Electroencephalograph-analyzer
EEGA-21/26-"Encephalan-131-03"

Illustrated catalogue

Reliable tool of a classic encephalography in combination with innovative approach to functional diagnostics

A unique method of synchronous EEG and REG studies

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European Quality Certificate
CE 538571, issued by British Standards Institution (BSI)

Quality management system is certified with ISO 9001:2008 and ISO 13485:2012 standards

V01.02(12.08)2017
Electroencephalographs-analyzers EEGA-21/26-"Encephalan-131-03" are multichannel (up to 32 channels) medical devices produced in various modifications meant for EEG studies, studies of long latency (including cognitive) evoked potentials (EP), and also for long-term EEG studies with video monitoring in stationary conditions.

**Electroencephalograph's modifications 08 and 10** provide an analysis of connection between brain electrical activity deterioration and impairment of cerebral circulation, which is reliably detected by means of a unique method of simultaneous EEG and REG studies (patented in RF # 2248745).

**Quality registration of EEG and other parameters** using original electrode systems with elastic fixing caps from EEG Electrode Set ES-EEG-10/20 "Encephalan-ES", which is included into electroencephalograph-analyzer EEGA-21/26-"Encephalan-131-03" set, as well as other electrodes and sensors from electroencephalograph-analyzer set.

<table>
<thead>
<tr>
<th>Functionality of electroencephalographs-analyzers EEGA-21/26-&quot;Encephalan-131-03&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modifications 08, 10 and 11</strong></td>
</tr>
<tr>
<td>EEG/EP studies with multichannel mapping of the brain electrical activity. EEG/EP studies with multichannel mapping of the brain electrical activity, carried out in a health care center (functional diagnostic room, neurophysiology laboratory, neurological department, etc.) with a portable or stationary computer.</td>
</tr>
<tr>
<td><strong>Modifications 08 and 10</strong></td>
</tr>
<tr>
<td>EEG-studies simultaneously with the registration and analysis of cerebral circulation (REG) additionally provide an assessment of the role of the vascular factor in paroxysmal activity manifestations in epilepsy.</td>
</tr>
<tr>
<td><strong>Modifications 10 and 11</strong></td>
</tr>
<tr>
<td>Continuous synchronized EEG-videomonitoring in a stationary variant is effective for differential diagnosis of epilepsy in neurological and epileptological departments of health care centers.</td>
</tr>
<tr>
<td><strong>Modifications 10 and 11</strong></td>
</tr>
<tr>
<td>Neuromonitoring and cerebral functions monitoring ICU and resuscitation department. Additionally – multiparameter analysis of signals from polygraphical channels in combination with EEG signals (patented in RF #2252692).</td>
</tr>
<tr>
<td>Enhanced functionality and application of electroencephalograph-analyzer in clinical practice, sports, industrial and institutional medicine, psychophysiology and scientific research are provided by additional sensors and accessories, along with methodical software (SW) from electroencephalograph set.</td>
</tr>
<tr>
<td>Software name</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td><strong>Main software for multichannel electroencephalographic and neurophysiological studies.</strong></td>
</tr>
<tr>
<td>Software EEG-studies &quot;Encephalan EEGA&quot;, &quot;Professional” suite</td>
</tr>
<tr>
<td>Software EEG-studies &quot;Encephalan EEGA&quot;, &quot;Elite” suite</td>
</tr>
<tr>
<td>&quot;Encephalan-REG” software for rheoencephalographic studies</td>
</tr>
<tr>
<td><strong>Software that extends the functionality of electroencephalograph-analyzer during EEG studies</strong></td>
</tr>
<tr>
<td>&quot;Encephalan-VLFA” software for analysis of very low frequency activity (patented in RF #2252692)</td>
</tr>
<tr>
<td>&quot;Encephalan-FBA” software for functional brain asymmetry analysis</td>
</tr>
<tr>
<td>&quot;Encephalan-3D” software for 3D localization of the electrical activity sources</td>
</tr>
<tr>
<td>&quot;HRV” software for heart rate variability analysis</td>
</tr>
<tr>
<td><strong>Software and accessories for long latency evoked potentials study</strong></td>
</tr>
<tr>
<td>&quot;Encephalan-EP” software for EP-studies, &quot;Basic” and &quot;Professional” suite</td>
</tr>
<tr>
<td><strong>Software of electroencephalograph-analyzer for additional study types at continuous EEG monitoring</strong></td>
</tr>
<tr>
<td>&quot;Encephalan-PSG” – somnological studies – polysomnography, &quot;neurological” suite</td>
</tr>
<tr>
<td>&quot;Encephalan-MPA” software for multiparameter analysis of signals from pol graphical channels in combination with EEG signals (patented in RF #2252692)</td>
</tr>
<tr>
<td>&quot;Encephalan-CFM” for cerebral functions monitoring</td>
</tr>
<tr>
<td>&quot;Encephalan-NM” for neuromonitoring</td>
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<tr>
<td>EEG-videomonitoring &quot;Encephalan-Video”</td>
</tr>
<tr>
<td><strong>Additional software for psychophysiological analysis and testing, neurofeedback and biofeedback</strong></td>
</tr>
<tr>
<td>&quot;Rehacor” software for functional biocontrol with biofeedback training</td>
</tr>
<tr>
<td>&quot;Egoscop” objective analysis and testing (patented in RF #2319444)</td>
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<td>12</td>
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</tbody>
</table>

* The external appearance of the products is given as an example and may have some differences that do not affect functionality when delivered.
### Electroencephalograph-analyzer EEGA-21/26-"Encephalan-131-03"

To form a sales package, select from this table the modification of electroencephalograph-analyzer – an amplifier unit with the basic set of accessories, as well as necessary additional accessories, electrodes, sensors and software.

