



Record and analyze data with true freedom of movement using LabChart and wireless physiological monitoring.

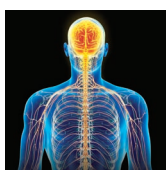
Wireless monitoring gives your subjects unrestricted movement, allowing you to record and analyze their natural activity.

Our wireless devices and systems help you record a wide variety of signals, simultaneously. Connect seamlessly with LabChart software for streamlined data analysis.

### Benefits of Wireless Physiological Monitoring:

- Record a broad range of physiological signals wirelessly via bluetooth
- Real-time streaming and analysis
- Subject comfort during recording
- Ideal for studies with single or multiple subjects
- Extended recording time with long battery life
- Suitable for close range or distance studies
- Options to record data offline then import time synchronized data for analysis

### Applications include:



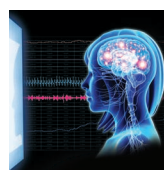
Autonomic



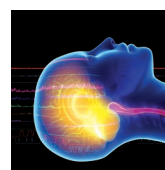
Cardiovascular



Exercise Physiology



Psychophysiology



Sleep

### Typical studies:

- Apnea or Hyperapnea
- Autonomic fitness
- Autonomic function
- Breathing rate
- Cardiovascular disease and myocardial dysfunction
- Diabetic neuropathy
- Emotional reactivity
- Heart Rate Variability
- Heat Stress
- HRV / Arrhythmia
- Performance testing
- Pharmacological impact on heart health
- Physiological response
- Respiration and oxygenation during exercise



# Trigno™ Wireless Foundation System

## Wireless EMG in humans

Wireless EMG is ideal for capturing the intricacies of muscle movement and electrical muscle activity in subjects, especially when range of movement and comfort are important.

Whether you are studying motor control for patient rehabilitation or muscle performance, activity, and fatigue in elite athletes, ADInstruments offers streamlined wireless systems that let you record and measure electrical muscle activity simply and easily.

### Direct Streaming

We offer a range of LabChart compatible solutions able to stream data directly into LabChart. With Wireless EMG studies, the Delsys Trigno Foundation system comes with both LabChart and a Trigno Device Enabler for direct data streaming.

### System highlights

- Quick setup and easy to use
- Compatible with Windows
- Trigno™ Base Station holds up to 16 sensors, allowing easy future sensor additions
- Patent Pending Motion Artifact Suppression
- High resolution and sampling rate up to 2 kHz
- <500  $\mu$  s inter-sensor latency
- Real-time feedback of signal strength and battery status
- Real-time analysis options
- Wide range of analysis views and channel calculations

## Foundation System Overview

### RSB001DSY04

The Trigno™ Wireless Foundation System is the perfect base to build a flexible system for your movement studies.

The Trigno Base Station is equipped with 16 charge pockets which can accommodate Trigno sensors for charging and compiles data received from the active wireless sensors and transfers it over a USB 2.0 compliant connection to a Windows PC.

### Contents include:

- 1 x Trigno™ Base Station Receiver (Digital)
- 1 x USB Cable
- 1 x Trigno™ Power Supply with Plug Adapter Kit
- 2 x Trigno™ Sensor Adhesive (4-slot, 90 pack)
- LabChart Pro Software
- Trigno™ Wireless Device Enabler Software



Trigno Base Station, shown with 16 Trigno sensors (*purchased separately*).







## Trigno™ Sensor options

Select up to 16 Delsys Trigno™ sensors (sold separately). Compact and lightweight with a 40 m range, the sensors are designed for freedom of movement, allowing you to record signals directly into LabChart for analysis.



### Trigno Avanti EMG + IMU Sensor

For wireless and flexible measurement of a high fidelity surface EMG signal, with a wide bandwidth 10-850 Hz and 11 mV range. The gold standard for surface EMG + IMU measurements and mobile data collection.

**DSY-SP-W06-14**



### Trigno Mini EMG + XYZ Sensor

The compact Trigno Mini Sensor is ideal for recording surface EMG on small and 'difficult-to-isolate' muscles. Applications include physical therapy, rehabilitation sciences, sports science, ergonomics, and motor control.

**DSY-SP-W06-024**



### Trigno Snap-Lead EMG + XYZ Sensor

Connect to industry-standard 'snap on' electrode with clamp style connector leads for sEMG detection, allowing users to adjust their inter-electrode spacing as they deem suitable from difficult muscle sites.

**DSY-SP-W06-018**



### Trigno EKG Sensor

Record a high quality ECG signal with the freedom of the Trigno system. Connects to industry standard disposable 'snap on' electrodes.

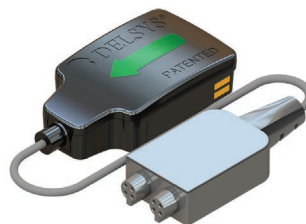
**DSY-SP-W06-021**



### Trigno 4 Contact FSR Sensor

Record 4 independent channels of force data, each servicing an individual FSR (Force Sensitive Resistor) membrane. Ideal for recording foot pressure timing, grip force, or pressure distribution measurements.

