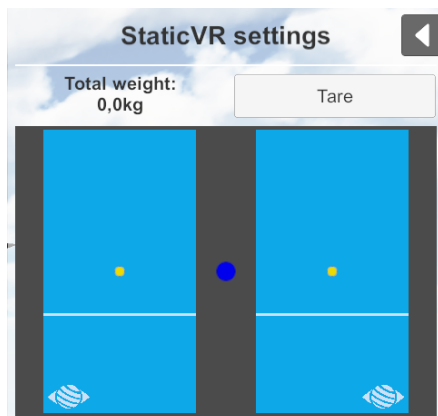
Real time feedback through control screen located top right of the control screen

Raw data sent by the platforms

Yellow dots: Center of Pressure (COP) of each foot

Blue dot: Global Center of Pressure (COP)

The weight distribution for each foot is displayed



Zero reset (tare)

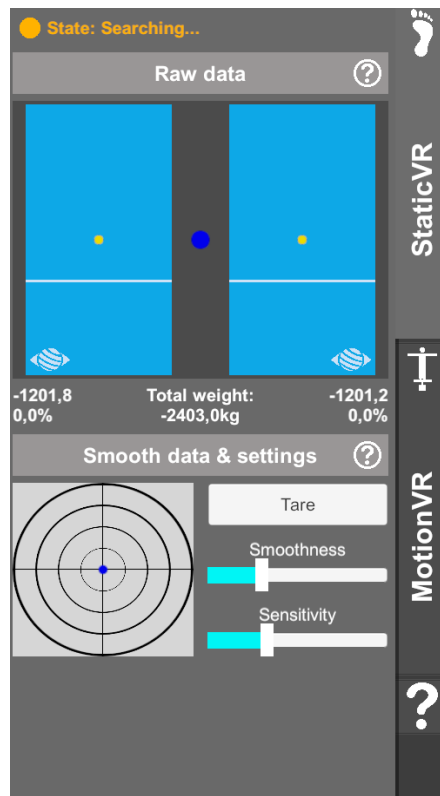
Platform reset (must be carried out when empty)

Advanced Settings

The grey triangle located on the top right of the previous diagram opens the optional settings menu.

STATICVR optional settings menu

Selection of the menu on right hand side of the screen.



Smoothed data & settings:

Smoothing

Smoothing force applied to the data

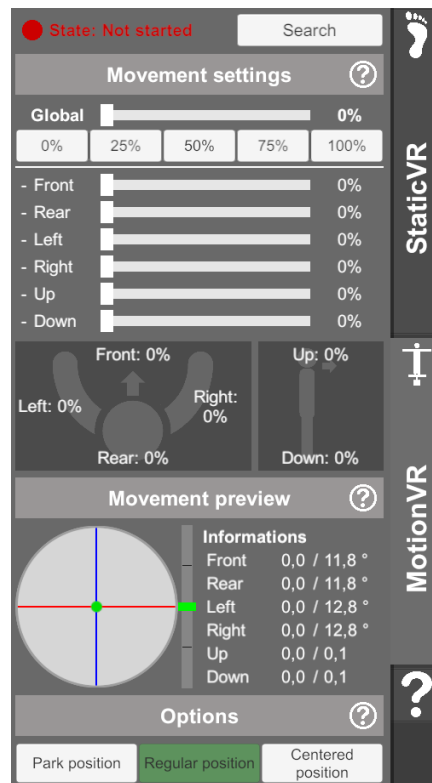
Sensitivity

Multiplier applied to received data

Decrease to reduce motion sensitivity

10.3. MotionVR settings

To activate the Motion VR settings menu, open the settings menu located on the right hand side of the screen (the grey triangle at the top right of the screen).

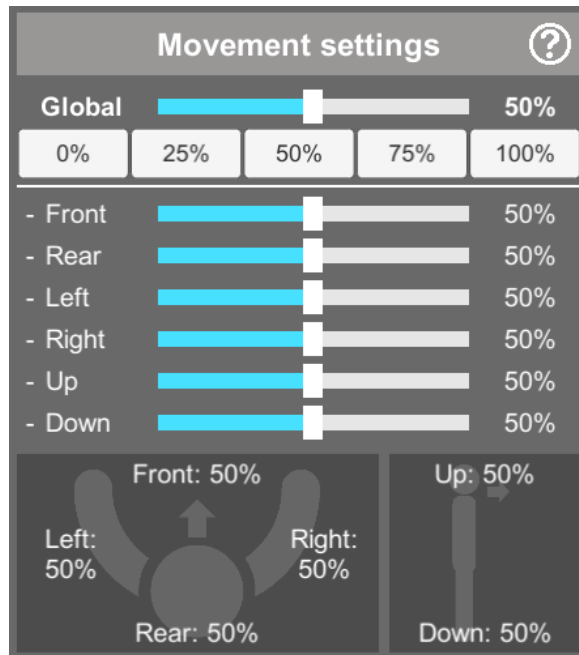


Movement settings

Platform movement amplitude values can be defined to an overall equivalent setting or independently per axis.

