The Next Generation of Video-Nystagmography

Dizziness is the 2nd most common complaint heard in a physician’s office; 90 million U.S. patients per year see a doctor, and 12.5 million have a serious balance problem. I-Portal® is a complete video-nystagmography (VNG) diagnostic system that allows any facility to quickly and affordably add a balance testing capability.

Since the onset of electro-nystagmography (ENG) and early VNG, Neuro Kinetics has worked with the world’s top researchers to deliver a new cutting edge system. I-Portal® VNG delivers improved accuracy and precision, torsional eye tracking, an affordable price, and easy to use VEST™ software.

All components of NKI’s clinical testing system are controlled by VEST™ Software, VNG Edition. Preset protocols prompt the operator through a series of tests, and at the click of a button a web enabled report is available for patient files and insurance documentation.

VEST™ software includes all the standard and reimbursable VNG tests with software upgrades available for Subjective Visual Vertical and Horizontal, and Dynamic Visual Acuity Testing (available mid ’07).

I-Portal® VNG Package

I-Portal® 4D Eye Tracker
Patent-pending video-oculography system delivers affordable, horizontal, vertical, and torsional eye measurement and analysis. I-Portal® is lightweight, digital, monocular or binocular and displays real time data and analysis. Torsional tracking makes I-Portal® ideal for positional testing.

Pursuit Tracker™ Visual Stimulator
Patent pending visual stimulus displays horizontal and vertical targets for visual suppression tests. Super VNG system includes subjective visual vertical and horizontal testing.

Optokinetic Stimulus
Rotating sphere projects a full field light pattern and features precise digital control. Included in Super VNG system.

Caloric Irrigator
Water or air caloric irrigator delivers controlled temperature and flow rate of warm or cool water or air for canal stimulation.

VEST™ 6.0 VNG Edition Software
Easy to learn and use interface with built in security and animated eye movement replay. Includes protocol for reimbursable tests and computer.

www.neuro-kinetics.com
Expanded Data Collection
• 4 dimensional eye tracking at 60 Hz
  (horizontal, vertical, and torsional) plus pupil area
• Interactive, graphical eye modeling

Accurate Measurement
• Low weight (inertia) minimizes slippage artifacts
• Excellent pupil tracking algorithms
• Visual image size and continuity maintained for any smooth surface up to 50 ft in normally lit room
• Caloric irrigation temperature stabilizes within 60 seconds to ±0.5°C accuracy

Patient Comfort
• Ultra lightweight and compact goggle set
• Ergonomic design

Ease of Use
• Full system control through VEST™ software VNG edition; Windows® compatible
• Short training time requirement allows for fast implementation
• Digital adjustment for pupil location (horizontal and vertical slide bars to center eye image)
• Accurate and fast head fixed laser calibration
• Real time video feed and data collection

Reimbursable
• Web enabled reports for patient file documentation and insurance reimbursement

I-Portal® Video System
Eye measurements: Horizontal, vertical, torsional and pupil
Image acquisition: IEEE compatible digital camera;
High resolution grayscale image
Illumination: IR emitting diodes; 940 nm wavelength, continuous near frontal illumination (adjustable); <10 mW/um2
Spatial resolution: <0.1 degree
Linearity error: ± 0.1% FSR
Measurement range: Vertical: ± 20 degrees, Horizontal: ± 30 degrees, Torsional: ± 18 degrees
Field of view: ±30° horizontal & ±20° vertical
Goggle size and weight: 170 grams, 7”x2.75”x2”

VEST™ Measurement Algorithms
Center of mass determination of pupil center location: horizontal and vertical
Geometrically compensated polar cross-correlation: torsional (rotation around line of sight)

Pursuit Tracker™ Laser Stimulator
Output: Position
Multiaxis capability: ±30 degrees horizontal
Velocity: 0 to 10,000 deg./sec.
Acceleration: > 1,000,000 deg./sec.<sup>2</sup>
Position accuracy: ± 5 arc seconds
Repeatability: ± 5 arc seconds
Spot size: 3 mm (variable)

Optokinetic Stimulus
Velocity: up to 400 deg./sec.
Velocity Accuracy: ± 0.5% full scale

Caloric Irrigator
Transfer medium: Water or air
Default temp. settings: 27°C, 30°C, 37°C and 48°C
Temp. stabilization: Within 1 minute
Temperature accuracy: ±0.5°C
Flow (water): 350 ml/min @ 1.5 bar
Flow (air): 10 l/min
Size (W x D x H): 300 x 250 x 110 mm

Safety
Patient is isolated from all internal voltages (< or = 12 Vdc) and ground

Compliance
System designed around the following standards:
• ANSI S3.45 - 1999 Procedures for Testing Basic Vestibular Function
• EN 60601-1-2 Patient Safety Standard