

# Neuro-MEP-Micro

2-Channel Portable EMG and NCS System with a Built-in Miniature Dedicated Keyboard



- EMG according to international standards
- Instant analysis of high-quality responses
- Over 50 EMG and EP techniques supported
- All-in-one compact and lightweight system
- Integrated stimulators, acquisition channels, sharp display and dedicated controls



EMG  
EP

 Neurosoft



25 Neurosoft Company has been designing and developing the neurophysiological equipment for more than 25 years.

Our innovative approach and substantial expertise in neurophysiology allowed us to provide you with the high-quality EMG and EP machines.

Our devices are designed to fit seamlessly into your day-to-day workflow and to ensure confident results and complete reliability.





# NEURO-MEP-MICRO PORTABLE EXCELLENCE

Neuro-MEP-Micro allows performing almost all EMG, NCS and EP tests on one dedicated platform. It combines the exceptional sophistication and simplicity due to advanced features developed in sync with your changing needs. The intuitive interface allows you to focus on the job and diagnose your patients more accurately.

- NCS  
Motor and sensory conduction velocity, F-wave, H-reflex, motor and sensory inching, motor and sensory conduction collision
- EMG  
Spontaneous activity, interference curve, motor unit potentials (MUP), macro EMG
- NEUROMUSCULAR JUNCTION TESTING  
Repetitive stimulation, jitter
- MOTOR UNIT NUMBER ESTIMATION (MUNE)
- ADDITIONAL EMG TESTS  
Blink reflex, sacral reflex, bulbocavernosus reflex, T-reflex\*, galvanic skin response
- SOMATOSENSORY EVOKED POTENTIALS (SEP)
- VISUAL EVOKED POTENTIALS (VEP)\*\*\*
- AUDITORY EVOKED POTENTIALS (AEP)\*\*\*
- VESTIBULAR EVOKED MYOGENIC POTENTIALS (VEMP)\*\*\*
- COGNITIVE EVOKED POTENTIALS (P300, MMN, CNV, MRCP, P50)\*\*\*
- TRANSCRANIAL MAGNETIC STIMULATION (TMS)\*\*



**1 Two channels** are optimized to record motor and sensory nerve conduction velocity (CV) and needle EMG tests simultaneously. By default the first channel is intended to plug in the electrodes for M-wave testing, while the second one is meant for electrodes used for sensory nerve conduction velocity during NCS. The mentioned channel configuration allows considerably saving the examination time. Upon motor CV test completion run sensory CV test and the software will run automatically the second test using the second channel.

**2 Two software switchable outputs to plug in the electrical stimulator** allow a specialist to place two pairs of stimulating electrodes on a patient if it is necessary and connect them to the device. Thus, there is no need to switch the electrodes as the stimulating electrode is software-defined.

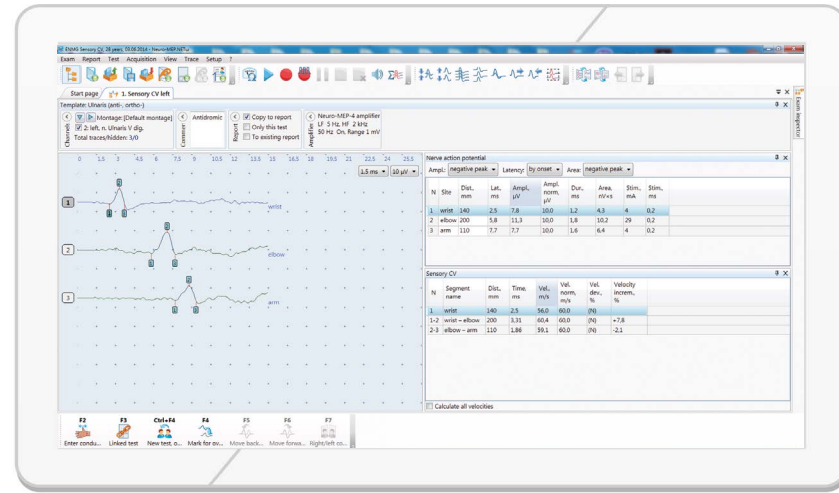
**3 The dedicated keyboard** is designed to give an easy access to all main actions (to adjust stimulus, start stimulation, add data to analysis, etc.) without changing hand position. All required controls are always at your fingertips.