#### Modifications of electroencephalograph-analyzer

<table>
<thead>
<tr>
<th>Item #</th>
<th>Ref. no.</th>
<th>Description and figure</th>
<th>Comments</th>
</tr>
</thead>
</table>
| 1.     | A_2648-3| **Modification 08 –** 19-channel electroencephalograph with 1 polygraphic and 6 REG (rheoencephalographic) channels | **For routine EEG studies required:**

- set of cup EEG Electrodes and accessories SEEG-8/21;
- set of silicone tube caps;
- electrode gel.

**For continuous EEG monitoring required:**

- sets of accessories with electrode systems from EEG Electrode Set ES-EEG-10/20 "Encephalan-ES";
- patient cable (A_2460);
- electrode gel.

**Additionally:**

- software for expanded functional capabilities;
- accessories;
- video equipment kit;
- computing hardware. |

- **Amplifier Unit EEGA-19-REG** – 19 EEG, 1 ECG, 6 REG channels;
- **basic set of equipment and accessories** (see item 1.4. for composition and external appearance of the set);
- **REG electrodes set (A_2665);**
- **Snap Connector Wire Set (A_2092);**
- **operation documentation;**
- **"Encephalan EEGA" software for EEG-studies, "Professional" suite.** Routine EEG-studies with topographic mapping. Profound EEG-studies and analysis of epileptiform activity. Automatic generation of study description. Additional possibilities of mathematical processing, automated description and EEG classification. Unique option of EEG analysis simultaneously with REG;
- **"Encephalan-REG" software for rheoencephalographic studies;**
- **"Cardfile" software for patient data management.**

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**REG electrodes**

**Snap Connector Wire Set**

**"Encephalan-REG" software**

**"Encephalan EEGA" software for EEG-studies**

**Amplifier Unit EEGA-19-REG**
Modification 10 (DG-64) – 21-channel electroencephalograph with 1 additional, 6 REG (rheoencephalographic) and 4 polygraphic channels

The set includes:

- Amplifier Unit EECA-21-POLY-REG – 21 EEG, 4 Poly and 6 REG channels;
- basic set of equipment and accessories (see item 1.4. for composition and external appearance of the set);
- Set of electrodes and accessories for polygraphic channels (EMG, EOG, PG) – Respiratory Effort Sensor, bipolar cable for disposable electrodes – 3 pcs., disposable ECG electrodes;
- REG electrodes set (A_2665);
- Snap Connector Wire Set (A_2092);
- operation documentation;
- "Encephalan-REG" software for rheoencephalographic studies;
- "Cardfile" software for patient data management.

For routine EEG studies required:

- set of cup EEG Electrodes and accessories SEEG-8/21;
- set of silicone tube caps;
- electrode gel.

For continuous EEG monitoring required:

- sets of accessories with electrode systems from EEG Electrode Set ES-EEG-10/20 "Encephalan-ES";
- patient cable PCP37/37-7P-1m;
- electrode gel.

Additionally:

- software for expanded functional capabilities;
- accessories;
- video equipment kit;
- computing hardware.
Modification 11 (DG-64) – 21-channel electroencephalograph with 1 additional and 4 polygraphic channels

The set includes:

- Amplifier Unit EE GA-21-POLY – 21 EEG and 4 Poly channels.
- basic set of equipment and accessories (see item 1.4. for composition and external appearance of the set);
- Set of electrodes and accessories for polygraphic channels (EMG, EOG, PG) – Respiratory Effort Sensor, bipolar cable for disposable electrodes – 3 pcs., disposable ECG electrodes;
- operation documentation;
- "Encephalan EEGA" software for EEG-studies, "Elite" suite.
- "Cardfile" software for patient data management.

For routine EEG studies required:
- set of cup EEG Electrodes and accessories SEEG-8/21;
- set of silicone tube caps;
- electrode gel.

For continuous EEG monitoring required:
- sets of accessories with electrode systems from EEG Electrode Set ES-EEG-10/20 "Encephalan-ES";
- patient cable PCP37/37-7P-1m;
- electrode gel.

Additionally:
- software for expanded functional capabilities;
- accessories;
- video equipment kit;
- computing hardware.
1.4. *The basic set of equipment and accessories included in each modification:

- **USB PC adapter** with power-supply source in a set;
- **Set of electrodes and accessories for electrocardiosignal record**;
- **photostimulator FO-02R** (right) comes complete with a holder;
- **cable** for connecting amplifier unit to PC.

<table>
<thead>
<tr>
<th>set of electrodes and accessories for ECG record</th>
<th>cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB adapter &quot;IB-2m&quot;</td>
<td></td>
</tr>
<tr>
<td>photostimulator</td>
<td></td>
</tr>
</tbody>
</table>

Select Floor Stand or Tabletop Mount for mounting amplifier unit.

1.5. **Accessories of electroencephalograph** (at option)

1.5.1. **Floor Stand**

- wheels (three wheels can be locked);
- adjustable height column;
- VESA mount for amplifier unit.

