

# Poly-Spectrum-12/E

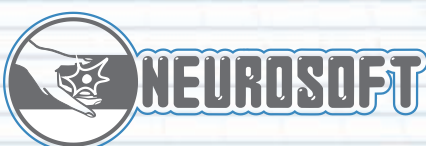
Portable 15-channel Digital ECG System with Possibility of Transesophageal ECG Leads Recording and Pacemaker Pulses Detection



- 12 high-quality standard ECG leads
- 2 additional ECG channels compatible with transesophageal ECG leads
- 1 breath channel
- sampling rate — 10000 Hz, A/D converter — 24 bits
- pacemaker detection
- **Poly-Spectrum-Analysis** ECG measurement and interpretation software
- **Poly-Spectrum-Express** software

## **Optional Software Modules:**

- **Poly-Spectrum-Rhythm** software and equipment for heart rate variability analysis
- **Poly-Spectrum-Ergo** exercise testing software for cycle ergometer or treadmill
- **Poly-Spectrum-VLP** software for ventricular late potentials registration and analysis
- **Poly-Spectrum-QT** software for Q-T interval dispersion analysis



# Device Features

## Additional Channels for Transesophageal ECG Leads Registration

If you use **Poly-Spectrum-12/E**, the transesophageal ECG leads recording is performed parallel to the recording of all 12 leads of surface ECG. The additional channels are developed so that transesophageal electrodes polarization in the process of stimulation does not cause ECG recording blockage.

The additional channels can also be used for surface chest leads (V7 and V8) recording.



## Computer Connection via High-speed USB

The connection via high-speed USB port provides the quick data transfer, the facility of the initial equipment setup, the compatibility with the wide range of the personal computers, the lack of the necessity in separate power supply unit, which guarantee the operation stability.



## Sampling Rate is 10000 Hz

The sampling rate which is increased up to 10000 Hz allows to receive the incredibly clear and detailed ECG signals.

## High-quality Accessories

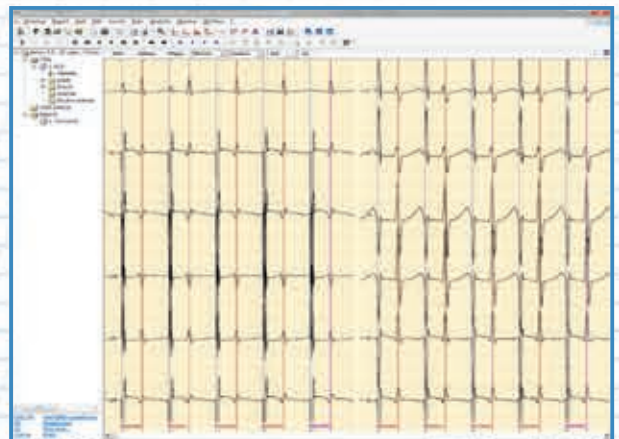
**Poly-Spectrum-12/E** is supplied with the cables and the electrodes manufactured by the leading world-wide manufacturers.



## Built-in Pacemaker Pulses Detector

**Poly-Spectrum-12/E** detects and marks pacemaker pulses automatically by flashing indicator in the upper-right corner of the screen during ECG recording and by blue dashed line on recorded ECG (see the picture to the right).

High-power hardware and software filters reject the isoline displacement of ECG leads both during the stimulation and at the moment of its termination.



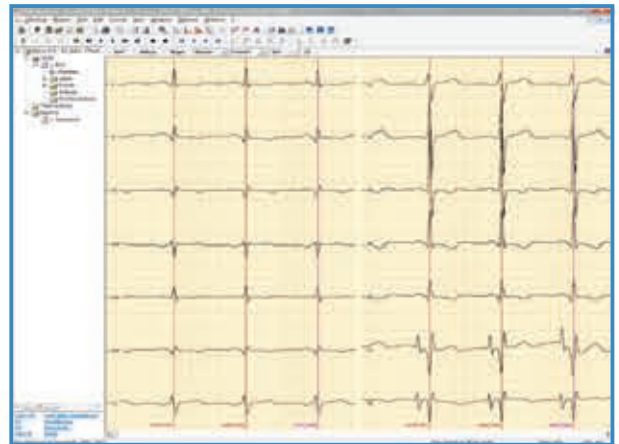


## 14-channel ECG Record Displaying on the Computer Screen

In the process of ECG recording and review a user can see fourteen ECG leads and one breath channel on the computer screen. The user can also change the lead system (Frank, Nehb), the number of the displayed leads, the paper speed, the sensitivity and the set of filters.