**4 Multi-colour graphic screen** allows a specialist to control stimulation parameters during the test and also to check electrode placement quality.

\* if tendon hammer is available  
\*\* if magnetic stimulator is available  
\*\*\* if corresponding equipment is available

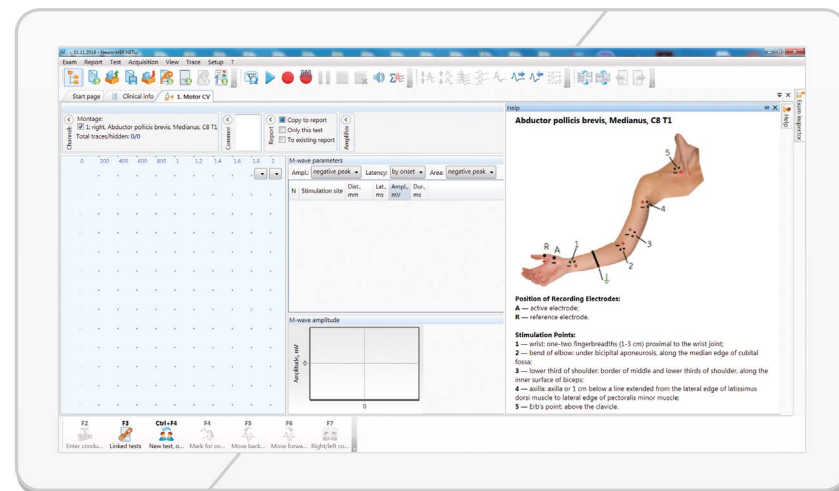
# NEURO-MEP.NET FEATURES

All EMG and EP systems manufactured by Neurosoft are supplied with the state-of-art Neuro-MEP.NET software for NCS, EMG and EP studies.



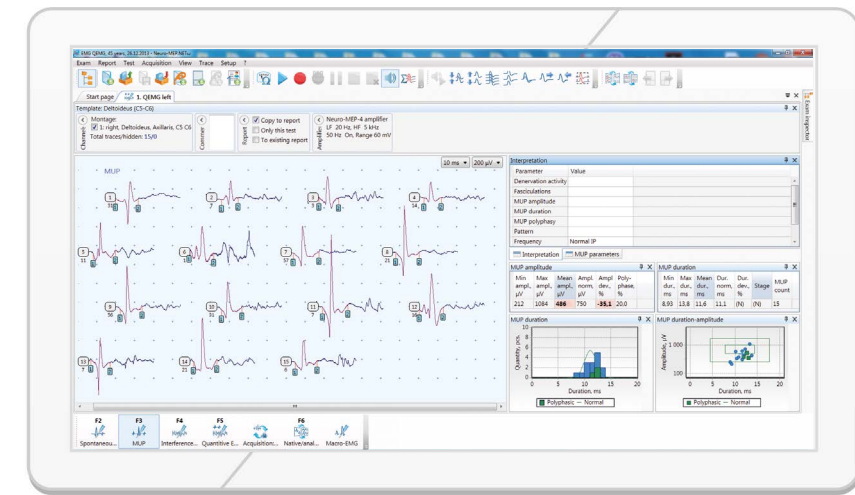
## Motor and sensory conduction study

The software provides dozens of default templates to study motor and sensory conduction in most nerves accessible for stimulation. The simultaneous acquisition of motor and sensory responses is possible. Using hot key you can toggle quickly between motor response acquisition and F-wave recording mode.



