Vision Monitor
Visual electrophysiology systems

- Electoretinography (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)
**MonPackONE 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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<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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<td><strong>Electrophysiologic exams</strong></td>
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<td>Flash ERG and VEP S and L cone responses PhNR responses Sensory EOG</td>
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<td>Flash ERG and VEP</td>
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<td>Dark adaptation</td>
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<td>Pupillometry</td>
<td>Pupillometry Field of eye movements</td>
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</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

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