#### Physiograph & Physiolab Comparison

Comparison of Single Channel, 3 Channel, and Physiolab (Multichannel Advanced System)

Feature	Single Channel Physiograph	3 Channel Physiograph	Physiolab (Multichannel)
Channels	1	3	8-16 (expandable)
Recording System	Thermal / Ink	Thermal / Ink	Digital, PC-based
Display	LCD	LCD	High-resolution PC
			interface
Parameters	Show one parameter	Show three parameter	Show all parameter at
	at a time	at atime	a time ECG, EEG, EMG,
			Respiration, BP, etc.
Data Storage	Memory card	Memory card	PC storage & export
Graph Speed Control	Manual	Manual	Software-controlled
Calibration	Manual	Manual	Auto digital
			calibration
Portability	Compact	Medium	Desktop PC-based
Suitable For	Basic physiology labs	Medical colleges,	Advanced research &
		teaching	clinical
Power Supply	AC mains	AC mains	AC + USB/PC
Accessories	Electrodes, with all	Electrodes, with all	All coupler inbuild
	coupler and	coupler and	with all transducer
	transducer	transducer	Electrodes, sensors,
			software
Reporting	Can connect with pc	Can can connect pc	Digital report
			generation

#### DIGITAL STUDENT PHYSIOGRAPH



High resolution coloured TFT display

**MEDICAID STUDENT PHYSIOGRAPH** is used or the recording of Bio-Electrical Potentials e.g. EEG, ECG, ENG, EMG, Pulse,, Respiration, Blood Pressure etc. It is made of light metal for compactness and lightness. Its performance is outstanding due to adoption of integrated circuits.



#### **Features**

- Indigenous Digital Physiograph with time and Event channel.
- Compact light weight and easy to operate by a beginner
- Stand alone unit having coloured TFT display for displaying online and offline recording data.
- System have Six couplers fitted in a Single unit easy to carry.
- System have Eight transducers (Force, Pressure, Volume, Respiration, Temperature, Pulse, Respiration Belt and Isotonic).
- Facility to store recording data and review the same on TFT.
- Interface to the computer-Through USB.
- System provided with software to review and printing the recorded data from PC.

#### DIGITAL STUDENT PHYSIOGRAPH



#### "MEDICAID" STUDENT PHYSIOGRAPH comprises of:

Couplers

· Transducers · Accessories

#### COUPLERS

To record different parameters the standard range of couplers is as follows:

#### **BIOPOTENTIAL COUPLER**

For recording all AC phenomena like ECG, EEG, EMG, ENG etc. It is supplied with 3 pin junction box, EEG-EMG electrodes and paste etc.

#### **EKG COUPLER**

For recording clinical ECG. It is supplied with 5 pin junction box, Limb & Chest Electrodes and Jelly.

#### STRAINGAGE COUPLER

For recording from all Medicaid straingage transducers and used to record muscle activity force, effect of drug on heart activity, Blood pressure from cannulated animals, volume changes etc.

#### **PULSE-RESPIRATION COUPLER**

For recording pulse or respiratory activity using Medicaid pulse, Respiration Belt or Respiration transducer.

#### TEMPERATURE COUPLER

For recording internal or surface temperature through Medicaid temperature Transducer.

#### ISOTONIC COUPLER

Using it alongwith Medicaid Isotonic Fine Movement transducer one can perform experiment on Isolated Uterus and Isolated Intestine.

#### **TRANSDUCERS**

A Transducer is a device which converts one form of physical energy to electrical energy or vice versa. To record parameters which are not available in electrical form e.g. PULSE, RESPIRATION, TEMPERATURE, PHONO CARDIOGRAMME etc., one needs to use appropriate transducer.









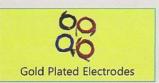












#### Models

Single Channel Physiograph DP-201
Two Channel Physiograph DP-202
Three Channel Physiograph DP-203

#### **Technical Specifications**

No. of Channels : 1, 2, & 3

Display & size : Coloured TFT: 15.5 x 9.5 cm

Channel width : 80mm
A/D Conversion : 16-bit A/D

Sensitivity : 50, 100, 200, 500 uv/cm and

1,2,5,10,20,50,100 mv/cm

Sweep Speed : 0.5, .1, .2, .5, 1, 2, 5, 10, 20,

50, 100 div/sec.