**A_1919-1**

Photostimulator from the basic set is mounted on the column. Phonostimulators complete with holders are purchased separately.
| 1.5.2. | A_2684-1 | **Tabletop Mount**  
Includes:  
- vertical tube with a table clamp;  
- bracket with VESA mount for electroencephalograph amplifier unit. | Photostimulator from the basic set is mounted on the vertical tube. Phonostimulators complete with holders are purchased separately. |
| 1.5.3. | A_1728 | **Phonostimulator FNST-02L left**  
Complete with a holder. | Purchased for phonostimulation tests at auditory EP or routine EEG studies. |
| 1.5.4. | A_1727 | **Phonostimulator FNST-02R right**  
Complete with a holder. |  |
| 1.5.5. | A_1726-1 | **Photostimulator FO-02L**  
Complete with a holder for mounting to the column of the floor stand or vertical tube of the tabletop mount. | Stimulator additional to the basic set of electroencephalograph for separate stimulation of semi-fields of view, mainly when estimating functional asymmetry. |
| 1.5.6. | A_2329 | **SW-key (USB)**  
Allows working with software at any additional PC including network variant. Connected to USB port of a computer. | The number of keys that required to be purchased corresponds to the number of software installations on the user’s computers for data processing including network variant. |
| 2. | A_0720-1 | **Set of cup EEG Electrodes and accessories for 20 EEG derivations**  

**The set includes:**  
- **cup EEG electrodes** for contact electrode gel (electrode wire length 1.2 m) – 25 pcs., including 1 additional;  
- **set of EEG electrodes fixers “ear clips”** – 4 pcs. |

<table>
<thead>
<tr>
<th></th>
<th>Required:</th>
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</table>
|  | • silicone tube caps;  
|  | • electrode gel. |
| 2.2. | A_5891-3 | **Bridge EEG Electrodes set**  
for 21 EEG derivations  
The set includes:  
• bridge EEG electrodes – 24 pcs., including 2 additional;  
• pick-up cables for bridge EEG electrodes with snap connector (wire length 1.2 m) – 24 pcs., including 2 additional;  
• ear EEG electrodes with a clip – 4 pcs., including 2 additional. | **Required:**  
• silicone tube caps;  
• electrode gel. |
| 2.3. | A_2804-1 | **Set of silicone tube caps for EEG/REG electrodes**  
The set includes 3 resizable caps with sizes 48-54; 54-58; 58-62. | **Used:**  
• with cup EEG electrodes (for contact electrode gel);  
• with bridge EEG electrodes. |
| 2.3.1. | A_2804-4 | **Set of silicone tube caps** for 20 EEG electrodes (additional set)  
The set includes 2 resizable caps with sizes 38-42 and 42-46. |
<table>
<thead>
<tr>
<th>3.</th>
<th>Sets of accessories with electrode systems for continuous EEG monitoring by 19 derivations (for babies – 13 derivations)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1.</strong></td>
<td>Additional cables for connecting electrode systems to electroencephalograph amplifier unit</td>
</tr>
<tr>
<td><strong>3.1.1.</strong></td>
<td>Patient cable</td>
</tr>
<tr>
<td>A_2460</td>
<td>1 m adapter cable for connecting electrode systems from EEG Electrode Set ES-EEG-10/20 &quot;Encephalan-ES&quot; to amplifier units.</td>
</tr>
<tr>
<td><strong>3.1.2.</strong></td>
<td>Patient cable</td>
</tr>
<tr>
<td>A_2647-2</td>
<td>6 m adapter cable for connecting electrode systems from EEG Electrode Set ES-EEG-10/20 &quot;Encephalan-ES&quot; to amplifier units.</td>
</tr>
</tbody>
</table>

*The set includes* fixing belts, wall fixer, test plug.

Required for connecting electrode systems

Required for electrode systems "Encephalan-ES" for routine or continuous studies near the amplifier unit (no more than 1.5 m).

Required for electrode systems "Encephalan-ES" for continuous studies (including EEG-video monitoring) at a distance from the amplifier unit of no more than 6 m. Allows the patient to move within the ward area of up to 25 sq m.
3.2. The sets with electrodes for contact gel

The sets include:

- electrode systems ES-EEG-19-3A, ES-EEG-19-3C or ES-EEG-13-3B;

  Electrodes are fixed in the eyelets of elastic fixing caps. Wires for electrodes are grouped in a common cable and have a group connector to amplifier unit.

  Provides registration of 20 EEG (14 derivations for ES-EEG-13-3B), 2 EOG, 1 EMG, 1 non-standard ECG derivation (one ECG electrode relative to the reference EEG electrode), 1 channel for Respiratory Effort Sensor.

- set of additional cables to connect disposable ECG, EMG, EOG electrodes to electrode system – 5 pcs.;

- set of elastic fixing caps ES-EEG with eyelets for electrodes and covers for them – 5 sizes, fixer for elastic caps, chest fixing belt, syringe with plastic nozzles set for electrode gel insertion.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A_2493-21</td>
<td>ES-EEG-13-3B &quot;Baby&quot; set</td>
<td>34 to 45</td>
</tr>
<tr>
<td>A_2493-22</td>
<td>ES-EEG-19-3C &quot;Children&quot; set</td>
<td>45 to 55</td>
</tr>
<tr>
<td>A_5007-2</td>
<td>Set of elastic fixing caps ES-EEG-19C</td>
<td>39 to 45 – 3 caps and covers. Additional to &quot;Children&quot; set for recording 19 EEG derivations in infants.</td>
</tr>
<tr>
<td>A_2493-23</td>
<td>ES-EEG-19-3A &quot;Adult&quot; set</td>
<td>55 to 66</td>
</tr>
</tbody>
</table>

Used with amplifier unit together with patient cables (A_2460 or A_2647-2) for continuous EEG studies.

Required:
- electrode gel;
- disposable ECG electrodes (for EOG, EMG, ECG).