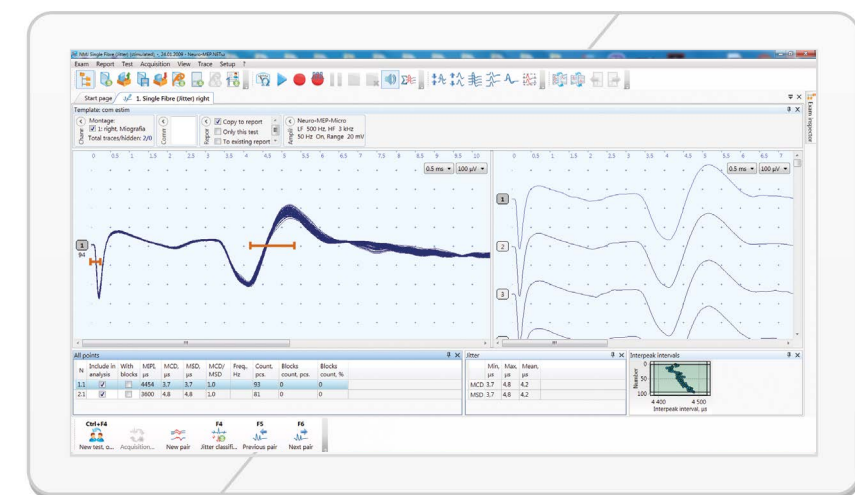
## Help window

The "Help" function is very useful for EMG beginners. During most of the tests, for example, when radial nerve conduction velocity is studied, you can press F1 key and the program will display a window with an upper limb image showing the correct placement of recording, ground and stimulating electrodes.



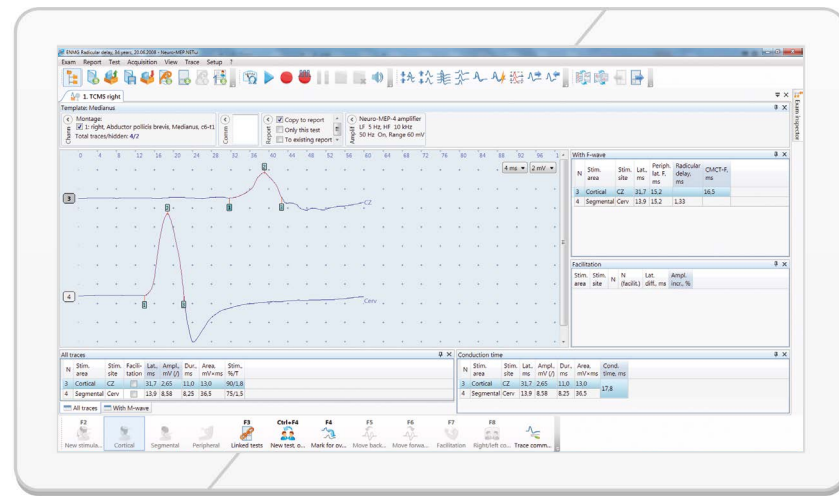
## Quantitative EMG (QEMG)

It includes the acquisition and analysis of spontaneous EMG activity, interference pattern and MUP in one test. During spontaneous activity analysis you can apply algorithms of automatic classification of spontaneous activity phenomena such as fibrillations, fasciculations and positive sharp waves. When MUP is recorded, the software automatically detects MUPs and selects the ones that may be related to one and the same motor unit. If interference pattern is studied, the software creates the turn-amplitude cloud in real-time mode. It allows to adjust the required muscle contraction and perform this test correctly. On EMG study completion all main analysis results are displayed in one window.