Data Sampling Frequency : >256 Hz

Notch Filter : 50-60 Hz

Input Impendence : >1 Mega Ohm

CMRR : >80-85 db

#### **Standard Accessories**

ECG electrodes 1 set of 4 nos.

EEG electrode 10 nos.

Bio-Potential Junction Box 1 no.

EMG disc electrodes 1 set of 10 nos.

Ground electrode 1 no.

EEG Paste 1 jar

ECG Jelly 1 bottle

Operating Manual 1 no.

#### **MEDICAID SYSTEMS**

An ISO 13485 : 2003 Company 389, Industrial Area, Phase-II, Chandigarh-160 002 (India)

Tele: +91 172 2652706 Fax: +91 172-2653608

E-mail: info@medicaid.co.in

# DIGITAL STUDENT PHYSIOGRAPH



## MEDICAID" STUDENT PHYSIOGRAPH comprises of

Couplers Transducers - Accessories

#### COUPLERS

To record different parameters the standard range of couplers is as

### EKG COUPLER

supplied with 3 pin Junction box, EEG-EMG electrodes and paste etc.

For recording all AC phenomena like ECG, EEG, EMG, ENG etc. It is

BIOPOTENTIAL COUPLER

& Chest Electrodes and Jelly. For recording clinical ECG. It is supplied with 5 pin junction box, Limb

## STRAINGAGE COUPLER

pressure from cannulated animals, volume changes etc. record muscle activity force, effect of drug on heart activity, Blood For recording from all Medicaid straingage transducers and used to

## ULSE-RESPIRATION COUPLER

Respiration Belt or Respiration transducer. For recording pulse or respiratory activity using Medicaid pulse.

## TEMPERATURE COUPLER

ISOTONIC COUPLER temperature Transducer. For recording internal or surface temperature through Medicaid

can perform experiment on Isolated Uterus and Isolated Intestine. Using it alongwith Medicaid Isotonic Fine Movement transducer one

TEMPERATURE, PHONO CARDIOGRAMME etc., one needs to use which are not available in electrical form e.g. PULSE, RESPIRATION. energy to electrical energy or vice versa. To record parameters A Transducer is a device which converts one form of physical TRANSDUCERS



appropriate transducer

Force Transduce





















## Bio-Potential Junction Box

Single Charinel Physiograph

#### **Gold Plated Electrodes** 00

## Technical Specific

Three Channel Physiograph

DP-203 DP-202 DP-201

Iwo Channel Physiograph

Channelwidth Display & size A/D Conversion No. of Channels Coloured TFT: 15.5 x 9.5 cm 1,2,83 16-bit A/D

Sensitivity Sweep Speed 0.5..1, 2.5, 1, 2.5, 10, 20, 50, 100, 200, 500 uv/cm and 50, 100 div/sec 1,2,5,10,20,50,100 mw/cm

> 256 Hz >1 Mega Ohm 50-60 Hz

Notch Filter Input Impendence Data Sampling Frequency >80-85 db

## Standard Accessories

Operating Manual ECG Jelly EEG Paste Ground electrode EMG disc electrodes Bio-Potential Junction Box EEG electrode ECG electrodes 1 bottle Ind Jar. Tino. 1 set of 4 nos set of 10 nos.

## MEDICAID SYSTEMS

Plot No. 667, JLPL Industrial Park, An ISO 13485 : 2016 Company Sector 82, Mohali-140306 (Punjab)

E-mail: info@medicaid.co.in Tele: +91 172 2971380, Mob: 88724-45111

Website: www.medicaid.co.in

Medicaid's continuing product improvement programme make specification subject to change without notice.

## STUDENT PHYSIOGRAPH DIGITAL



MEDICAID STUDENT PHYSIOGRAPH is used or the recording of Bio-Electrical Potentials e.g. EEG, ECG, ENG EMG, Pulse., Respiration, Blood Pressure etc. It is made of light metal for compactness and lightness. Its performance is outstanding due to adoption of integrated circuits.