Chin fixer for cap ES-EEG can also be purchased.
### 3.3. Chin fixers for elastic cap or cover cap

| 3.3.1. | A_0497 | Chin fixer "adult" |
| 3.3.2. | A_0496 | Chin fixer "children" |

### 3.4. Respiratory Effort Sensor for using with electrode system (with micro-8 connector)

| 3.4.1. | A_1553-1 | Respiratory Effort Sensor for using with electrode system (with micro-8 connector) |
| 3.4.2. | A_7350 | Small additional belt for respiratory effort sensor |
|        |          | For chest circumference of 40-80cm. |
## 4. Software that extends the functionality at EEG studies

### 4.1. A_0836 "Encephalan-VLFA" Software for Analysis of Very Low Frequency Activity

*Patented in RF #2252692*

Software additionally provides analyzing of very slow EEG responses simultaneously with recording of EEG by the same derivations. Dynamic trends of very slow potentials and topographic maps of instantaneous values and reactive shifts of the DC-potentials level to functional tests or functional stresses at continuous EEG studies carried out allow a doctor or experimentalist-researcher to use obtained information for indirect evaluation of cerebral energy exchange and reactivity (metabolic change dynamics) and match it with EEG studies results and indices of cardiovascular system, CNS and ANS (if corresponding sensors are available). For scientific and clinical research in neurophysiology and psychophysiology.

### 4.2. A_1037 "Encephalan-FBA" Software for Functional Brain Asymmetry Analysis

Software provides visualization of intercentral connections maps (interhemispheric and intrahemispheric) on the basis of calculated matrices of relative functions (cross-correlation, cross-spectrum, coherence function) by the set combinations of derivations, which gives a doctor additional information for solving scientific and clinical tasks of intra-and intercortical dysfunctions diagnostics, detection of pathological activity and control of the treatment, studies of topical features and intercentral cooperation in carrying out various activities.

### 4.3. A_0382 "Encephalan-3D" Software for 3D Localization of the Electrical Activity Sources

Software presents the results of solving the reverse task EEG/EP to detect probabilistic spatial source of selected graph elements of EEG signal on three nominal brain cuts in the form of equivalent dipoles cloud. Such spatial localization gives a doctor additional information on supposed location of the EEG epileptiform activity focuses or EP components sources.

### Additional software

- **4.1** Additional software which provides DC potential registration (up to 20 derivations) simultaneously with EEG registration using electrode systems or electrodes for EEG registration.

- **4.2** Additional software which uses quantitative methods of EEG analysis. Analysis can be performed both in real time and at processing continuous EEG studies.

- **4.3** Additional software which uses quantitative methods of EEG/EP analysis.
4.4. **A_1964**

**“HRV” Software for Heart Rate Variability Analysis**

Software is used to assess the state of the autonomic nervous system and neurohumoral regulation of the patient, to evaluate the adequacy of physical and psycho-emotional stress taking into account the autonomic reactivity to a provoking effect, as well as to control the effect of medicinal drugs and efficiency of treatment prescribed.

Software uses standard recommended types of quantitative analysis and results representation in the form of cardiointervalogram trends (HR, RR), statistical and spectral parameters, hystograms and scattergrams (correlation rhythmograms) of RR-intervals allocation, spectrograms with frequency ranges that characterize the state of ANS and balance of sympathetic and parasympathetic sections (HF, LF, VLF). There is an option of forming the formalized protocol with description of initial state and autonomic reactivity. Software allows analyzing selected fragments of continuous ECG records (24 hrs, night recording) at long-term EEG/PSG studies or multiparameter monitoring.

It can be used both independently as an additional to EEG study type and as concomitant software, related to the basic EEG study, for example at neuromonitoring, multiparameter monitoring, epileptological studies with EEG-video monitoring.
### 5. Software and accessories for long-latency evoked potentials study

|-------------|-----------------------------------------------------|

<table>
<thead>
<tr>
<th>5.1.1. A_1599</th>
<th>Electrostimulator ES-03 for somatosensory EP</th>
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<tbody>
<tr>
<td></td>
<td>The set includes:</td>
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<tr>
<td></td>
<td>• stimulating bar electrode;</td>
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<tr>
<td></td>
<td>• set for electrodes attachment.</td>
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</tbody>
</table>

<table>
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<tr>
<th>5.1.2. A_1554</th>
<th>Button sensor DK-2.1</th>
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<tbody>
<tr>
<td></td>
<td>to capture patient's response to presented stimuli.</td>
</tr>
</tbody>
</table>

The stimulating devices (photo, phono- or somatosensory (electro-) stimulators) are required depending on the selected modality of EP studies. Cognitive EPs require a button sensor.
5.2. A_0650

"Encephalan-EP" Software for Evoked Potentials studies, "Professional" suite (upgrading the "Basic" suite)

In addition to the functionality of the "Basic" suite studies of visual EP for chess pattern are provided.

5.2.1. A_2425

Optical synchronization sensor

meant for detection of exact moment of video stimulus presentation

Attached to additional monitor and used for:


5.3. A_0712

"Encephalan-AVS" Software Suite for EEG and EP Studies Using Audiovisual Stimulation

Software provides flexible forming and playback of scenarios of cognitive stimulation using graphic images, audio files and text information as stimuli.

Images can be of tiff, jpg, bmp, gif formats with any resolution, including FullHD; audio files – formats wav, mp3; text information can be customized by font color and size, background color, and area of visualization on the screen.

Option of unconscious stimuli presentation with direct and inverse masking with control of responses (latent periods of button pressing).

Accurate synchronization of presented stimuli and recorded physiological signals (EEG, EP), which allows carrying out EEG and EP studies (cognitive EP) to solve different clinical and scientific tasks in neurology, psychophysiology, studies of perception mechanisms, etc.