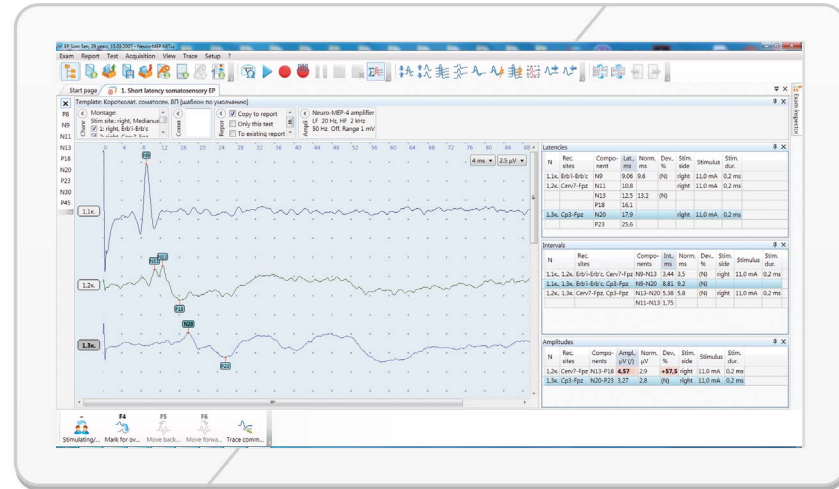
## Jitter

The classic procedure of jitter acquisition is quite complex. It implies the simultaneous use of needle electrode, high interaction with a patient to achieve the required muscle contraction and active actions with software interface to set and move the trigger. Neuro-MEP.NET provides the breakthrough algorithm of automatic jitter detection. Now there is no need to think about a trigger. The program just detects the potentials itself and shows them on the screen. The same algorithm is applied to study macro EMG.



### Magnetic stimulation\*

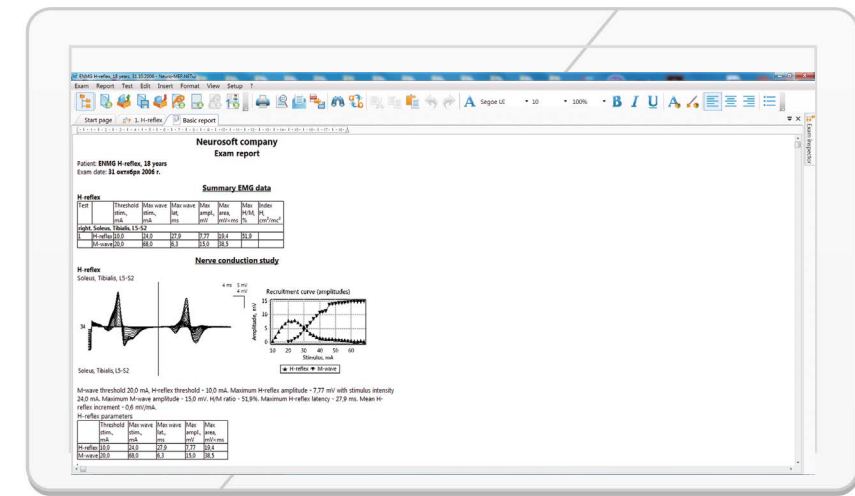
Magnetic stimulation takes the special place in nerve conduction studies. In terms of diagnostic application, TMS provides useful information on the state of efferent pathways being a stimulation technique. This technique allows estimating cortical motor neuron excitability, pyramidal tract conduction, motor pathway conduction and motor root conduction. Maximum flexibility in trace acquisition and automatic calculation with F-wave parameters ensure quick and high-quality results.



### EP\*\*

Acquisition of evoked potentials requires the use of very sensitive and high noise immunity amplifiers with a wide bandwidth as the most important diagnostic EPs are waves of a very low amplitude and high frequency. Special averaging algorithms allow obtaining high quality traces with small amount of averagings. During acquisition of EPs from different sites the program detects automatically the main components of evoked potentials.

- \* if Neuro-MS/D or Neuro-MS magnetic stimulator is available
- \*\* if Neuro-EP equipment is available



### Report generation

On study completion the program generates the report. It includes patient's data, tables, graphs and native traces obtained during the tests. The report can be edited easily and customized according to individual demands.



