

### Physiopac Digital Polygraph-Physiograph

For Teaching Experimental Physiology, Pharmacology, Engineering & Research



### Features

- ❖ Features
- ❖ RR analysis
- ❖ Merging of Waves
- ❖ Integration of Waves
- ❖ Four channel Lie-Detector
- ❖ Patient Database information
- ❖ Real Time data storage & review facilities
- ❖ Experiments on Animal & Human Subjects
- ❖ Time & Voltage Marking on individual channel

For Teaching Experimental Physiology & Pharmacology on Human & Animals

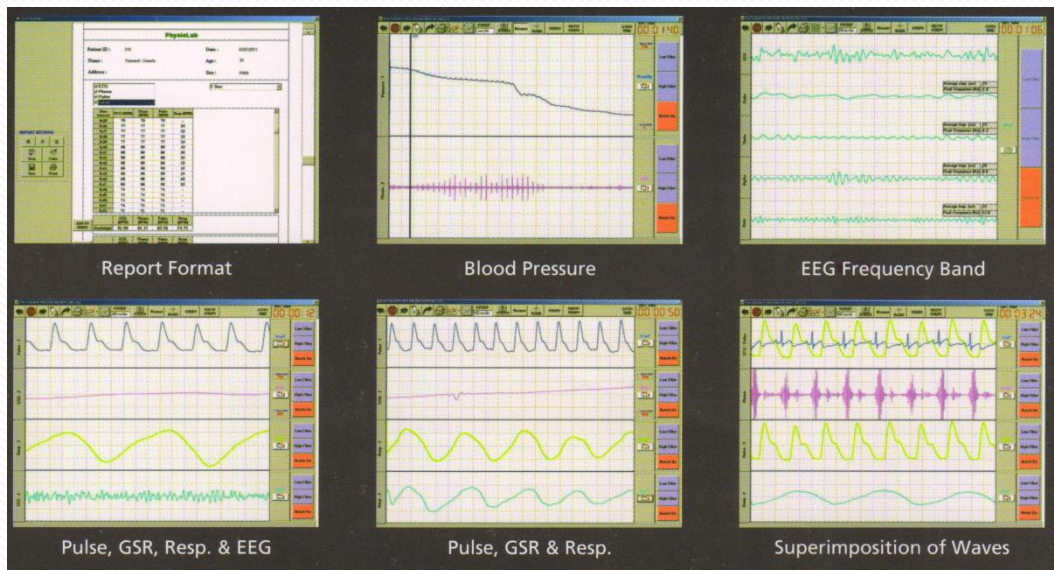
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### Physiopac Digital Polygraph-Physiograph

#### Experiments

1. Volumetric Changes
2. Invasive & Non Invasive BP
3. Isometric Force
4. Isotonic Fine Movement
5. ECG, EEG, EMG, ENG, GSR etc
6. Phono Cardiogram
7. Respiration and Temperature
8. Plethysmograph ( Pulse, Heart rate etc)



#### Lessions

**Electroencephalogram (EEG) :** Record and View EEG from any location. See how EEG signal changes in Relaxation, Attention and use filters to examine frequency band ( Alpha, Beta, Delta & Theta)

**Muscle contraction (EMG):** Record and View EMG signal with surface electrodes from different location. See raw and integrated real time EMG data. Simultaneously compare the EMG signal from one muscle group to another. Study isometric and isotonic muscle loading tasks.

**Electrocardiogram (ECG):** Record and View ECG leads, I, II, III, aVR, aVL, aVF & Chest. Study Einthoven Law. Perform measurements of P,Q,R,S and T waves. Measure amplitude and timings of waves and calculate BPM. Study realtime ECG and BPM.

**ENG:** Record and view vertical and horizontal eye movement. Perform Saccade and Gaze Test. See graph for vertical motions and for horizontal motions. A complete X/Y tracings of where subject looked during test period is recorded.

**Pulse & Plethysmography:** Pulse is measured at the fingertip non-invasively sensing variations in blood density. Examine the relationship between ECG and PULSE. Study mechanical action of the heart

#### Recording Movement of Isolated Intestine

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**Respiration:** Record and review Respiratory efforts and relative air flow. Respiration is measured by recording chest expansion and contraction. Air flow is indirectly recorded by using a thermister placed next to the nose. Examine the time relationship between chest motion and air flow

**Polygraph:** Record and review the standard Polygraph measurements e.g. Respiration, Galvic Skin Response and pulse rate. The timing of each question is recorded by a marker on the graph. Study Physiological Changes on telling ( or not telling ) the truth. Any four parameters stimulations can be recorded simultaneously.

**Reaction time:** Auditory " Click" stimulation is given to subject and the subject response by pressing a pushbutton. Auditory stimulations are given in two modes random and non random fashion.

**Biofeedback:** Record and view Heart Rate (BPM) and GSR. Control the X/Y position of a dot, by influencing subjects BPM or GSR. If the heart rate beats faster, the dot moves up, if slower, the dot moves downward. If subject perspire more (decrease in resistance) the dot moves to left increase in resistance, dot moves to the right.

**Spirometry :** Pulmonary Function testing capable of performing test:  
Forced Vital Capacity - Slow Vital capacity - Maximum Voluntary Ventilation  
Heart Sounds: Record and view Phono Cardiogram. Examine relationship between Pulse and Phonocardiogram.

**Amphibian Experiments:** Amphibian experiments like single Muscle twitch, after load and free load contractions, strength of stimuli, Tetanus, Fatigue, Isometric contraction etc. are performed using Isotonic and Isometric force Transducer

### Physiopac Digital Polygraph-Physiograph

#### Technical Specifications

Number of Channels	: 1,2,4, 8 & 16
Amplifier	: Universal AC/DC
A/D Conversion	: 14-bit A/D
Sampling Rate	: 256 Hz/channel
Sensitivity	: 1 to 1500 $\mu$ V/mm
Low Pass Filter	: 0.1, 0.3, 0.5, 1,3,5,7, Hz
High Pass Filter	: 0.1, 0.3, 0.5,2, 10, 15, 35, 70, 99 Hz.
Sweep Speed	: 0.058-100 mm/sec.
Notch Filter	: 50 Hz
Input Impedence	: > 10 Gohm
CMRR	: > 80-85 db

#### Standard Accessories

ECG electrodes	1 set of 4 nos.
EEG electrode	10 nos.
Bio-Potential Junction Box	1 no.
ECG Junction Box	1 no.
EMG disc electrodes	1 set of 10 nos.
Ground electrode	1 no.
EEG Paste	1 jar
ECG Jelly	1 bottle
Communication Cable	1 no.
BP Cuff	1 no.
Operating Manual	1 no.
Software	1 cd

#### Transducers

Pulse Transducer	1 no.
Respiration Transducer (belt type)	1 no.
Respiration Transducer (Thermistor Type)	1 no.
Temperature Transducer	1 no.
GSR Transducer	1 no.
Phono-Cardiogram Transducer	1 no.
Pressure Transducer	1 no.
Volume Transducer	1 no.
Isotonic Transducer	1 no.
Force Transducer	1 no.

