

# SYNAPSYS VNG

videonystagmography system



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“SYNAPSYS VNG is a  
system designed by  
a doctor for doctors”



Designed by Dr Erik Ulmer, the SYNAPSYS VNG provides comprehensive information to support patient's evaluation in a simple and efficient system.

Over the years, continuous improvements based on results from newly published scientific researches and feedbacks from our users have helped refining our products.

Thanks to pre-loaded testing protocols and precise measurement capabilities, the SYNAPSYS VNG helps reducing the time of examination.

Otolaryngologists, audiologists, physiotherapists can investigate vestibular functionality by finely analyzing the eye movements which, thanks to automatic post-processing of the image, help identifying the nystagmus. By using state-of-the-art infrared cameras mounted on goggles, the patient's eye is recorded and analyzed by the software.

With a worldwide presence, we are proud to offer our users the latest clinical advances and the best technology.

## .Pioneer Advanced. .Reliable

SYNAPSYS VNG offers a **wide and complete range of tests**, including vestibular and oculomotor.

As of today, SYNAPSYS VNG is the **only available system on the market with a wireless camera** that grants an unparalleled user experience in terms of patient mobility, freedom of movement and flexibility of use. SYNAPSYS VNG is also available with standard wired camera and, optionally, a second camera (wireless or wired) can be added to allow **binocular recordings**.

SYNAPSYS VNG testing modules include: Nystagmus, Caloric, Saccade, Smooth Pursuit, Gaze, Optokinetic, Kinetic and Subjective Visual Virtual. Performing all of these tests has never been easier thanks to the comfort that the **ultralightweight goggles** offers to both patients and users.

**Advanced high-frequency bi-ocular analysis** is also optionally available with the Visio Mask. Specifically designed for oculomotor testing, it analyses both eyes simultaneously, allowing a **true open field view**.

By using state-of-the-art infrared cameras (whether wireless or wired) the patient's eye movements are recorded by the software and, thanks to **its unique eye tracking system**, SYNAPSYS VNG instantly detects the pupils without any adjustment required, even when it comes to difficult situations such as dark eyelids.

SYNAPSYS VNG can guide you through the examination of balance disorders and help reduce the time of the testing. The presence of complete normative data with which to compare results, the possibility to insert markers in real time and select different tracking modes (graphs, tables), as well as the available pre-loaded test protocols, make the software extremely reliable and easy to use.

SYNAPSYS VNG is adaptable to all your needs. It is available in **two different models**, Screening and Standard, and can also be combined with the **rotary chair** to complete your battery of videonystagmographic tests with rotational kinetic exams. Sixteen stimulation wave forms are available, including various sinewave forms, multi-frequency, speed step and sudden stop tests.

**ADVANCED** JUST LIKE YOUR PRACTICE

**RELIABLE** AS YOU DESERVE



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## SYNAPSYS VNG

### Clinical evidence



## Vestibular and balance findings in non-symptomatic workers exposed to styrene and dichloromethane

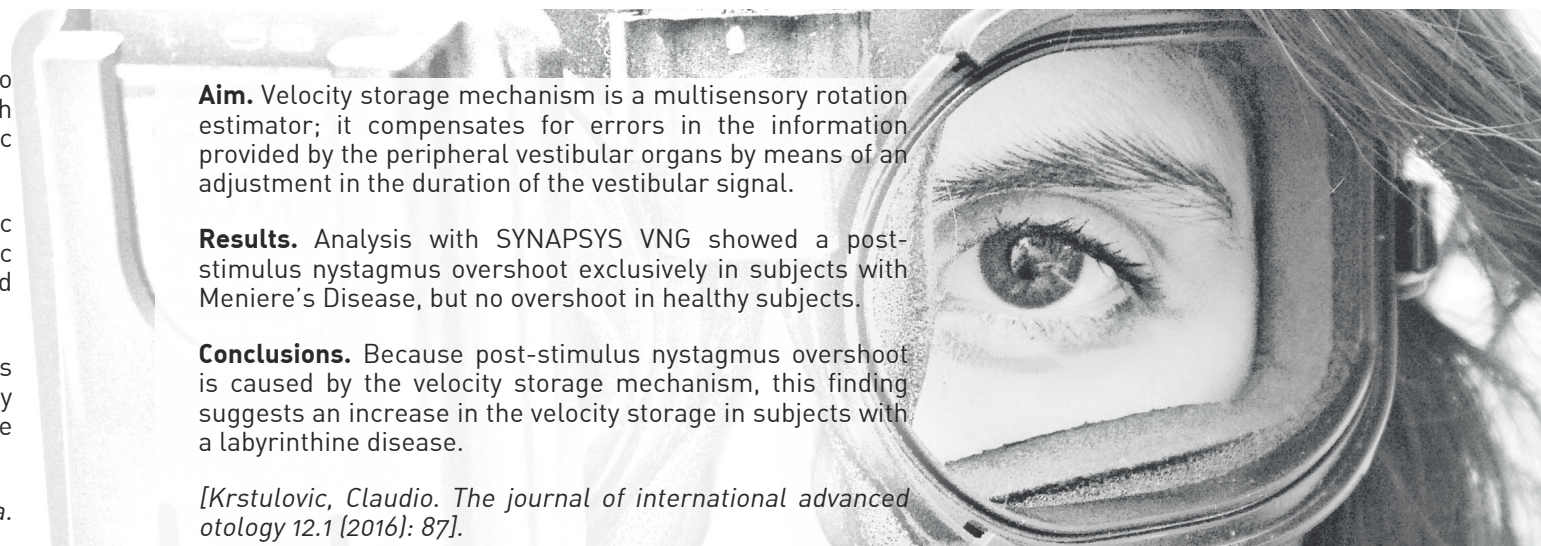
**Aim.** A group of 74 workers in plastics manufacturing, exposed to styrene and dichloromethane, underwent videonystagmography with SYNAPSYS VNG, including saccades, smooth pursuit (SP), optokinetic test (OKN), gaze nystagmus assessment and bithermal caloric test.

