



# SYNAPSYS VHIT

## VIDEO HEAD IMPULSE TEST

### DESCRIPTION

Synapsys Video Head Impulse Test (VHIT) allows to assess the vestibular-ocular-reflex (VOR) by measuring, recording, displaying, and analyzing eye and head movements.

Differently from all the other video-HIT devices available on the market, Synapsys VHIT does not require the patient to wear any goggles: all the measurements and results are given by the analysis of the head and eyes movements, captured by a remote camera placed at 1 meter from the patient.

### PRODUCT CONFIGURATIONS

Synapsys VHIT is available in 2 scalable software versions:

- VHIT Basic – Analysis of the lateral canals only
- VHIT Plus – Analysis of all the six canals

### HARDWARE SPECIFICATIONS

- Remote camera
- Motor-free: no device movements needed for camera framed area adjustments
- Height adjustment through monopod

### SOFTWARE SPECIFICATIONS

- Analysis of VOR (Vestibulo-Ocular reflex), overt and covert saccades
- Canalogram Ulmer and results table
- Voice messages
- Video recording and playback for each maneuver

### REQUIRED SOFTWARE

VHIT software is installed as module in Maestro software: possibility to manage patients' data in a unique database, store and print exam reports.

### SENSOR SPECIFICATIONS

Type: CMOS Mono  
 Max Resolution: 1456 x 1088 pixels (cropped to 752 x 400 pixels)  
 Pixel size: 3.45 x 3.45 µm  
 Sensor class: 1/3"  
 Shutter type: Global

### TIMINGS

Max used Frame rate: 100 fps  
 Exposure time: 2.4 ms

### CAMERA PROPERTIES

Focal length: 20 mm / 0.787 in.  
 Field of vision (total): 6.8° (Horizontal), 5.2° (Vertical)

### CAMERA CONTROLS

Gain control: automatic  
 Exposure control: manual (fixed)

### COMPUTER INTERFACE

Connection: through USB port  
 USB cable length: 3 m / 118.1 in.

### POWER SUPPLY

Power supply: 12V DC – 1A, through an external medical grade 100-240 Vac 50/60 Hz power

Power supply cord length: 5m / 196.85 in.

### MECHANICS

Device Size: 40 x 10 x 30 cm / 15.7 x 3.9 x 11.8 in.

Device Weight: 2 kg / 4.4 lb (cable excluded)

Monopod Size: adjustable in the range between 710-1070 mm / 27.9-42.1 in.

Monopod Weight: 4 kg / 8.8 lb

### ILLUMINATION

Image acquisition provided under illumination by a grid of 7x8 IR LEDs

IR LEDs peak wavelength: 830 nm

Power per LED: 70mW/sr

### PC MINIMUM REQUIREMENTS

CPU: Intel® i5, 6th generation or above, 8 GB RAM

Graphics card: with at least 256 Mb of dedicated memory

USB connection: At least 1 USB 3.0 port

Operating System: Windows 10-64 bits and Windows 11

### FREIGHT PACKING

Size (WxDxH): 80 x 40 x 20 cm / 31.5 x 15.7 x 7.9 in.

Gross weight: approx. 9.5 kg / 20.9 lb

### APPLICABLE STANDARDS

Software: IEC 62304, IEC 82304-1

Electrical safety: IEC 60601-1

EMC: IEC 60601-1-2

Biocompatibility: ISO 10993-1

Safety of lamps: IEC 62471

Risk management: EN ISO 14971/A11, ISO TR 24971

Usability: IEC 62366-1, IEC 60601-1-6

Processing: ISO 17664-2

Environmental testing: IEC 60068-2-31

### MDR CLASSIFICATION

Class IIa (Classification rule: 10, (Annex VIII, MDR 2017/745))

### INCLUDED PARTS

- VHIT device
- Adjustable supporting monopod
- 4 Gaze targets
- Medical grade power supply with cables
- USB connection cable
- Synapsys Software Suite
- USB Dongle Key
- User manual

### PRODUCT CODES

10738: Synapsys VHIT Basic

10739: Synapsys VHIT Plus

10740: Software upgrade from VHIT Basic to VHIT Plus