**Required:**
- additional monitor (21’);
- optical synchronization sensor.

**Required:**
- additional monitor for stimuli presentation;
- patient button unit;
- optical synchronization sensor.
6. Software for additional study types at continuous EEG monitoring

6.1. A_1627-21

"Encephalan-PSG" Software for Somnological Studies, "Neurological" Suite

Used mainly as an addition to EEG videomonitoring for epileptological studies.

Software provides sleep stages analysis, automatic building and manual editing of hypnograms, marking sleep events, reporting for sleep statistics and stages distribution.

Only for modifications 10 and 11

Sleep related breathing and movement disorders are not analyzed. Only EEG, EOG and EMG analysis is available.

6.2. A_0803

"Encephalan-MPA" software for multiparameter analysis of signals from polygraphical channels in combination with EEG signals (patented in RF #2252692)

Software provides calculation and visualization of trends which display beat-by-beat dynamics (dynamics of indices from cardio cycle to cardio cycle) of different physiological parameters of cardiovascular (CVS), autonomic (ANS) and central nervous system (CNS) in unified time scale which provides visual evaluation of the interrelations (signals from the list (if corresponding sensors are purchased): EEG, EOG, EMG, ECG, RespEff, SpO2, Rheo-CHD, REG, PPG, temperature, etc.).

Software allows analyzing recorded physiological signals, evaluating physiological shifts in response to provoking actions to detect weak and compensatory links in the systems of the body. Software allows carrying out statistical and spectral analysis, building histograms or scattergrams of selected quantitative parameters distribution by the specified study fragments, as well as generating automatic report with formalized results description and table data illustrating initial state and significant changes caused by functional tests.

Only for modifications 10 and 11

Used for PSG studies, as well as for psychophysiological, scientific and clinical studies. For system analysis of hemodynamics as an independent study electrodes are required.

6.3. A_0803-3

"Encephalan-CFM" Software for Cerebral Functions Monitoring in ICU

Software provides long-term dynamic aEEG analysis for detection of epileptiform activity, neurological prognosis for perinatal asphyxia in neonatology, post-comatose unconsciousness in ICU, neurophysiological control of ischemic strokes, and evaluation of phasic sleep structure at PSG studies.

Trends of amplitude-integrated EEG (aEEG), 3D representation of compressed spectral array (CSA), density spectral array (DSA), trends of EEG spectral indices, mirror spectrogram, automatic reporting with quantity characteristics of recorded phenomena allows identifying epileptiform activity and classifying the specific aEEG patterns. Can be used at clinical and scientific research.
### 6.3.1. A_7478

**Atlas of amplitude-integrated EEG in the newborns**

**The text of the Atlas in English**

### 6.4. A_0803-1

**“Encephalan-NM” Software for Neuromonitoring**

**Software provides calculation and visualization of trends** (duration of averaged parameters time quantum can be set in the range from 10 to 300 s) of different physiological parameters (if corresponding sensors and devices are present) of CNS (amplitude and spectral EEG parameters, DCp values), ANS and cardiorespiratory system (respiration parameters, galvanic-skin response, heart rate, temperature, tonus of muscles and vessels, oculomotor manifestations, etc.) in unified time scale in long-term multiparametric monitoring.

Software gives an information in digital and graph form for long-term dynamic monitoring and evaluation of the patient’s state in ICU and can be used at clinical and scientific research.

Only for modifications 10 and 11
7. **Video equipment kit and Software for EEG-videomonitoring "Encephalan-Video"**

7.1. The kit is used for continuous synchronized videomonitoring for EEG and PSG studies, CFM monitoring and additional study types. The kit includes adapted Software for epileptological studies with videomonitoring "Encephalan-video". Software provides continuous synchronized EEG/PSG and video data recording, analysis and storage. Includes option of short video clip preparation (AVI format) for demonstration of pathological manifestations. Specialized "EEG Viewer" application allows viewing specified EEG fragments and video data on doctor’s PC (onto CD/DVD discs or other storage devices) using main functions of visual EEG analysis.

7.1.1. **A_2310-42 Mobile Basic Economic kit (day-night)**

The kit includes:

- fixed digital HD video camera, built-in IR backlight and patient’s microphone;
- power injector for the camcorder with a set of cables;
- Software for EEG-videomonitoring "Encephalan-Video".

7.1.1.1. **A_2811 Portable stand for camera**

At customer’s option

- Sensitivity – 0.07 lx @ F1.2;
- day-night mode – a mechanical IR-cut filter;
- resolution 1920x1080, 1280x720, 704x576;
- frame rate – 25 fps;
- built-in IR illumination;
- powering – 220 V (via injector);
- built-in microphone.
| 7.1.2. | A_2310-33 | **Mobile basic advanced kit (day-night)**  
**The kit includes:**  
- advanced digital HD video camera with night mode – optical Zoom, rotator, built-in IR backlight for night mode, patient's microphone;  
- video camera network controller (mobile);  
- power injector for the camcorder with a set of cables;  
- portable stand for camera;  
- Software for EEG-videomonitoring "Encephalan-Video".  
| 7.1.2. | A_8233 | **A clip for camera fixation**  
Fixed on suitable objects of the surroundings | At customer's option  
- Optical zoom – 4x;  
- digital zoom – 16x;  
- day-night modes – Auto (ICR) / colour / black and white;  
- resolution 1920x1080, 1280x720, 704x576;  
- frame rate – 25 fps;  
- built-in IR illumination;  
- powering – 220 V (via injector);  
- microphone – built into the power injector. |
<table>
<thead>
<tr>
<th>Section</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
</table>
| 7.1.3.  | A_2310-34 | **Stationary basic advanced kit (day-night)**  
The kit includes:  
- advanced digital HD video cameras with night mode – optical Zoom, rotator, wall bracket for video camera;  
- IR lamp for night mode;  
- switching box;  
- the patient's microphone (located in the switching box);  
- Software for EEG/PSG-videomonitoring "Encephalan-Video". |
|         |       | ![Image](image1.png) |
|         |       | ![Image](image2.png) |
| 7.1.4.  | A_2310-35 | **Stationary Professional advanced kit**  
The kit includes:  
- two advanced digital HD video cameras with night mode – optical Zoom, rotator, wall bracket for video camera;  
- IR lamp for night mode;  
- switching box;  
- the patient's microphone (located in the switching box);  
- Software for EEG/PSG-videomonitoring "Encephalan-Video". |
|         |       | ![Image](image3.png) |
|         |       | ![Image](image4.png) |
### Additional accessories to video equipment kits:

| 7.2.1. | A_6396 | IR-lamp for quality video recording in darkness
Provides soft IR light reflected from walls and ceiling. | It can be placed anywhere in the room, without reference to other elements of the EEG-video monitoring kit. It has an independent mains power supply 220. |
| 7.2.2. | A_8598 | Event marker (wireless)
For medical staff and patient. | It can’t be used with mobile basic economic kit. |
| 7.2.3. | A_6386 | Intercommunication system between patient room and doctor’s workplace
It includes loudspeaker with amplifier to be connected to the switching box of stationary kits and doctor’s microphone connected to Real Time Work Station. | It can be used only with stationary video equipment kits. |
8. **Additional software “Rehacor” for functional biocontrol with biofeedback; required equipment and accessories**


Software provides procedures of functional biocontrol with biofeedback (BFB training) to train skills of self-regulation and train the state with the control of various physiological parameters. 

The procedures library and ability to create new procedures for non-medicated restoration of damaged functions, improvement of nerve regulations in different diseases, phobias, pathological addictions, improvement of stress resistance, for control and correction of psychophysiological state in different situations and sicknesses, as well as forming the optimal state for performance for sportsmen, persons with stressful and responsible jobs, to overcome the attention deficit hyperactivity disorder (ADHD) in children and adolescents, etc.

Multichannel EEG and other parameters registration allows carrying out of neurofeedback procedures – multiparametric training for brain functional asymmetry, optimization of brain rhythms and zonal differences of alpha-rhythm, very low frequency brain activity, combined training for brain electric activity and cerebral blood flow (REG), as well as multiparametric training for correction of psycho emotional state and psychological tension.

Only for modifications 10 and 11! Required:

- electrodes, sensors and accessories from the set (A_2641) for connection to polygraphic channels of amplifier unit;
- ICG adapters with electrode set for procedures of BFB-training for blood circulation (CHD and impedance plethysmography).

Additionally:

- electrostimulator with procedure for training skills of stress tolerance;
- stabiloanalyzer for additional diagnostics and BFB procedures for stabilogram;
- Procedure of Combined Operator's Activity (adaptive model).
<table>
<thead>
<tr>
<th>Set of electrodes, sensors and accessories for BFB – for Software “Rehacor”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.1.1.</strong> Set of electrodes, sensors and accessories for Poly-channels of electroencephalograph-analyzer.</td>
</tr>
<tr>
<td>The set includes:</td>
</tr>
<tr>
<td>• temperature sensor (A_1552) – 2 pcs.;</td>
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<tr>
<td>• envelope EMG sensor (double) (A_6605) – 2 pcs.;</td>
</tr>
<tr>
<td>• PPG sensor (2 cuffs included) (A_1674);</td>
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<tr>
<td>• respiratory effort sensor (A_1553) – 2 pcs.;</td>
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<tr>
<td>• GSR sensor (A_1703);</td>
</tr>
<tr>
<td>• bipolar cable for disposable EMG/Skin Conductance electrodes (A_5875) – 2 pcs.;</td>
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<tr>
<td>• bipolar cable with cup adhesive EEG electrodes (A_2373) – 2 pcs.;</td>
</tr>
<tr>
<td>• ECG cable-2.1 (A_1709);</td>
</tr>
<tr>
<td>• disposable N-electrode cable (A_4822);</td>
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<tr>
<td>• brush for electrode cleaning (A_0343);</td>
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<tr>
<td>• ECG disposable electrodes (A_2714) – 50 pcs.;</td>
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<tr>
<td>• adhesive plaster Omnifix (A_1302);</td>
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<tr>
<td>• conductive paste (A_2669).</td>
</tr>
</tbody>
</table>

Optional supply of sensors at customer's option from this catalogue.
| 8.1.1.2. | **A_0813** | **ICG adapter with electrode set** for blood circulation biofeedback training (REG and CHD)  
The set includes:  
- rheographic cable "Y-type" (A_6294, length – 1.5 m) – 2 pcs.;  
- set of electrode cables (A_7589, length – 1.5 m) – 2 pcs.;  
- REG Electrode with a snap connector (A_2665) – 2 pcs.;  
- ribbon electrode (A_7282, length – 0.4 m) – 4 pcs.;  
- REG electrodes fixing ribbon (A_8567). | Used with polygraphic channels of modification 11.  
Can be used with polygraphic channels of modification 10  
Cannot be used with modification 8.  
Electrode gel is required to be purchased.  
Silicone tube cap is required for REG-electrodes. |
| 8.1.3. | **A_2804-2** | **Set of silicone tube caps for EEG/REG electrodes**  
Silicone tube caps to attach a small amount of EEG or REG derivations for biofeedback procedures.  
The set includes caps of 3 sizes from 48 to 62. | Used to attach a small amount of cup EEG or REG electrodes in BFB training.  
It is possible to use A_2804-1 and A_2804-4 caps. |
| 8.1.2. | **A_1599-9** | **Electrostimulator ES-03** for procedures of stress tolerance increasing in SW “Rehacor”  
The set includes:  
- stimulating bar electrode;  
- set for electrodes attachment. | Can also be used for somatosensory EP studies. |
### 8.1.3. A_1010-1 Procedure of Combined Operator's Activity (adaptive model)

Software provides the combination of biofeedback training and following the moving objects on screen with logical tasks solving. Parameters of activity model are adaptively changing according to the efficiency of procedure performing, which allows evaluating the functional capabilities of a test person.