## Features

- Stand alone unit baving coloured TFT display for displaying online and offline recording data

- Coupler Selection, Channels Seisitivity & EKG Lead Selection is on OLED Display

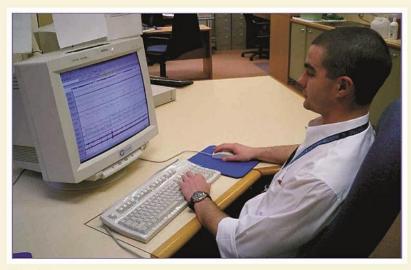
For Teaching Experimental Physiology & Pharmacology on Human & Animals



### **PHYSIOLAB**

Model: PL-2005

A Complete Student Physiology Lab System & Sixteen Channel Data Acquisition & Analysis System



#### **Applications**

- EEG
- EMG
- ECG
- HRV Analysis
- EOG
- Respiration
- Pulse Plethysmogram
- GSR (Galvanic Skin Resistance)
- Pulmonary Function
- Heart Sound (Phonocardiogram)
- Temperature
- Nerve Conduction Studies
- Evoked Potential (Sensory, Visual & Auditor)
- Electrogastrogram
- Exercise Physiology
- Biomechanics











PHYSIOLAB a computerised Polygraph has been developed by qualified technocrats having a rich experience of 30 years in making Polygraphs for the study on human and animals in Physiology & Pharmacology labs.

#### **Features**

- R R Analysis
- · Integration of waves
- Frequency, Time & Voltage marking on individual channel
- · User definable event marking

- · Overlaping of waves
- · Subject's Database information
- · Data archiving on CD

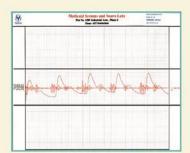
#### Lessons

#### 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 and Theta).

#### 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 timing of waves and calculate BPM. Study realtime ECG & BPM.



#### Pulse & Plethysmography

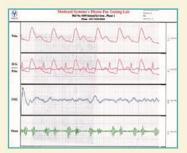
Pulse is measured at the fingertip non-invasively sensing variations in blood density. Examine the relationship between ECG and PLUSE. Study mechanical action of the heart

#### Muscle Contraction (EMG)

Record and view EMG Signal with surface electrodes from different location. See raw and with integrated real time EMG data. Simultaneously Compare the EMG signal from one muscle group to another. Study Isometric and Isotonic muscle loading tasks.

#### **ENG**

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



#### **Heart Sounds**

Record and view Phono cardiogram. Examine relationship between Pulse and Phonocardiogram.

#### Respiration

Record and view 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.

#### **Nerve Conduction Studies**

- · Motor nerve conduction studies
- · Sensory nerve conduction studies
- · F-Wave, H-Reflex, Blink Reflex
- · Repetitive stimulation/myasthenia

#### **Electro Myography**

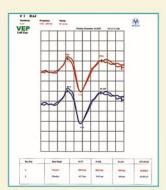
- · Spontaneous
- · Interference Pattern
- · Motor unit Potential
- Turn/Amplitude Analysis

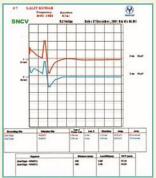
#### Habituation

Record GSR and Heart rate response to repeated stimulus to demonstrate habituation and its probabilistic trend towards decreased response.

#### **Evoked Potential**

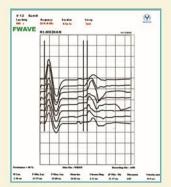
- · Somatosensory Evoked Potential
- · Auditory Evoked Potential
- · Visual Evoked Potential











#### Spirometery

Pulmonary Function Testing Capable of performing tests:-

- · Forced Vital Capacity
- · Slow Vita Capacity
- Maximum Voluntary Ventilation



#### **Accessories**

1 Set.	Chest Electrode	1 No.
8 Nos.	• EMG disc electodes	1 Set
1 No.	• EEG Jelly Tube	1 Tube
1 Jar	• Fuse	6 Nos.
1 No.	Instruction Manual	1 No.
4 Nos.	MNCV Surface electrode	10 Nos.
4 Nos.	Baer Head Phone	1 No.
1 No.	• Electrical Stimulator	1 No.
• Respiration Transduce (Belt type)		
Surface Temperature Probe.		
Phono-Cardiogram Transducer.		
	8 Nos. 1 No. 1 Jar 1 No. 4 Nos. 4 Nos.	8 Nos.  • EMG disc electodes  1 No.  • EEG Jelly Tube  1 Jar  • Fuse  1 No.  • Instruction Manual  4 Nos.  • MNCV Surface electrode  4 Nos.  • Baer Head Phone

#### **System Compatible Computer Hardware**

Computer : Core 2 Duo 2.93 GHz, 2 GB RAM,

350 GB HDD, DVD Writer,

Keyboard & Mouse

Monitor : 17" Colour supporting 1024x768 mode

Printer : Any Inkjet printer supporting windows.