Patient: \*\*\* B.A., 51 years  
Exam date: 31 July 2014 r.  
Diagnosis: Carpal tunnel  
Doctor: Nikolaev S. G.

**Conclusion:**

Evident focal demyelinating neuropathy of the middle of the tunnel, conduction block  
Moderate focal demyelinating motor neuropathy

This conclusion is not a diagnosis and requires interpretation  
31.07.2014, 31

Doctr

**Su**

Motor CV  
Test | Stimulation site | Lat. | Ampl. | Dur. | Area | Stor  
| ms | mV | ms | mV.ms | mV.ms |

right, Abductor pollicis brevis, Medianus, C8 T1  
wrist | 6,05 | 9,0 | 5,8 | +56,5 | 25,26 | 1  
| bend of elbow | 19,85 | 9,23 | 5,8 | +60,6 | 5,35 | 27,3

left, Abductor pollicis brevis, Medianus, C8 T1  
wrist | 4,3 | 11,1 | 4,95 | 30,8  
| bend of elbow | 7,75 | 10,8 | 5,0 | 30,8

Sensory CV  
Test | Site | Lat. | Ampl. | Dur. | Area | Stor  
| ms | μV | ms | mV.ms | mV.ms |

right, Medianus-Ulnaris  
ulnaris 8 cm | 1,95 | 12,6 | 0,9 | 6,1 | 22  
| ulnaris 8 cm | 1,95 | 12,6 | 0,9 | 6,1 | 22

left, Medianus-Ulnaris  
ulnaris 8 cm | 2,15 | 9,3 | 1,3 | 6,7 | 16  
| ulnaris 8 cm | 2,15 | 9,3 | 1,3 | 6,7 | 16

right, n. Medianus  
wrist | 6,05 | 2,7 | 2,55 | 2,7 | 17  
wrist | 3,5 | 20,2 | 3,15 | 14,7 | 12

Motor CV  
right, Abductor pollicis brevis, Medianus, C8 T1

**Neu**

M-wave parameters (amplitude: baseline-to-peak)  
N | Stimulation site | Dist. | Lat. | Ampl. | Ampl. | Ampl. | Dur. | Area |  
| mm | ms | mV | norm. | dev. | ms | mV.ms |

right, Abductor pollicis brevis, Medianus, C8 T1  
1 wrist | 60 | 6,05 | 9,0 | 5,8 | +56,5 | 25,26 | 1  
2 bend of elbow | 195 | 9,85 | 9,23 | 5,8 | +60,6 | 5,35 | 27,3

Motor CV  
left, Abductor pollicis brevis, Medianus, C8 T1

M-wave parameters (amplitude: baseline-to-peak)  
N | Stimulation site | Dist. | Lat. | Ampl. | Ampl. | Ampl. | Dur. | Area |  
| mm | ms | mV | norm. | dev. | ms | mV.ms |

left, Abductor pollicis brevis, Medianus, C8 T1  
1 wrist | 60 | 4,3 | 11,1 | 5,8 | +92,7 | 4,95 | 30,8  
2 bend of elbow | 190 | 7,75 | 10,8 | 5,8 | +88,6 | 5,0 | 30,8

Sensory CV  
right, Medianus-Ulnaris

M-wave parameters (amplitude: baseline-to-peak)  
N | Site | Dist. | Lat. | Ampl. | Ampl. | Ampl. | Dur. | Area |  
| mm | ms | μV | norm. | dev. | ms | μV.ms |

right, Medianus-Ulnaris  
1 medianus 8 cm | 0 | 2,9 | 22,7  
2 ulnaris 8 cm | 0 | 2,15 | 9,3  
1-2 medianus 8 cm - ulnaris 8 cm | 0 | 0,75