Only for modifications 10 and 11. Additional to the "professional" library. Can be performed with a mouse. Joystick is recommended to be purchased.

### 8.1.3.1. A_5590 Joystick

It is used in biofeedback training procedure at the combined operator's activity.

### 8.1.4. A_6473 Stabiloanalyzer

for additional diagnostics and BFB procedures for stabilogram.

It is used in biofeedback training procedure at the combined operator's activity.
8.1.5. A_6354-1

Pad for tapping test and procedures of biofeedback training "Rhythmo-BFB" additionally to procedure library of "Professional" Suite

The set includes:

- pad for tapping test with a stylus;
- procedures of biofeedback training "Rhythmo-BFB".

Evaluation and training of the ability to perceive and reproduce sound patterns of varying complexity. Developing a sense of rhythm and time. Increasing the success of cognitive activity and rehabilitation of various brain dysfunctions.

For children: improvement of attention, motor control and coordination, speech development, improvement of auditory perception, reducing behavior problems (impulsivity, aggressiveness, hyperactivity, emotional contact difficulties).

For adults: cognitive and motor rehabilitation after traumatic brain injuries, stroke, Parkinson's disease, spinal cord injuries, etc.

Additional to procedure library of "Professional" Suite of "Rehacor" Software for Functional Biocontrol with Biofeedback Training
Additional software "Egoscop" for objective psychological analysis and testing; required equipment and accessories

9.1. Software Objective psychological analysis and testing "Egoscop" (patented in RF#2319444), "maximal" suite

1. The possibility of independent creation of scenarios for the psychological (tests, projective techniques), psycho-physiological and cognitive tests in different languages on the basis of tools (embedded software and scripts), allowing the use of text and graphics, audio and video files when creating scenarios;

2. Synchronous auto documentation of processes of psychological and psycho-physiological testing and parameters of motor activity of the subject on the touch-screen tablet, which uses electromagnetic resonance technology, and reflects psychomotor and physiological reactions during the test process;

3. The software builds additional profiles of psycho-emotional responses in relation to different semantic clusters of the performed scenario and evaluates individual emotional significance of various semantic categories;

4. The export of native physiological signals and calculated psychophysiological and psychomotor parameters into common formats (text format ASCII, Excel) for the possibility of their mathematical processing with external programs;

5. The library of English samples of scenarios consists of the following ones:
   - tests to evaluate sensorimotor responses - SVMR, CVMR);
   - tapping test to assess the strength and lability of nervous processes;
   - reaction to the moving object to estimate the balance of the nervous system by the degree of balance of excitation and inhibition (Time / Movement Anticipation - TMA);
   - assessment of the spatial co-ordination on the basis of tests of static and dynamic tremor;
   - assessment of static and dynamic physical endurance with carpal dynamometer (grip strength dynamometer test);
   - red and black tables to estimate the focus parameters (Red and black table by Shultz-Platonov);
   - critical flicker-fusion frequency test;
   - continuous test to evaluate the dynamic properties of attention (Continuous Performance Test);
   - Hospital scale of anxiety and depression.

Only for modifications 10 and 11.

Required:
- touch graphical input device – a tablet monitor Wacom CINTIQ 13HD, 13.3” or similar;
- sensors, electrodes and accessories set for objective psychological analysis and testing.

The list of tests is available on request, subjected to change as agreed with the customer.
9.2. A_2968 Sensors, electrodes and accessories set for objective psychological analysis and testing

The set includes:
- setting for registration of physiological signals;
- bipolar cable with cup adhesive electrodes (A_2373);
- snap connector wire (A_5167);
- wrist cuff (A_7513);
- brush for electrode cleaning (A_0343);
- disposable ECG electrodes (A_2714);
- conductive paste (A_2669).

For stress-testing in SW “Rehacor” and “Egoscop”

9.2.1. A_4074 Special touch screen monitor Wacom CINTIQ 13HD, 13,3”

A device for accurate touch graphical information input by the patient at the psycho-physiological testing.

Connected to PC.

Graphical input device ensures the input of information by a patient* during testing, as well as accurate registration of:
- pen moving (resolution – 0.005 mm or 5080 lines per inch);
- pressure on the pen (2048 levels of pen pressure sensitivity);
- pen report rate (133 points/sec).

* While distance between the pen and the screen is no more than 5 mm.

Graphical input device from the catalog of the company Wacom (www.wacom.ru) at customer's option.