#### **MEDICAID SYSTEMS**

An ISO 13485 : 2003 Company

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e-mail: info@medicaid.co.in Website: www.medicaid.co.in



## PhysioPac

Digital Polygraph-Physiograph

#### **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



PhysioPac developed by highly qualified technocrats having a rich experience of 35 years in Electro-Physilogy

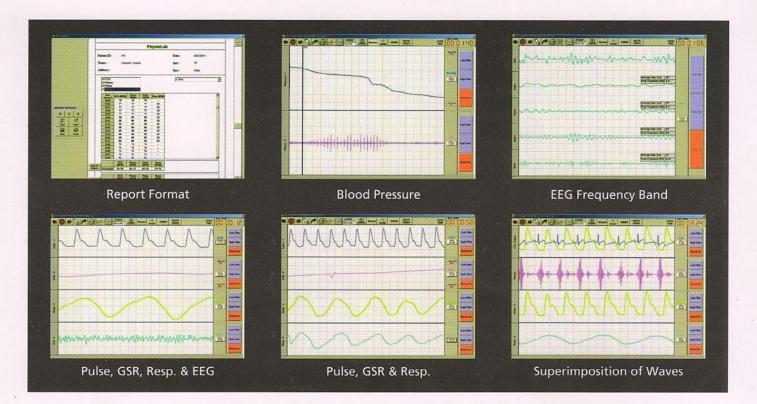
& Bio-medical instrumentation.

#### **Experiments**

- Volumetric Changes
- Isotonic Fine Movement

**Isometric Force** 

- Invasive & Non invasive BP
- ECG, EEG, EMG, ENG, GSR etc.
- Phono Cardiogram
- Respiration & Temperature
- Plethysmograph (Pulse, Heart Rate etc.)



#### Lessions

**Electoencephalogram (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 & View the 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 & 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 timing of waves and calculate BPM. Study realtime ECG and BPM.

**ENG**: Record & view vertical and horizontal eye movement. Perform Saccade and Gaze Test. See graph for vertical motions and for horizontal motions. A complete X/Y tracing of where subject looked during the 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.

**Respiration:** Record and view 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 view the standard Polygraph measurements e.g. Respiration, Galvanic 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 can be recorded simultaneously.

**Reaction Time:** Auditory "Click" stimulation is given to subject and the subject responses 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 subject's 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.

Spirometery: Pulmonary Function Testing Capable of performing tests:-

» Forced Vital Capacity » Slow Vital Capacity » Maximum Voluntary Ventilation

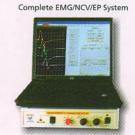
Heart Sounds: Record and view Phono cardiogram. Examine relationship between Pulse and Phonocardiogram.

**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 upgradable to Physiolab-PL2008 as under:

#### Complete EMG/NCS/EP Studies

- · Spontaneous Activity
- Interference Pattern
- · Motor Unit Action Potential
- Motor Nerve Conduction Studies
- Sensory Nerve Conduction Studies
- · F-Wave, H-Reflex & Blink Reflex
- Visual Evoked Potential
- Auditory Evoked Potential
- SSEP





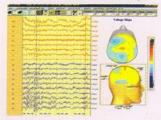
#### **Spiro Excel PFT System performing:**

• Forced Vital Capacity (FVC) • Slow Vital Capacity (SVC) • Maximum Voluntary Ventilation (MVV)

#### **Digital EEG Analysis System (Optional)**

- 24-32 Channel EEG Acquisition, Brain Map frequency, spectral & voltage with Left/Right view
- EEG transfer on CD & auto playback, Online/Offline reformatting of Montages
- · Comparison of three montage simultaneously

Digital EEG Brain Map



Heart Rate Variability Analysis Software (Optional)
Stress Test TMT (Optional)
Stimulator Module (Optional)

D POLYGRAPH

#### PhysioPac Computerised Polygraph

#### **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 Impendence >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.



