

Task V. Monitoring 2

Required knowledge: The impact of acoustic factors; Audiometry; Blood pressure measuring; Elektric properties of tissues.

1. Audiometry

Main task:

Determination of the zero isophone for air conduction of sound.

Do not start measuring alone, your teacher will show you right manipulation with audiometer!

Needs for measurement:

Audiometer AD226, headphones.

Task 1

Basic audiometric examination the audiobility threshold using the pure tones of different frequencies by ascending method.

Procedure:

First of all test the audiometer. Measuring start on frequency 1000Hz. Tone with intensity 30dB approximately for 1s send into the right ear. This intensity is usually sufficient for response from „the tested subject“, if not increase intensity for 10dB. When you get response, than you can start with real ascending methods of measuring the audiobility threshold.

- 1) Set the lowest intensity of the tone (-10dB). Send the tone approximately for 1s into the right ear, wait for response from the tested subject, if you have no response (subject did not hear the tone) increase intensity for 5dB till to response. Write down the intensity.
- 2) Decrease intensity for 10dB and test again, increase intensity till to response. The same procedure repeat twice, all three values of intensity for this frequency write down to table. Lowest intensity use for creation of the plot dependence of threshold intensity on frequency.
- 3) Repeat this procedure (points 1 and 2) for all frequencies enabled of audiometer.
- 4) By the same way test the left ear.
- 5) Create the table of measurements and plot into a graph the dependence of threshold intensity on frequency – Zero isophones – for right and left ear together.

2. Ergometer

Main task:

Examining of physical condition of your body, influence of strain for blood pressure.

Needs for measurement:

Ergometer, digital tonometer

Procedure:

- 1) Measure your blood pressure by digital tonometer (procedure same as in Task IV). Write down the heart rate.
- 2) Set the convenient size of seat on ergometer.
First of all press same key for activation of the display. Wait while a selftest running and than press same key. At the left side up on display you can see frequency of the pedal rotation, lower is the average velocity (km) and down number of done kilometers. Strain in Watts (increasing by the „+“ button) you can see in the middle of the upper side of display. Bellow you can see the time. At the left up corner is given out energy (kJ) and bellow is the heart rate.
- 4) Put the heart rate meter to the ear. Set the ergometer to the primary strain 25W and start to cycle. Frequency of the pedal rotation could be about 70/min. After 2min. increase strain to 50W, after next 2min. to 75W, again after 2min. to 100W and again after 2min. to 125 W. Total time of cycling – 10 minutes.
- 5) When you finish cycling immediately press Recovery button and stay on ergometer. Automatically started measuring strained heart rate during 1 min. Heart rate you can see on display. In the middle of display is countdown of the time. If it finished write down conditional rating from the upper left side.
- 6) After measuring strained heart rate immediately measure the blood pressure.
- 7) Discuss differences between blood pressure before and after test, and your own physical condition.

3. Measuring skin resistance

Main task:

Measuring skin resistance.

Needs for measurement:

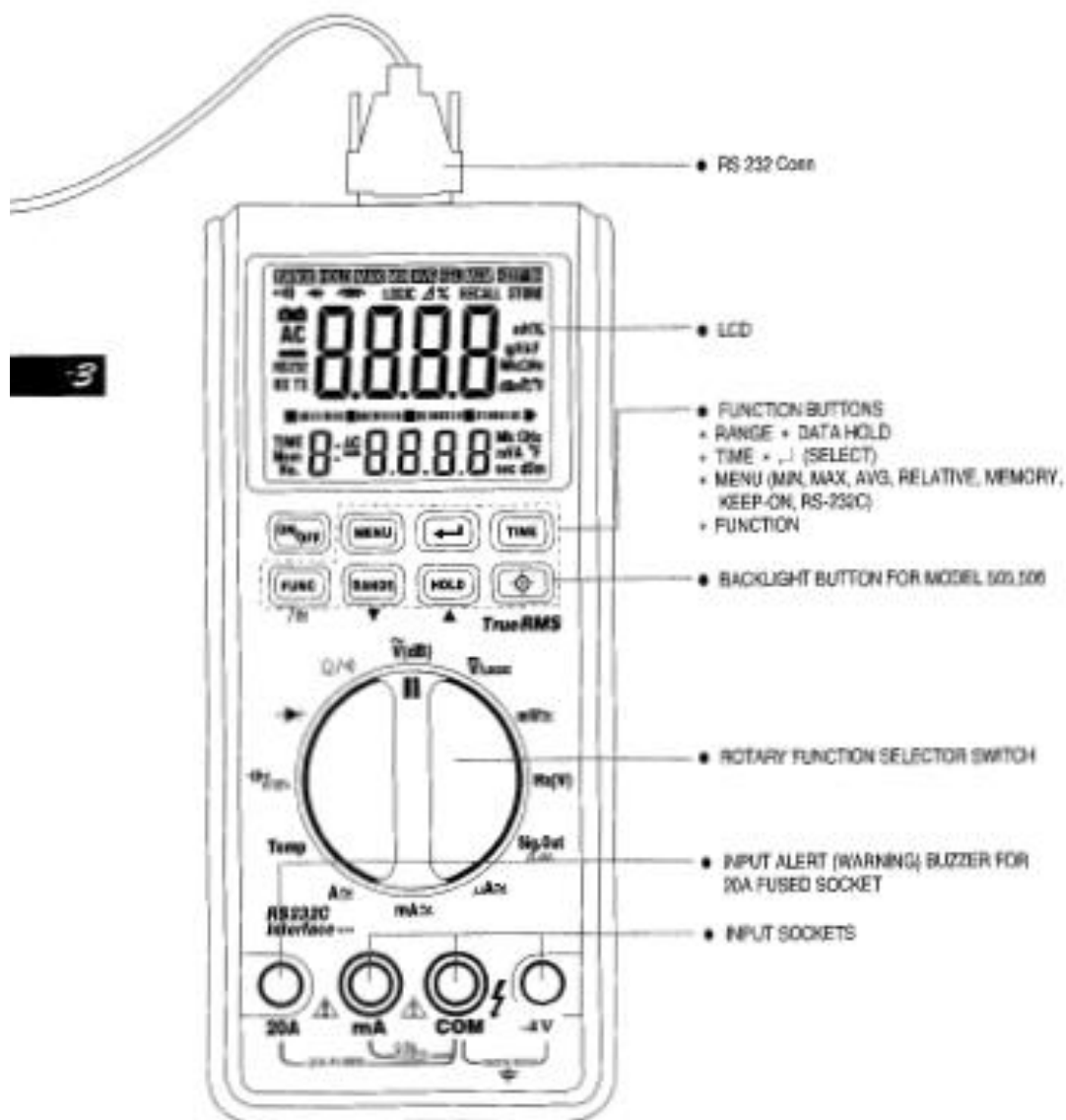
Multimeter HC506, skin electrodes, rubber bands, junction cables, cellulose wadding, ether, saline, contact gel for ECG (ECG gel).

Procedure:

- 1) By means of rubber bands attach to the lower arm of the subject two electrodes and connect them with the multimeter by means junction cables.
- 2) The rotary switch set for measuring of resistance to position of symbol Ω . Read the value of the resistance.
- 3) Remove the electrodes and wipe the epidermis with ether. On applying the electrodes to the same positron measure resistance R_2 .
- 4) Apply saline between the epidermis and the electrodes and measure resistance R_3 .
- 5) Apply ECG gel between the epidermis and the electrodes and measure resistance R_4 .
- 6) Do the table of measured resistances and explain the differences.

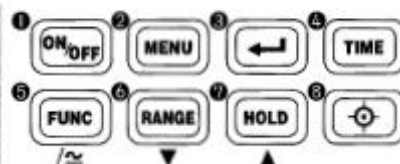
FUNCTIONAL DESCRIPTION

1 PANEL CONFIGURATION



5 Button key operation

Button key
configuration





M U N I



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