VNG Balance Testing

VN415 / VO425
- Complete solutions for balance testing
Balance testing with VNG VN415/VO425

**Video Nystagmography**

provides ideal conditions for the observation, measurement and analysis of eye movements. It saves time, reduces costs and avoids the problems of myogenic and electrical noise.

Interacoustics offers two VNG solutions, each with increasing scope:

- **VN415** is the standard VNG platform with standard protocols for Spontaneous Nystagmus, Bithermal Caloric, Positional and Dix-Hallpike testing.

- **VO425** offers the same test protocols as VN415 and additionally expands into oculomotor tests with standard protocols for Gaze, Saccade, Smooth Pursuit and Optokinetic testing.

Both systems can be delivered in monocular or binocular camera configurations.

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**The Combi Goggle**

The VN415/VO425 FireWire® VNG systems incorporate the industry’s leading goggle design. The Combi goggle is light weight with a direct FireWire® connection to a laptop or desktop computer. It has an easy fitting magnetic cover to allow for both occluded and unoccluded measurements and a built in fixation light to simplify testing. With adjustable mirrors and vertical, horizontal and focus adjustments for each camera, the fit is ideal for all patients regardless of head size. The disposable foam cushions allow for a sanitary solution for each patient and provide a comfortable, secure and light-tight fit. Optimized lighting in the goggle results in significantly improved eye-tracking during testing. Add this to the industry standard goggle mirrors, and you have the strongest offering available today.
**Combi goggle**

- Light weight and comfortable
- Direct FireWire® connection
- Replaceable foam cushions
- Adjustable mirrors and controls
Interacoustics products for balance assessment

VNG

**VN415**
The standard VNG platform

**VO425**
The expanded VNG platform

Learn more about VN415/VO425 on the next pages

VN415 is the standard VNG platform with standard protocols for Spontaneous Nystagmus, Bithermal Caloric, Positional and Dix-Hallpike testing.

VO425 offers the same test protocols as VN415 and additionally expands into oculomotor tests with standard protocols for Gaze, Saccade, Smooth Pursuit and Optokinetic testing.

Video Frenzel

**VF405**
Video Frenzel system

VF405 provides ideal conditions for fixation-free observation and recording of eye movements during
- Spontaneous testing
- Positional and Dix-Hallpike testing
- Head impulse testing
- User defined testing
See more in separate brochure
The rotary chair stimulus is a very accurately controlled stimulus that more closely represents the stimuli experienced by the patient in everyday situations. Rotational chair testing is therefore the gold standard for assessing bilateral vestibular peripheral impairments. The Nydiaq Rotary Chair provides precisely controlled and reproducible stimuli, a full test battery, a number of convenient features when testing and includes software with user definable tests.

Caloric Irrigators

**Air Fx**
The Air Fx caloric irrigator has an otoscopic handle with illumination and magnification. An integrated water reservoir helps cool air down to 20°C, and warm irrigations can be performed up to 50°C. The Air Fx can be used as a stand-alone device, or can be controlled from the Interacoustics VNG software.

**Aqua Stim**
The Aqua Stim caloric irrigator offers 30°C cold and 44°C warm caloric irrigations. The Aqua Stim can be used as a stand-alone device, or can be controlled from the Interacoustics VNG software. An external water tank eliminates the need for a drain or water supply in the examination room.

ENG

The EN415/EO425 ENG preamplifier is available as an optional choice for your VN415 or VO425 system. The tests are the same you perform with the VN415 or VO425 system, but using electrodes instead of video goggles. The ENG preamplifier is required to add the electrode recording capability. It connects to your desktop or laptop PC via a USB 2 cable.

- 2 or 3 channel (monocular or binocular) electrode options.
- Easy electrode impedance interface, showing color coded boxes for quick checks
- Simple calibration procedure, as used in the standard VNG testing
- Automatic centering
- Baseline drift compensation for saccade and pursuit testing
- Smoothing edit tool to manage noise
- Easy interface to toggle between VNG and ENG recordings
The VN415 is designed for convenient computer aided analysis of positional and caloric tests. Rapid data transfer technology enables very high quality video and precise measurements with all results stored in the OtoAccess™ database. The system also includes functions for printing reports and sharing data.

Connect and go
VN415 is a completely portable VNG system. There is no bulky equipment to get in the way. Start the software, place the goggles on the patient and you are ready to test.

High quality video and analysis
The VN415 performs real time analysis. Rapid data transfer (105 Hz binocular, 174 Hz monocular) allows much more data to be analysed, giving very precise measurements and outstanding video quality.

VN415
Fast eye-tracking & real time analysis.
Automated 10 second calibration.
Automated or manual analysis.
**Vestibular test battery**

The VN415 test battery includes Spontaneous Nystagmus, Dix-Hallpike, Positional and Bithermal Caloric tests. You can design your own test protocols and load these with a single mouse click.

**Remote controlled testings**

It is possible to step through the tests using the USB connected footswitch.

**Video recording**

The video from each test can be recorded and stored in full on the associated storage device (typically a hard drive) where it is linked to the results in the database record. The only limit to the size of the recording is the capacity of the recording device. When the session is reviewed, the recording will be available for replay in normal, fast or slow mode. There is also the option to review the recording one beat at a time. The recording can be exported in AVI format for consultation or teaching purposes. Various sound file formats are available to include sound recording together with the video.