Force Transducer



Volume Transducer



**Pressure Transducer** 



**Temperature Transducer** 







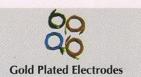


















Respiration Belt

#### **COMPUTER HARDWARE (Optional)**

: Core 2 Duo 2.93 GHz, 2 GB RAM,

350 GB HDD, DVD Writer,

Keyboard & Mouse

: 17" Colour supporting 1024x768 mode Monitor Printer : Any Inkjet printer supporting windows.

#### **MEDICAID SYSTEMS**

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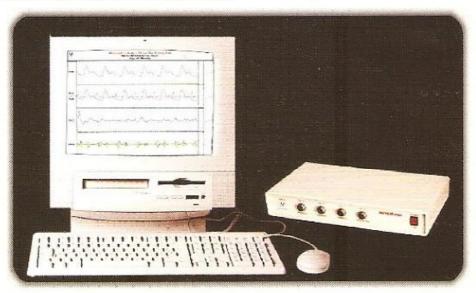




### PhysioPac PC - 2004

#### a Computerised Student Physiology Lab System

developed by highly qualified technocrats having a rich experience of 25 years in Bio-medical instrumentation. Already manufacturing EEG, EMG, ECG, ECT, ENG, BIO-FEEDBACK "BIOTRAINERS" POLYGRAPH, STUDENT PHSIOGRAPH and many more. Having more than 5000 satisfied users in the field of Neurology, Psychology, Psychiatry, Cardiology, Physiology and Pharmacology.

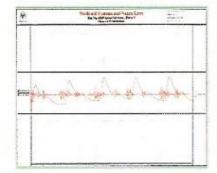


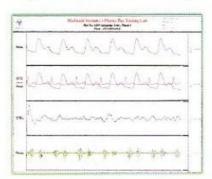
#### Features

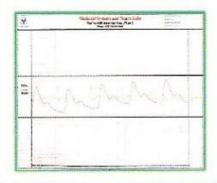
- R R analysis
- Merging of Waves
- Integration of Waves
- Patient Database information.
- Four Channel Modern Polygraph
- Real Time data storage & review facilities
- Experiments on Animal & Human Subjects
- Frequency, Time & Voltage Marking on individual channel

#### **Experiments**

- Isometric Force
- Phono Cardiogram
- Volumetric Changes
- → Isotonic Fine Movement
- Respiration & Temperature
- Invasive & Non invasive BP
- ECG, EEG, EMG, ENG, GSR etc.
- Plethysomograph (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 & View the EMG Signal with surface electrodes from different location. See raw and with 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 & 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 timing of waves and calculate BPM. Study realtime ECG and BPM.

#### ENG

Record & view vertical and horizontal eye movement. Perform Saccade and Gaze Test. See a graph for vertical motions and for horizontal motions. A complete X/Y tracing of where subject looked during the 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.

#### RESPIRATION

Record and view 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 view the standard Polygraph measurements e.g. Respiration, Galvanic 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 can be recorded simultaneously.

#### REACTION TIME

Auditory "Click" stimulation is given to subject and the subject responses by pressing a pushbutton. Auditory stimulations are given in two modes random and non random fashion.

#### BIOFFFDBACK

Record and view Heart Rate (BPM) and GSR. Control the X/Y position of a dot, by influencing subject's 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 incase in resistance, dot moves to the right.

#### SPIROMETERY

Pulmonary Function Testing Capable of performing tests: -

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 signal Muscle Iwitch, after load and free load contractions, strength of Stimuli, Tetanus, fatigue, Isometric contraction etc. are performed using Isotonic and Isometric Force Transducer.

SYSTEM COMPATIBLE COMPUTER HARDWARE: P-IV, 128 MB RAM, 1.44 MB FDD, 40 GB HDD, CD-ROM, Keyboard, Mouse. Colour Moniter 15". OPERATING SYSTEM: Window 98/ME/2000/XP. PRINTER: Any Inkjet Printer supporting windows.

#### Branch Office

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Bangalore	9845191572	Hyderabad	9849145151
Bihar	9835283243	Jaipur	9829019046
Chennai	9847230567	Mumbai	9820929822
Delhi	9810363242	PB & HR	9814332314
Pune	9822619216	Lucknow	9839281804



Manufactured & Marketed by :

#### MEDICAID SYSTEMS

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An ISO 9001 : 2000 Company