Vision Monitor
Visual electrophysiology systems

- Electroretinography (ERG)
- Visual evoked potentials (VEP)
- Electro-oculography (EOG)
**Flash ERGs**

Evaluation of responses from the different layers of the retina and from the rod and cone systems.

Realization of ISCEV protocols and of research protocols.

**Pattern ERGs**

Evaluation of responses from ganglion cells and from the macula.

**Multifocal ERGs**

Realization of a detailed and objective cartography of the electrical activity of the retina.

Unique features:
- high luminance stimulation,
- precise control of stimulation timing,
- large field refractive lenses,
- age corrected normative database,
- ring ratio analysis

*MfERG in hydroxychloroquine intoxication showing a reduction of amplitude between 2 and 5 degrees of eccentricity.*
**Flash and pattern VEPs**

Evaluation of cortical responses to flash and pattern stimulations.

Unique features:
- Active control of luminance
- Statistical analysis of the reliability of responses

**Sweep VEPs**

Rapid and objective estimation of visual acuity based on a rapid sweep of spatial frequencies.

Applications: exam of preverbal, handicapped and malingering patients.

**Multifrequency VEPs**

Simultaneous recording of responses from 2 hemi-fields using stimulations with different temporal frequencies.

Applications: evaluation of chiasmatic and post-chiasmatic syndromes

**Multifocal VEPs**

Cartography of the cortical electric activity using m-sequence pattern reversal stimulations. Simultaneous recording of 4 channels with automated fusion of results.
**Sensory EOG**

Evaluation of responses from the pigment epithelium.

**Electronystagmography**

Analysis of eye movements:
- fixations,
- saccades,
- pursuits,
- optokinetic nystagmus

**Fixation control and video imaging**

All stimulators are equipped with a near-infrared camera for near vision tests (30 cm). On the MonPackONE stimulator a second camera is proposed as an option for distance tests (1 m). Another option allows the video recording of exams which may be used for a post-exam analysis of responses.

**Other applications**

(refer to the specific brochures for detailed information)
MonPack kONE stimulator

Compact and universal stimulator:
• Combines ganzfeld, pattern and multifocal stimulation functions
• Active control of luminance
  (patent pending)

MonColor stimulator

Stimulator for advanced visual electrophysiology:
• 5 color wavelengths:
  violet, blue, green, red, deep red
• Responses from S and L cones
• Photopic negative responses (PhNR)
• ON and OFF responses

MonCvONE stimulator

Stimulator for full field standard automated perimetry and Goldmann perimetry. It can also generate «ganzfeld» stimulations used for flash ERG and VEP as well as pupillometry.

MonBaby stimulator

Portable stimulator for flash ERG and VEP suitable for tests on young children and in ambulatory conditions. It includes a matrix of light emitting diodes with programmable intensity and frequency.
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<th>MonPackONE</th>
<th>MonColor</th>
<th>MonCVOne</th>
<th>MonBaby</th>
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<tr>
<td><strong>Wavelength</strong></td>
<td>Blue, green, red and their combinations</td>
<td>Violet, blue, green, red, deep red and their combinations</td>
<td>Blue, green, red and their combinations</td>
<td>White, Blue and red</td>
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<tr>
<td><strong>Dynamic range</strong></td>
<td>from $3 \times 10^{-6}$ up to 10 cd.s.m$^{-2}$</td>
<td>from $15 \times 10^{-6}$ up to 15 cd.s.m$^{-2}$ or 150 cd.s.m$^{-2}$ (**)</td>
<td>from $3 \times 10^{-6}$ up to 10 cd.s.m$^{-2}$</td>
<td>from $10^{-3}$ up to 100 cd.s.m$^{-2}$</td>
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<tr>
<td><strong>Background luminance</strong></td>
<td>Up to 100 cd.m$^{-2}$</td>
<td>Up to 2000 cd.m$^{-2}$</td>
<td>Up to 2000 cd.m$^{-2}$</td>
<td>0 or 30 cd.m$^{-2}$</td>
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<tr>
<td><strong>Stimulus duration</strong></td>
<td>from 2 ms and up</td>
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<td>from 2 ms and up</td>
<td>&lt; 5 ms</td>
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<tr>
<td><strong>Electrophysiologic exams</strong></td>
<td>Flash ERG and VEP, Pattern ERG and VEP, Multifocal ERG and VEP, Multifrequency VEP, Sensory EOG</td>
<td>Flash ERG and VEP, S and L cone responses, PhNR responses, Sensory EOG</td>
<td>Flash ERG and VEP, Sensory EOG</td>
<td>Flash ERG and VEP</td>
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<td><strong>Psychophysical exams</strong></td>
<td>Dark adaptation, Contrast sensitivity, Central visual field perimetry</td>
<td>Dark adaptation</td>
<td>Dark adaptation, Standard automated perimetry, Goldmann perimetry</td>
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<td><strong>Eye movement exams</strong></td>
<td>Electrophystagmography, Video-oculography, Pupillometry</td>
<td>Pupillometry</td>
<td>Pupillometry, Field of eye movements</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- MonPackONE, MonColor, MonCVOne and MonBaby can be combined in a unique system with unequalled performance
- ** MonColor Plus option

### Bioelectric amplifiers

- 2, 4 or 5 channels
- High performances
  - (input noise < 0.5 µV pp, CMRR > 115 dB, input impedance> 200 Mohms)
- Optoelectronic isolation
- Automated control of electrode impedances

### User interface

- Standard PC with Windows 7, 8 or 10 environment
- Access to results through the computer network
- Easy exportation of data
- Video monitoring window
- Unique data base for all exams
- Internet assistance and maintenance
- DICOM option