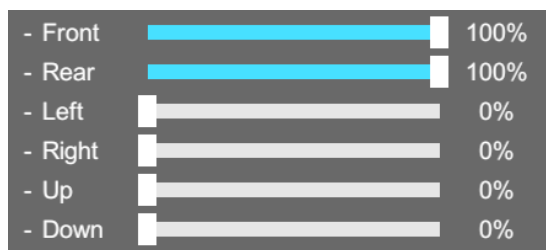
To set movement amplitude of all axes simultaneously the operator can use the "global" cursor or by choosing one of the proposed values by simply clicking on the button corresponding to the value. In this case all axes movement values will represent the same percentage of total amplitude possibilities

To set independently the movement amplitude values per axes the operator uses the specific cursors regarding the front, rear, left, right up and down settings.



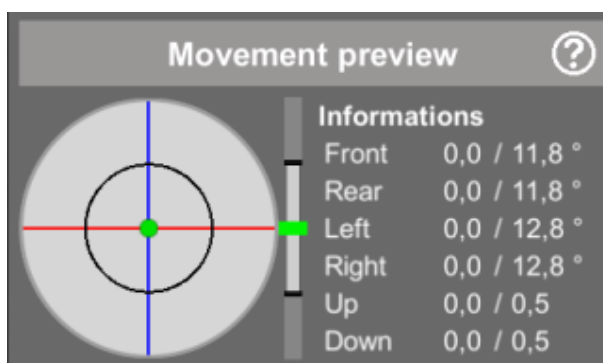
For example:

- To work in anteroposterior mode, reduce the left and right amplitude
- To work in the mid-lateral position, reduce the forward and backward amplitude

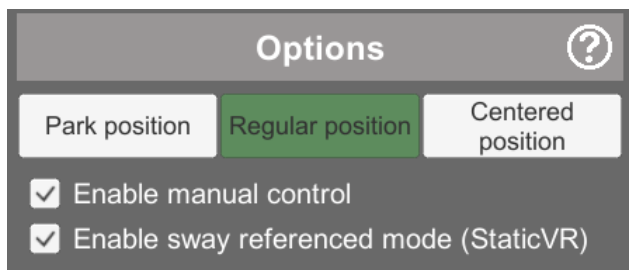


Movement preview

Used to view the platform tilt, height and amplitude settings (the action area is delimited by a black circle).



Options



Platform positions

Park position: forces the platform to lowest level

Regular position: allows the platform to move normally, as provided for in the software


Centered position: forces the platform into a horizontal position at its operating height

Activate manual control

Use the arrow keys on the keyboard and the "+" and "-" keys on the numeric keypad (up and down) to move around.

Enable sway referenced mode (for StaticVR platforms)

The platform movement is controlled by the patient's center of gravity.

The  button on the launch interface at the bottom right provides access to other advanced options:

Check the corresponding box to **"Enable development options"**

Two types of display are possible:

- ☐ [StaticVR] Display graphics
- ☐ [StaticVR] Display port status

These boxes are development options used to test and control the device and are reserved for maintenance purposes. It is not advisable to use them (slows down the software).

Recording Options:

You have the possibility of choosing the type of data to be recorded by ticking the corresponding box:

StaticVR:

- ☐ Raw data
- ☐ Smoothed data

MotionVR

- ☐ Gross position (pitch & height)

Select the location on the computer to save the data and press the "Start Recording" button

11.EMERGENCY STOP OF DEVICE

Through software/ manual Emergency Stop Button



If you press the emergency stop button, the platform will freeze in its current position.



A window opens and the following message appears:



Warning:



Stopping the software or changing the window may cause the platform to reset to the default position and cause movement that could be dangerous for the patient. It is therefore advisable not to touch the computer again until you have secured the patient when the emergency stop is triggered.