**Results.** Show that more than 60% of exposed and non-symptomatic workers revealed abnormal results of vestibular tests: saccadic latency elongation, lower gain in SP and OKN, lower reactivity and mean slow phase velocity of caloric nystagmus.

**Conclusions.** The findings indicate the possibility of high-level deficits in the central part of vestibular system. Lower vestibular reactivity may suggest that bilateral vestibular hypofunction might also be the possible consequence of solvent exposure.

*[Zamyslowska-Szmytko, Ewa, and Mariola Sliwinska-Kowalska. International Journal of Audiology 50.11 (2011): 815-822].*

## Increased Velocity Storage in Subjects with Meniere's Disease



**Aim.** Velocity storage mechanism is a multisensory rotation estimator; it compensates for errors in the information provided by the peripheral vestibular organs by means of an adjustment in the duration of the vestibular signal.

**Results.** Analysis with SYNAPSYS VNG showed a post-stimulus nystagmus overshoot exclusively in subjects with Meniere's Disease, but no overshoot in healthy subjects.

**Conclusions.** Because post-stimulus nystagmus overshoot is caused by the velocity storage mechanism, this finding suggests an increase in the velocity storage in subjects with a labyrinthine disease.

*[Krstulovic, Claudio. The journal of international advanced otology 12.1 (2016): 87].*

## A WORD FROM THE EXPERTS

### Lu Huazheng

“ We have been working with SYNAPSYS VNG and Synapsys Posturography System since 2005. As an ENT hospital, we perform more than 3,000 VNG and Posturography examinations each year. From this point of view, we should say, Synapsys products are very reliable and efficient.

Shanghai EENT Hospital – CH

### Nicolas Pérez MD

“ As an user of ULMER's Videonystagmography system since 1997 (SYNAPSYS VNG), I have been able to use several versions, all of which have provided a new implementation in technology, software and signal analysis to be studied.

” This permanent interest in incorporating the most advanced and up-to-date knowledge from the laboratory to the clinician is one of the most particular values I appreciate in the Synapsys system.

Professor and Chairman, Department of Otorhinolaryngology, University Hospital & Medical School, University of Navarra –ES

### Rachel A. Baboian

“ We upgraded our Videonystagmography (VNG) equipment approximately 5 years ago with the SYNAPSYS VNG system. We selected the Synapsys VNG system largely because of its “user friendly” programming and superior video goggles. We found the report writing software and ability to record important assets, especially in light of today's push toward outcomes based reimbursement.

” This equipment has played a major role in our improved diagnostic ability, patient care and led directly to increased patient satisfaction. We have since purchased two additional SYNAPSYS VNG systems for our rapidly expanding practice.

Doctor of Audiology, Rhode Island Ears, Nose & Throat Physician's Inc. – USA

### Serge Padoan

“ SYNAPSYS VNG has some significant advantages over ENG. The Synapsys system is one of the most successful reliable and stable systems.

” Research can be adapted to clinical needs as Synapsys continues to listen to the advices/requirements of clinicians/end users.

Kristianstadt Hospital – SW

Key benefits

- **State-of-the-art:** Wi-fi technology that guarantees stable connection
- **Customizable protocols**
- **Unique hardware,** scalable system
- **Adaptable for** children of all ages

SYNAPSYS VNG is fully controllable by the software Maestro, the core of your Inventis equipment set-up. With Maestro you can manage patient data, run, review and combine exams. Check out more on [www.inventis.it](http://www.inventis.it)

- **Easy-to-use** and reliable
- **Extremely precise eye** tracking system
- **Automatic calibration** at the beginning of the test