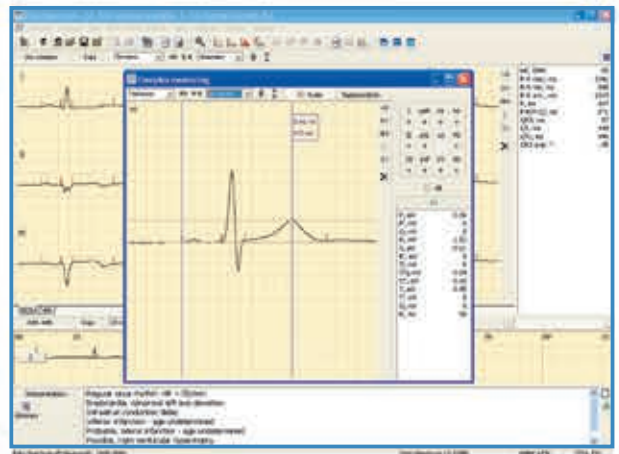
## Pacemaker Pulses Detection

The software detects pacemaker (implanted or transesophageal) pulses automatically. It allows to specify the cardiocomplexes precisely by excluding the pacemaker pulses from the analysis. During the recording review the pacemaker pulses are represented by the special markers.



## ECG Measurement and Interpretation

In ECG measurement and interpretation mode a doctor can see the selected cardiocomplex or the one averaged by all the entire record. In the reference points of cardiocomplex the program sets the markers automatically. If the doctor clicks the cardiocomplex in any lead with the mouse, it can be zoomed in, measured with the software ruler, and positions of markers can be corrected manually, if it is necessary.



## Automatic Report Generation

The result of ECG measurement and interpretation performing is the report. It includes the cardiocomplex image in all leads, tables of measurements and automatic interpretation. A doctor can make any changes in the report. The automatic report generation and its printing are also possible.



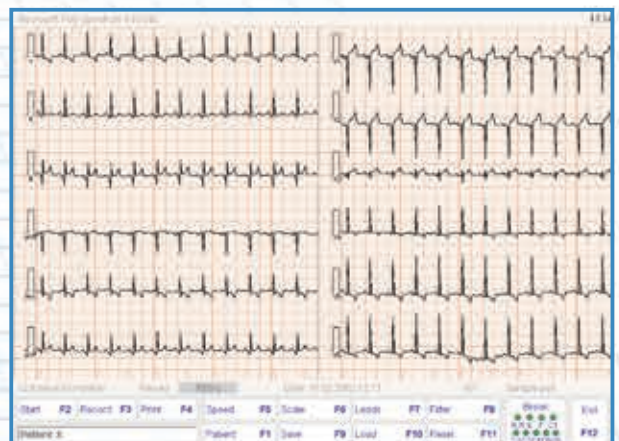
Lead	Amplitude (mV)	Duration (ms)	Area (mV*ms)	Other parameters
I	0.8	120	96	...
II	0.7	110	77	...
III	0.6	100	60	...
aVR	0.2	100	20	...
aVL	0.5	110	55	...
aVF	0.9	120	108	...
V1	0.4	100	40	...
V2	0.3	90	27	...
V3	0.5	110	55	...
V4	0.6	120	72	...
V5	0.8	130	104	...
V6	0.9	140	126	...

## Table of Cardiocomplex Amplitude-Time Parameters

Besides the results of the main measurements used for the routine ECG interpretation, the program generates the detailed table of amplitude-time parameters of the analyzed cardiocomplex.