Sensory CV  
Antidromic  
right, n. Medianus

Nerve action potential (amplitude: baseline-to-peak)  
N | Site | Dist. | Lat. | Ampl. | Ampl. | Ampl. |  
| mm | ms | μV | norm. | dev. | μV | % |

right, n. Medianus  
1 wrist | 140 | 6,05 | 2,7 | 15,0 | -82,3

Sensory CV  
left, n. Medianus

Nerve action potential (amplitude: baseline-to-peak)  
N | Site | Dist. | Lat. | Ampl. | Ampl. | Ampl. |  
| mm | ms | μV | norm. | dev. | μV | % |

left, n. Medianus  
1 wrist | 140 | 3,5 | 40,0 | 60,0 | -33,3

Sensory CV  
left, n. Medianus

Nerve action potential (amplitude: baseline-to-peak)  
N | Site | Dist. | Lat. | Ampl. | Ampl. | Ampl. |  
| mm | ms | μV | norm. | dev. | μV | % |

left, n. Medianus  
1 wrist | 140 | 3,5 | 40,0 | 60,0 | -33,3

Sensory CV  
right, Medianus-Ulnaris

M-wave parameters (amplitude: baseline-to-peak)  
N | Site | Dist. | Lat. | Ampl. | Ampl. | Ampl. | Dur. | Area |  
| mm | ms | μV | norm. | dev. | ms | μV.ms |

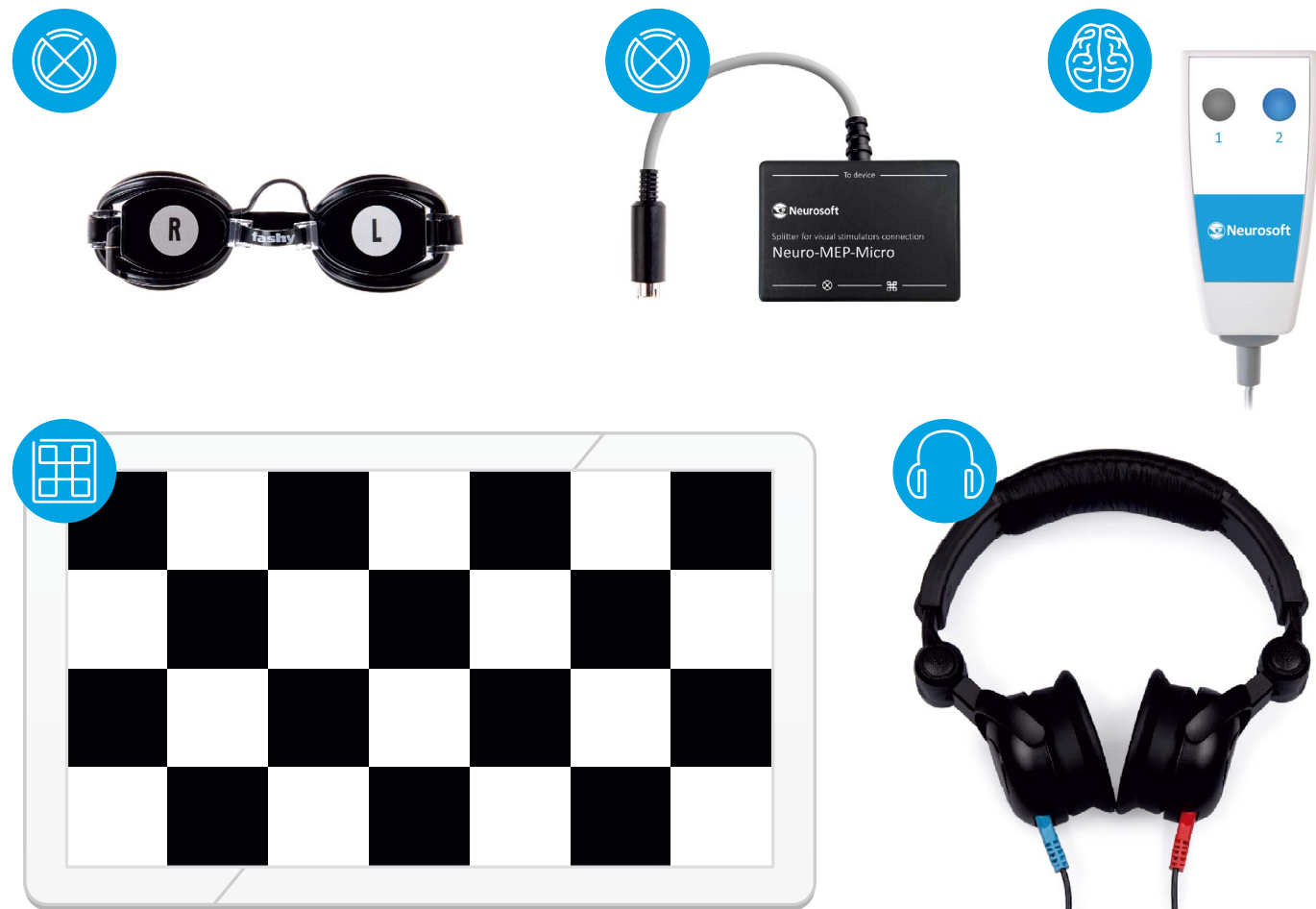
right, Medianus-Ulnaris  
1 medianus 8 cm | 0 | 2,9 | 22,7  
2 ulnaris 8 cm | 0 | 2,15 | 9,3  
1-2 medianus 8 cm - ulnaris 8 cm | 0 | 0,75