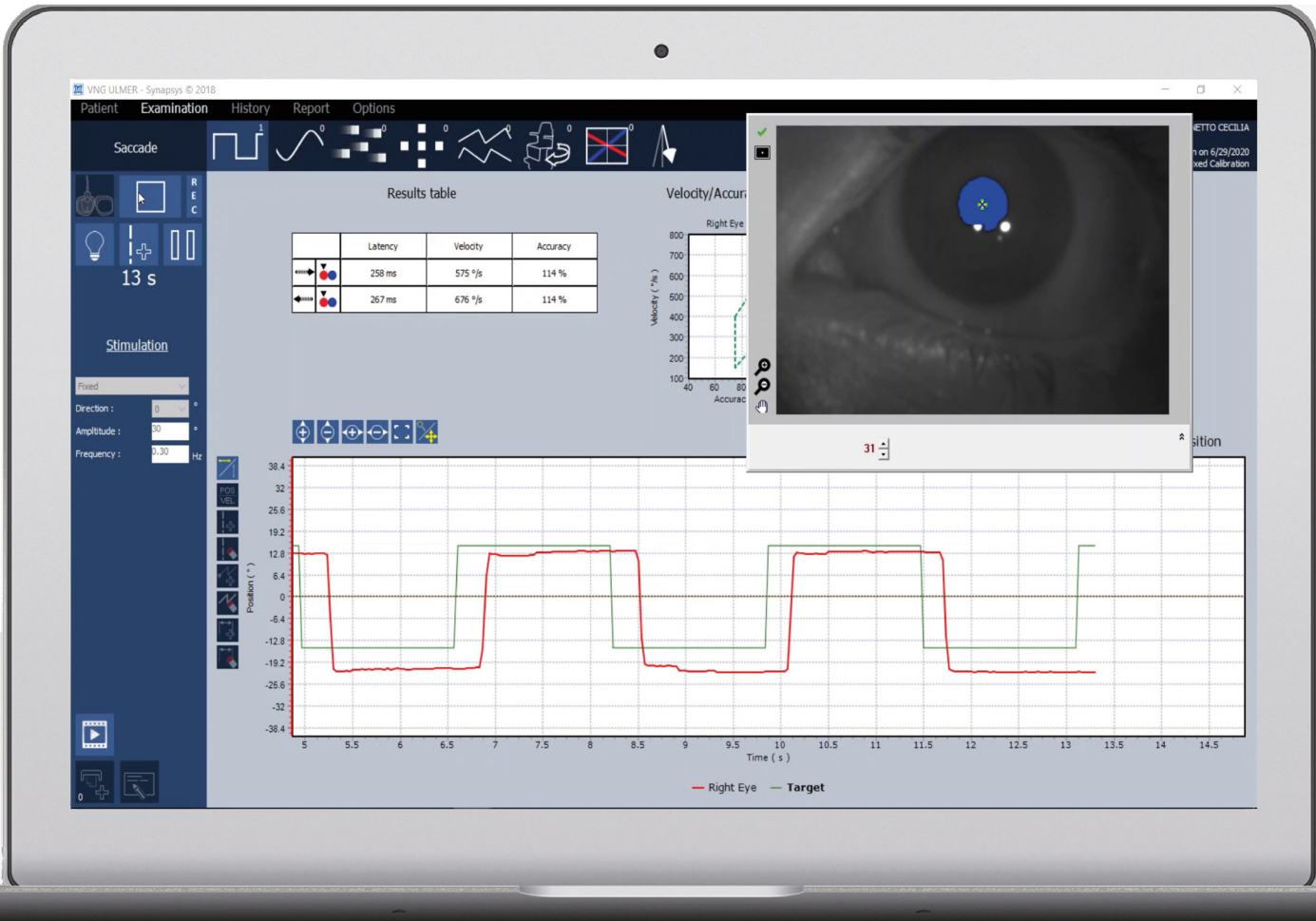
Main accessories



- **SYNAPSYS Med4 chair** to complete VNG test battery with rotational kinetic testing.



- **SYNAPSYS Vestibular Vibrator** is designed to detect vibration-induced nystagmus (VIN).



Technical data	SYNAPSYS VNG WIFI
Camera	Wireless or wired infrared digital camera
Sampling rate	Wired cameras: 25 Hz Wireless camera: 30 Hz VISIO: 50, 100 or 200 Hz
SYNAPSYS VNG Screening	Caloric Spontaneous nystagmus Positional nystagmus
SYNAPSYS VNG Standard	In addition to SYNAPSYS VNG Screening: Saccades Smooth pursuit Gaze Optokinetic Kinetic (opt.) Subjective Visual Vertical (opt.) Graphs: horizontal and vertical ocular position, slow phase velocity and cumulative curves
Available results	Nystagmus measurements: direction and frequency, slow phase velocity value Caloric results: unilateral weakness (%), reactivity (°/s), fixation index (%), preponderance (°/s and %)  Ocular motor tests: latency, velocity, precision, gain with normative diagrams
Stimulation	Video projector or TV
Connection to PC	Wireless Camera: Wi-Fi Wired Camera: USB
Optional devices available	Vestibular Vibrator MED4 chair Air irrigator Water irrigator

Check the video on [YouTube](#)



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