SYSTEM COMPONENTS

Choose either the **CardioPhys™ ECG** Standard package (**CARDIOPHYS-ECG**) or the **CardioPhys™ ECG** Pro package which includes the complete system and a micromanipulator (**CARDIOPHYS-PRO-ECG**).

	CARDIOPHYS-PRO-ECG	CADIOPHYS-ECG
CardioPhys™ ECG Unit	✓	✓
ECG-PROBE CardioPhys™ probe with low-noise, active headstage	✓	✓
300726 CardioPhys™ reference electrode assembly	✓	✓
Startup Kit which includes: (1) **2033** Black Insulated Mini Banana Plug for metal electrode connection (1) **2034** Red Insulated Mini Banana Plug for metal electrode connection (1) **5470** 0.031" Jack for metal electrode connection (2) **MEH7Wxx** Microelectrode Holder for glass eletrode [Choose size 1.0 mm (**MEH7W10**), 1.2 mm (**MEH7W12**), 1.5 mm (**MEH7W15**) or 2.0 mm (**MEH7W20**)	✓	✓
MD4R or **MD4L** Dual Tool Holder Micromanipulator	✓	

WHO WE ARE

World Precision Instruments (WPI) is dedicated to the advancement of science and has been supporting the scientific community with innovative and unique solutions to further its research. WPI is a global leader in the design, manufacture and supply of animal physiology research equipment. Its products have 1000s of citations in notable peer-reviewed publications. WPI also has a broad range of instruments and supplies for research in regenerative medicine, developmental biology, genetics, oncology, toxicology, cardiovascular, neuroscience, etc.

ISO9001:2015 CERTIFIED

Our US inspection process is hinged on our ISO9001:2015 certification to ensure you receive quality products.

PERRY JOHNSON REGISTRARS, INC. UKAS MANAGEMENT SYSTEMS 0105

ANAB ACCREDITED

ISO 9001: 2015 Certified

WORLD PRECISION INSTRUMENTS

USA: 175 Sarasota Center Boulevard, Sarasota FL 34240-9258 USA

Tel: (941) 371-1003 • **Fax:** (941) 377-5428 • **E-mail:** wpi@wpiinc.com • **Internet:** www.wpiinc.com

UK: 1 Hunting Gate, Hitchin, Hertfordshire SG4 0TJ England • Tel: 44 (0)1462 424700 • E-mail: wpiuk@wpi-europe.com

Germany: Saarstraße 23, D-61169 Friedberg (Hesson), Tel: +49 (0)6031 1602171 • Fax: +49 (0)6031 1602180 • E-mail: wpide@wpi-europe.com

China & Hong Kong: Rm 18a, No8 Donfang Rd., Pudong District, Shanghai 200120 PRC • Tel: +86 688 85517 • E-mail: ChinaSales@china.wpiinc.com

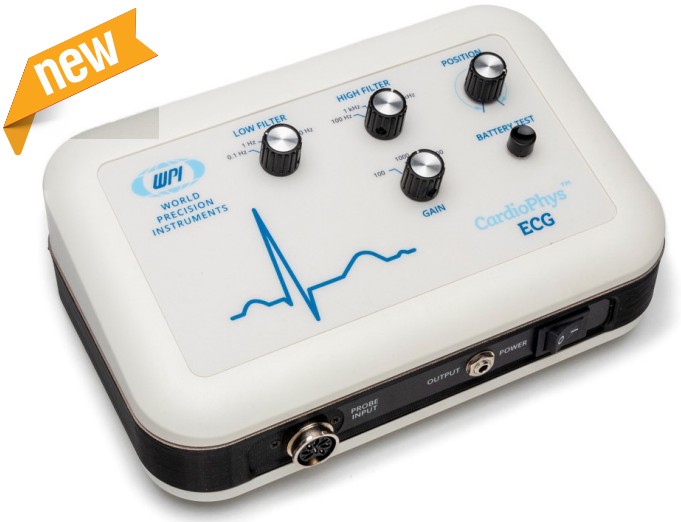
Brazil: Conselheiro Nabias, 756 sala2611, Santos-São Paulo 11045-002 Brazil • E-mail: info@brazil.wpiinc.com

WORLD PRECISION INSTRUMENTS

CardioPhys™ ECG Electrocardiogram Monitoring System

www.wpiinc.com

ACCURATELY MEASURE ECG & OTHER BIOSIGNALS IN LABORATORY ANIMALS



Assessment of cardiac physiology is integral for studies that:
- Examine the effects of therapeutic interventions
- Experimentally induce pathology
- Describe phenotypes linked to gene and molecular variants

The heart generates its own electrical signal, which can be measured using the electrocardiogram (ECG). The ECG detects the extracellular voltage change that is produced as heart cells depolarize prior to contraction. As the signal moves through the heart in succession during each heartbeat, data collected from an ECG can inform on heart rate, ahrrythmia, chamber defects, channel pathologies and more. The **CardioPhys™ ECG** system is a highly versatile tool for measuring ECG of a wide spectra of animals – as small as a zebrafish embryo to animals as large as an alligator.

The **CardioPhys™ ECG** unit is a bioamplifier that is designed to amplify the sum of electrical potentials from cardiac muscle, and other extracellular signals. The signal produced from cardiac recordings tracks the depolarization and repolarization of the cardiomyocytes as they contract in succession to pump blood through the heart. The amplifier is powered by two 9 V batteries to minimize electrical noise, which could interfere with or mask the voltage signal from the heart. The **CardioPhys™ ECG** unit receives its input signal from a head stage connected to two electrodes, then sends the signal output to a data acquisition system as a voltage signal.

BENEFITS

- Extremely low noise signal making even small signals measurable with the remote low noise active head stage
- Battery powered to minimize electrical noise
- High pass and low pass filters to home in on the signal of interest
- Offset position control to adjust for signal drift
- Compact unit allows for location near the preparation, reducing long lead lengths and their inherent noise

The electrodes are attached to the animal across the area where an electrical field is generated by the heart. An additional third electrode serves as a ground, which can be either attached to the animal or immersed within a conductive medium surrounding the animal. When the electrodes are attached to the animal, the ground wire serves to complete two circuits, one from each electrode to the common ground electrode.

The **CardioPhys™ ECG** unit has high pass and low pass filters.
- The high pass allows only frequencies above a specified value to "pass," and eliminates any frequencies below that set value.
- The low pass filter allows frequencies below the specified value to pass and eliminates any frequencies above that set value.

A position dial can adjust the zero, in case of signal drift. The amplification of the signal can be increased from 100X, to 1,000X to 10,000X the incoming signal.

The **CardioPhys™ ECG** unit also includes electronics within the system (both the amplifier and the head stage) that are maximized for low noise recording of very small signals using either glass or metal microelectrodes. The **CardioPhys™ ECG** unit is versatile enough to measure extracellular voltage signals from animals as small as a hatched zebrafish embryo to animals as large as an alligator (or elephant) to record electrical potentials at the cell or tissue level.

The **CardioPhys™ ECG** is designed to amplify extracellular biopotentials. These battery powered bioamplifiers incorporate a compact chassis profile that allows the units to be located close to the preparation, which helps minimize long lead lengths that often contribute to noise.

The **CardioPhys™ ECG** is an AC-only amplifier that features a remote, low-noise head stage probe which can be mounted in a micromanipulator for up-close, in vivo, cortical recording, tissue slice or other extracellular recording applications using high impedance glass or metal microelectrodes. The unit includes a built-in battery test.