Sensory CV  
Inching  
Orthodromic inching  
right, n. Medianus



# EVOKED POTENTIAL ACQUISITION

The acquisition of short-, middle- and long-latency evoked potentials can be easily managed with Neuro-EP software and equipment supplied optionally.



## Application:

- short-, middle- and long-latency somatosensory evoked potentials;
- short-, middle- and long-latency auditory evoked potentials;
- flash visual evoked potentials;
- reversal pattern visual evoked potentials;
- cognitive evoked potentials;
- vestibular evoked myogenic potentials.

## Delivery Set:

- Neuro-MEP.NET software with Neuro-MEP.NET/EP additional module;
- patient button (2.5 mm stereo plug);
- LED goggles;
- auditory stimulator (headphones) TDH-39;
- pattern-stimulator (18.5" monitor);
- adapter for pattern-stimulator connection;
- splitter for visual stimulator.

# EXTRA DELIVERY SET



## Adjustable Electro Stimulating Probe

Single pulse or repetitive stimulation is run using buttons located on the front panel. Pulse amplitude is adjusted using the wheel located under these buttons. Polarity can be switched using toggles on the side panel, and indicators on the front panel show the active electrode.



## Footswitch Unit

To free your hands and pay more attention to your patient, the device is supplied with the footswitch. Using footswitch buttons you can start stimulation, stop stimulation with response saving or cancel it without saving the response.



## Tendon Hammer

Electronic tendon hammer for T-reflex study is used to:

- assess the tendon reflex;
- study the masseteric reflex;
- analyze the reciprocal interrelations on intersegmental level;
- study the root conduction.

# COMPREHENSIVE ASSISTANCE AND TECHNICAL SUPPORT



Our customers can always count on Neurosoft team for extensive support.







Together with digital system you get the detailed technical and user manuals.



We guarantee 24-month warranty for electronic units and lifetime software update.

# EMG PRODUCT LINE

	Number of EMG/EP channels	Number of electrical stimulation channels	Included techniques	Configuration
Neuro-MEP- -Micro  	2	1	EMG	All-in-one: connection to PC and power supply via USB cable
Skybox  	5	2	EMG, EP	
Neuro-MEP-4  	4	1/2	EMG, EP	Modular architecture: all units conveniently arranged at workplace are connected via USB and make optimal configuration of your own
Neuro-MEP-8  	8	1/2	EMG, EP	



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