If purchased individually, the device type must be agreed with the manufacturer of electroencephalographs – Medicom MTD Ltd.
<table>
<thead>
<tr>
<th>10.</th>
<th><strong>Electrodes, sensors, additional devices and accessories with “DIN (6-contact 270°)” connector for polygraphic channels of EEGA Amplifier Unit</strong></th>
</tr>
</thead>
</table>
| 10.1. | **A_1553**  
Respiratory Effort Sensor  
For evaluation of parameters of abdominal and thoracic respiration (breathing rate and amplitude, duration of in- and exhalation phases) and detection of breathing disorders basing on respiration belt stretching measurement. |
| 10.1.1. | **A_7350**  
Small additional belt for respiratory effort sensor  
For chest circumference of 40-80cm. |
| 10.2. | **A_1674**  
Photoplethysmogram (PPG) Sensor  
For evaluation of parameters of peripheral blood circulation which characterize pulse blood filling and tone of variable diameter vessels.  
Cable length – 1.2 m.  
**The set includes:**  
- finger cuff;  
- sensor fixer "ear clip". |
| 10.3. | **A_1709**  
ECG Cable  
for disposable snap electrodes  
Cable length – 1.5 m. |
| 10.4. | **A_4822**  
Disposable N-electrode cable  
Required for use in combination with:  
- bipolar cable for disposable electrodes;  
- bipolar cable with cup adhesive electrodes;  
- ECG Cable. |
| 11. | 11.1. A_1390-5 | **Repair set of electrodes and materials**  
for electrode systems with fixing caps  
**The set includes:**  
• 4 electrodes with conductors;  
• heat shrinkable tubes for connection insulation – 5 pcs.  
| 11.2. A_2669 | **Ten20 EEG Conductive Paste**  
For adhesive cup electrodes (114 g).  
| 11.3. A_6532 | **Electrode Cream EC-2 or similar**  
For adhesive cup electrodes (100 g).  
| 11.4. | **Electrode gel**  
• for cup EEG electrodes for contact electrode gel;  
• for EEG electrodes from electrode systems with fixing EEG electrodes in eyelets.  
| 11.4.1. A_1854 | **Electrode gel**  
250 ml bottle  
| 11.4.2. A_1854-1 | **Electrode gel**  
1 L bottle |
| 11.5. | A_1302 | **Adhesive plaster** (Omnifix elastic or similar)  
To fix electrodes and sensors. | Recommended for adhesive EEG electrodes (with EC2, TEN-20 or similar paste) in order to preliminary fix the electrodes before collodion gluing |
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<tbody>
<tr>
<td>11.6.</td>
<td>A_6901</td>
<td><strong>Fixing bondage elastic Peha-haft, self-fixing</strong></td>
<td>It is recommended to fix the wires and sensors on the legs and arms at continuous studies, as well as to fix the adhesive electrodes</td>
</tr>
</tbody>
</table>
| 11.7. | A_2714 | **Disposable snap ECG Electrode (for EOG, EMG)**  
50 pcs. in 1 pack |  |
## 12. Required computing hardware and office equipment

### 12.1. Personal computer – Real Time Work Station

Software of electroencephalograph-analyzer is installed on the computer in accordance with selected sales package.

#### 12.1.1. A_2380

**Personal computer** – Real Time Work Station (portable).

*One* additional monitor is connected.

#### 12.1.2. A_2380-1

**Personal computer** – Real Time Work Station (portable).

*Two* additional monitors are connected.

#### 12.1.3. A_4305

**Personal computer** – Real Time Work Station (stationary).

*One or two* additional monitors are connected.

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**Configuration and characteristics are approximate and should be specified when order.**

**Minimal requirements:**
- Intel Core i5;
- RAM 4GB;
- HDD 500GB;
- LCD monitor 15";
- OS Windows 10.

If the customer requires and is able to purchase the improved characteristics, inform the manufacturer about it: advanced characteristics should be approved by the manufacturer.
12.2. **Personal computer** – Data Analysis and Storage Station
Software of electroencephalograph-analyzer is installed on the computer in accordance with selected sales package.

| 12.2.1. | A_4309 | **Personal computer** – Data Analysis and Storage Station (portable).
One additional monitor is connected. |
| 12.2.2. | A_4309-1 | **Personal computer** – Data Analysis and Storage Station (portable).
Two additional monitors are connected. |
| 12.2.3. | A_4308 | **Personal computer** – Data Analysis and Storage Station (stationary).
One or two additional monitors are connected. |

**Configuration and characteristics are approximate and should be specified when order.**

**SW-key (USB) is required.**

**Minimal requirements:**
- Intel Core i5;
- RAM 4GB;
- HDD 500GB;
- LCD monitor 15”;
- OS Windows 10.

If the customer requires and is able to purchase the improved characteristics, inform the manufacturer about it: advanced characteristics should be approved by the manufacturer.

12.3. **Additional accessories and software for the personal computer**

| 12.3.1. | A_6843 | Mobile HDD 1000 GB |
| 12.3.2. | A_4300 | **Computer Acoustic System** (2.1, 3.1 or quality closed type headphones – at customer’s option)
Required if FBC with biofeedback "Rehacor" software is present in sales package |
| 12.3.3. | A_5109 | Antivirus application "Kaspersky Internet Security". Recommended to protect PC from viruses |
| 12.3.4. | A_4319 | **MS Office ENG.** Recommended to be installed at PC. Required package contains Word and Excel |
| 12.3.5. | A_2604 | Bag for laptop transportation |
| 12.3.6. | A_4299 | **Uninterruptible power supply** |
| 12.4. | A_0687 | **Additional LCD monitor** (minimal diagonal 23")
resolution 1920x1080,
aspect ratio 16x9. |
| 12.5. | A_5565 | **TV-set for chess pattern stimulation** |
| 12.6. | A_4087 | **Printer**
Laser Black-And-White A4 format |
<table>
<thead>
<tr>
<th></th>
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<th><strong>Equipment Trolley</strong></th>
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<tbody>
<tr>
<td>12.7.</td>
<td>A_4088</td>
<td>Equipment Trolley adapted according to the computer and office equipment from the sales package.</td>
</tr>
<tr>
<td>12.8.</td>
<td>A_4088-4</td>
<td>Equipment Trolley with a drawer</td>
</tr>
</tbody>
</table>