**Additional features**

- Cutting edge eye trackers adjust for make-up and dilated pupils
- Reader station enables shared access to patient reports from multiple work stations
- MWST (Monothermal Warm Caloric Screening Test) available after two warm irrigations
- Torsional eye movement observation with full screen eye images
- Nystagmus edit function
- Compact & convenient hardware
- Integration with Nydiag 200 rotary chair
- Integration with Air Fx and Aqua Stim caloric irrigators
- Tester comments recorded with results
- Short automated calibration
- User-definable protocols
- Diagrams and statistics calculated automatically in real time
- High quality printouts of all analyses and selected raw data
- Full color printed reports for each test
- Multi-language interface

**Related products**

- Eclipse with Vestibular EP
- Air Fx Caloric Irrigator
- Aqua Stim Caloric Irrigator
- EN415/EO425 ENG preamplifier
The VO425 is designed for clinics that carry out detailed balance evaluations. It contains all the features of the VN415 plus computer aided analysis of oculomotor tests.

Rapid data transfer technology enables high quality video and precise measurements, with all results stored in the OtoAccess™ database. The system also includes functions for printing reports and sharing data.

**VO425**
Fast eye-tracking & Real time analysis.
Automated 10 second calibration.
Full field of view visual stimuli.
Software generated ocular stimuli

Full field of view visual stimuli are software generated from your laptop or PC connected to a video projector or an LCD screen. The digital stimuli are ideal for both pediatric and adult populations and include several default patterns, e.g. stripes, chessboards and cartoons for the children. In addition you can import your own stimuli patterns.

Complete balance testing

Tests include automated calibration, Spontaneous Nystagmus, Gaze, Tracking, Saccade, Optokinetics, Positional, Hallpike and Bithermal/Mono thermal Caloric. Easily design your own test protocols, which can be loaded with a single mouse click.

Automatic or manual analysis

The system produces highly accurate test results, but you can switch to manual edit mode in all tests to overrule the automatic analysis. In manual edit mode you can add or delete nystagmus marks, change slopes and define alternative areas of analysis.

Remote controlled testing

It is possible to step through the tests using the USB connected foot pedal.

Sharing results

The VO425 is designed to facilitate collaboration. All results are stored in the OtoAccess™ database with abilities for printing detailed colour reports. Results and recordings can also be exported for electronic charting purposes.

Video recording

The video from each test can be recorded and stored in full on the associated storage device (typically a hard drive) where it is linked to the results in the database record. The only limit to the size of the recording is the capacity of the recording device. When the session is reviewed, the recording will be available for replay in normal, fast or slow mode. There is also the option to review the recording one beat at a time. The recording can be exported in AVI format for consultation or teaching purposes. Various sound file formats are available to include sound recording together with the video.

Other features

- Cutting edge eye trackers adjust for make-up and dilated pupils
- Reader station enables shared access to patient reports from multiple work stations
- MWST (Monothermal Warm Caloric screening test after two warm irrigations)
- Torsional eye movement observation with full screen eye images
- Sleek portable design
- Fully randomized combined vertical and horizontal saccade protocol
- Detailed oculomotor testing
- Customizable
- Monocular or binocular
- ANSI standard compliant
- Real time analysis
- Synchronized video playback
- High speed resolution up to 174 Hz

Related products

- Eclipse with Vestibular EP
- Air Fx Caloric Irrigator
- Aqua Stim Caloric Irrigator
- EN415/EO425 ENG preamplifier

Eye view mode in Smooth Pursuit test window (only VO425)

Saccade test window (only VO425)

Video playback
Highlights:
- FireWire® compatibility
- USB connection
- Small footprint
Rotational testing compliments caloric testing. Both are typically used during a full balance assessment.

Rotational testing benefits
The rotary chair stimulus is a very accurately controlled stimulus that more closely represents the stimuli experienced by the patient in everyday situations. Rotational chair testing is well tolerated by both adults and children. Rotational testing can be sensitive to vestibular losses not detected with caloric testing alone. It is the gold standard test for the assessment of patients with a compensated unilateral lesion or with bilateral vestibular lesions (e.g. ototoxic damage). The Nydiag Rotary Chair provides precisely controlled and reproducible stimuli, a full test battery, a number of convenient features when testing and includes software with user definable tests.

Authentic rotational stimulus
The physiological rotatory stimulus is similar to that which the patient will experience in daily life and up to 100 times stronger than that achieved with the non physiological caloric stimulus. Rotational testing is particularly suitable for testing over a range of different frequencies.

Vestibular Rehabilitation
The Nydiag Rotary Chair can play an important role in monitoring the compensatory processes of vestibular rehabilitation therapy. It can chart the vestibular healing process by utilizing a wide range of frequencies and acceleration rates.

Accuracy, convenience and flexibility
The Nydiag Rotary Chair provides precisely controlled and reproducible stimuli. You have full control over acceleration, velocity and amplitude and can easily design and configure your own tests.

A full test battery
A full test battery is included with the chair, including the sinusoidal pendular test and step rotation test.

Space-saving design
The Chair allows you to carry out all tests in a minimum of space. In addition to rotation tests, it reclines easily to allow caloric testing with easy access to both ears. And it can also recline completely and act as a flat bench for positioning tests.
Interacoustics a/s
Interacoustics is a world leading diagnostic solutions provider in the field of hearing and balance assessment. We help the professional audiologic world reach new milestones through continuous developments and a constant focus on integration and direct customer value.

With you at all times
Whenever you purchase audiological equipment with the Interacoustics brand on it, you are not just guaranteed a quality product but also highly trained support personnel with specialized knowledge. We operate in over 100 countries worldwide through a carefully selected network of distributors and service centres to ensure that you receive total support and service.

Product specifications
All technical and hardware specifications concerning our VNG products can be downloaded from our website.

Read more at interacoustics.com

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