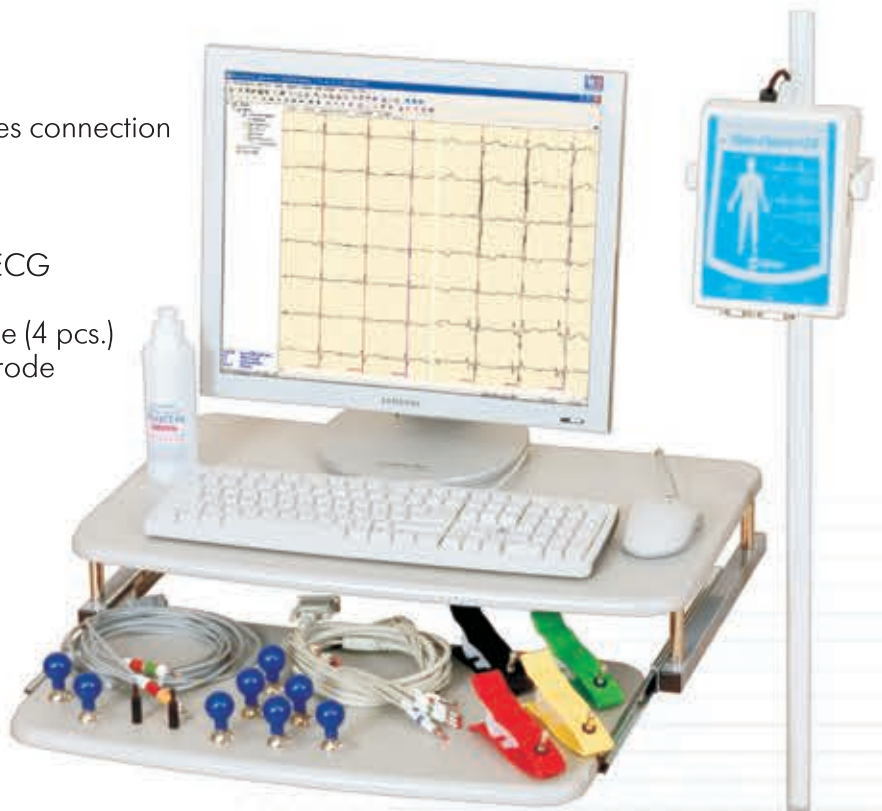
## Poly-Spectrum-Express Software

**Poly-Spectrum-Express** is a simple and convenient program for ECG recording which provides high carrying capacity of digital ECG system and allows to use it for mass ECG checkups.



# Base Delivery Set

- Electronic unit
- Stand
- Patient cable for reusable electrodes connection for **Poly-Spectrum-12/E**
- Additional ECG leads cable for **Poly-Spectrum-12/E**
- Reusable precordial suction chest ECG electrode (8 pcs.)
- Reusable limb clamp ECG electrode (4 pcs.)
- Adapter for transesophageal electrode (BANANA jack — 2 mm jack)
- Electrode gel (bottle 250 g)
- Software
- Technical manual
- User manual
- Registration certificate
- Transportation bag



## Specifications

### ECG Channels

Number of ECG channels	14
Voltage range	0.03 - 15 mV
Bandpass	0.05 - 2000 Hz
Heart rate measurement range	30 ÷ 240 1/min
Noise level	not more than 10 µV
Pacemaker detector	yes
Control of electrodes setting quality by electrode impedance measurement	yes
Control of electrodes break in the process of ECG registration	yes
Defibrillation protection	yes
Common-mode rejection ratio	not less than 100 dB
Input impedance	not less than 40 MΩ

### Breath Channel

Number of channels	1
Bandpass (at -3 dB level)	0.06 ÷ 7.5 Hz

### General Parameters of Electronic Unit

A/D converter	24
ECG sampling rate	10000 Hz
Interface	USB 2.0, high speed
Electronic unit dimensions	150x200x60 mm
Electronic unit weight	not more than 800 g
Safety	BF type

### Supply Voltage

Electronic unit	5 V DC
Desktop PC-based system	220/230 V AC (50 Hz)
Notebook PC-based system	220/230 V AC (50 Hz)/ int. battery



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