

iWorx BIK-TA BioInstrumentation Physiology Teaching Kit



BioInstrumentation Physiology Kits

iWorx BioInstrumentation Physiology Kits include:

- TA Control Module with iWire-compatible Biopotential (ECG, EMG) Amplifier, Built-in Stimulator
- LabScribe™ Software
- Solderless Breadboard
- Spirometer Flow Head
- Heart Sounds Sensor
- Pulse Probe
- Non-Invasive Blood Pressure Sensor
- Temperature Sensor
- Grip Force Sensor
- Event Marker
- Muscle Twitch Sensor
- Courseware

Specifications

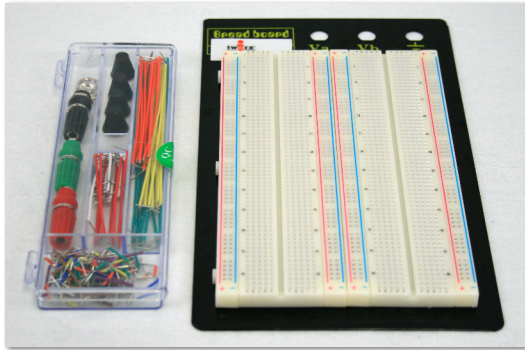
- 20k Samples/sec per channel simultaneous
- 2 BNC ± 10 VDC, 16 bit resolution
- 2 DIN8 ± 10 VDC, 16 bit resolution
- 1 - GSR (skin conductance), 3 - Biopotential
- 2 Low Voltage Stimulators - range ± 15 V 35mA
- 1 Isolated HV constant current Stimulator 0-20mA
- 8 Digital inputs and outputs
- Differential pressure sensor
- 2400mV, 1200mV, 800mV, 400mV, 200mV, 100mV, 50mV, 25mV, 12mV Biopotential Ranges
- USB 1.1, 2.0, full speed Interface



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iWorx TA Physiology Courseware

iWorx professionally developed courseware includes over 60 experiments and 175 exercises in cardiovascular, neuromuscular and spirometric physiology.



Circuit Design

- Students can create experiments and study design of add-on circuits using the breadboard
- Signal from any input channel of the recorder can be routed to the stimulator and sent to the breadboard
- Students have the ability to design a custom circuit to condition the signal, and the conditioned signal can then be sent back to the recorder
- Compare the raw signal and the signal conditioned signal in software

Human Circulation

- Blood Pressure, Peripheral Circulation, and Body Position
- Blood Pressure, Peripheral Circulation, and Imposed conditions

Human Heart

- The Electrocardiogram (ECG) and the Pulse
- Heart Sounds and the Electrocardiogram (ECG)
- The Effects of Exercise on the Electrocardiogram (ECG) and the Pulse
- The Six-Lead Electrocardiogram
- The Diving Reflex

BioInstrumentation

- ECG Signal Conditioning

Human Muscle

- Grip Strength and Electromyogram (EMG) Activity
- Electromyogram Activity in Antagonistic Muscles
- EMG and Arm Wrestling
- Oculomotor Muscle Activity
- Response, Work, Summation and Tetanus in Human Muscle
- Human Muscle Twitch

Human Spirometry

- Breathing Parameters at Rest and after Exercise
- Breathing and Gravity
- Factors that Affect Breathing Patterns
- Lung Volumes and Heart Rate

Human Nerve

- Auditory and Visual Reflexes
- Stretch Receptors and Reflexes with Reflex Hammer
- Stretch Receptors and Reflexes with Plethysmograph



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