**DSY-SP-W06-020**



### Trigno Goniometer Adapter

For accurately measuring joint angles. Simply connect the goniometer to the adapter, activate, and begin streaming synchronized angle data.

**DSY-SP-W06-023**

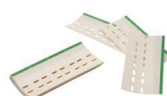


### Trigno Analog Adapter

Integrate analog outputs from dynamometers and third-party equipment. Capable of sampling and transmitting up to 4 analog channels.

**DSY-SP-W06-025**

## Additional Accessories (purchased separately)



### Trigno™ Sensor Adhesive

**DSY-SC-F03**



### Disposable ECG Electrode packs

**MLA1010/MLA1010B**



### Abrasive Gel

**MLA1093/MLA1093B**



### Alcohol Swabs

**MLA1094**

**Note:** All sensors except the Analog Adapter also include a 9 Axis IMU



# Equivital Wireless Physiological Systems

Equivital develops wearable tech products that give you accurate and precise data from real people in real environments.

Equivital's compact and comfortable sensor belt and accessories are ideal for exercise research through to sleep studies. Use with LabChart's offline logging function for long sampling periods.

## System highlights

- Easy setup and simple use
- High data quality with low data loss rates
- Options for live data streaming and offline data logging
- Noise and movement artifact-free ECG
- Up to 13 hours of battery life (extendable with ancillary pack)
- FDA 510(k) & CE cleared medical device

## Starter Pack Overview

### RSB-EQ002

Wirelessly record ECG, heart rate, expansion derived breathing rate, skin temperature, and XYZ accelerometry data simultaneously into LabChart.

#### Contents include:

- 1 x Equivital SEM
- 1 x Equivital SEM USB Lead
- 1 x Equivital Bluetooth Dongle
- 1 x Equivital Device Enabler for LabChart (LabChart software sold separately)
- 1 x Equivital Sensor Belt (RSB-EQ002)\*
- or 6 x Equivital Sensor Belt pack, sizes 2-7 (RSB-EQ001)

*\*Choose from 9 different belt sizes*



Equivital SEM



Equivital SEM USB Lead



Equivital Wireless ECG Sensor Belt



Equivital Bluetooth Dongle



## Additional Accessories (purchased separately)

- Dermal Temperature Patch **EQ-ACC-048**
- Core Temperature Capsule **EQ-ACC-023**
- Core Temperature Pill / Dermal Patch Activator **EQ-ACC-029**
- Galvanic Skin Response Sensor **EQ-ACC-034**
- Wired SpO<sub>2</sub> Adapter **EQ-ACC-042**
- External Battery Pack **EQ-ACC-BAT-2**
- M-Dock **EQ-ACC-MD-1**
- Additional sensor belts **EQ-02-B3**

Dermal Temperature Patch



Core Temperature Capsule



External Battery Pack



Galvanic Skin Response Sensor



Wired SpO<sub>2</sub> Adapter.  
Connects the MLT321 SpO<sub>2</sub> Finger Clip to an Equivital Belt.





# All your data in one platform with LabChart

Use Equivital's wearable tech products with LabChart software for a single, streamlined platform that lets you record and analyze multiple data sources, simultaneously.

By combining Equivital products with LabChart, data can be live streamed directly into LabChart via bluetooth. Or, log recordings offline and import them at a later date for complete flexibility.



## Signals

Signal	System required	Sample rate
ECG (2 Channels)	Core	256 Hz
Breathing Trace	Core	25.6 Hz
Accelerometer (3 Axis)	Core	25.6 Hz
Skin Temp (SEM)	Core	1/15 s
Skin Temp (Patch)	Core + Dermal Patch	1/15 s
Core Temp	Core + Temperature Pill	1/15 s
GSR	Core + GSR Add-On	2 Hz
SpO <sub>2</sub>	Core + Wired SpO <sub>2</sub> Add-On	1 Hz

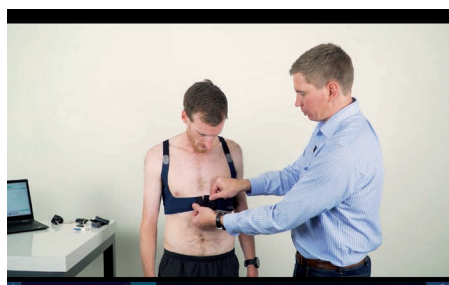
## Typical applications

- Exercise Physiology
- Sport and Performance
- Psychophysiology
- Heart Rate Variability
- Electrocardiogram Analysis
- Sleep
- Autonomic Function

## Videos and further information

Visit our blog for videos outlining:

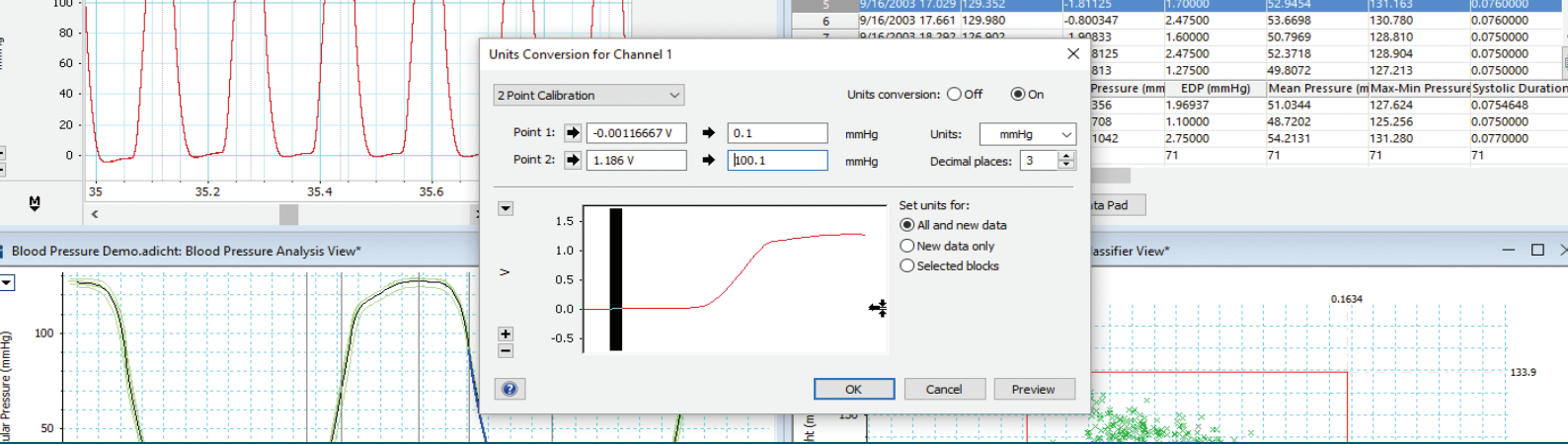
- Configuring your SEM
- How to appropriately fit the belt to your subject
- Live streaming direct into LabChart
- LabChart's Analysis Modules and the Data Pad tool to analyze recorded data



## Plus:

- Articles covering the basics of live streaming;
- How to use the LabChart logging import tool;
- A webinar exploring the inner workings of Data Pad.

For more information about our Equivital range of products and solutions visit: [adstruments.com/partners/equivital](https://adstruments.com/partners/equivital)



# LabChart

# Data Acquisition and Analysis Software

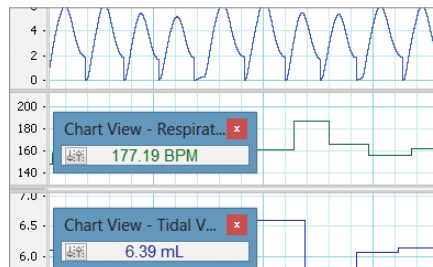
LabChart creates a streamlined platform for all of your recording devices to work together. Acquire signals from multiple sources simultaneously. LabChart tracks every recorded action and never modifies your raw data, allowing you to easily analyze your recorded data and apply advanced calculations as your experiment unfolds.

## Key Features

On	Channel Title	Sample Rate	Range	Input Settings	Units	Computed Input	Color	Style	Calculation
<input checked="" type="checkbox"/>	Channel 1	9.8	10 V	Input Amplifier...	V	Raw Data Input 1	Red	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 2	9.8	10 V	Input Amplifier...	V	Raw Data Input 2	Blue	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 3	9.8	10 V	Input Amplifier...	V	Raw Data Input 3	Green	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 4	9.8	10 V	Input Amplifier...	V	Raw Data Input 4	Yellow	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 5	9.8	10 V	Input Amplifier...	V	Raw Data Input 5	Purple	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 6	9.8	10 V	Input Amplifier...	V	Raw Data Input 6	Brown	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 7	9.8	10 V	Input Amplifier...	V	Raw Data Input 7	Pink	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 8	9.8	10 V	Input Amplifier...	V	Raw Data Input 8	Grey	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 9	9.8	10 V	Input Amplifier...	V	Raw Data Input 9	Light Blue	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 10	9.8	10 V	Input Amplifier...	V	Raw Data Input 10	Light Green	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 11	9.8	10 V	Input Amplifier...	V	Raw Data Input 11	Light Yellow	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 12	9.8	10 V	Input Amplifier...	V	Raw Data Input 12	Light Purple	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 13	9.8	10 V	Input Amplifier...	V	Raw Data Input 13	Light Brown	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 14	9.8	10 V	Input Amplifier...	V	Raw Data Input 14	Light Pink	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 15	9.8	10 V	Input Amplifier...	V	Raw Data Input 15	Light Grey	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 16	9.8	10 V	Input Amplifier...	V	Raw Data Input 16	Light Light Blue	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 17	9.8	10 V	Input Amplifier...	V	Raw Data Input 17	Light Light Green	Line	No Calculation
<input checked="" type="checkbox"/>	Channel 18	9.8	10 V	Input Amplifier...	V	Raw Data Input 18	Light Light Yellow	Line	No Calculation

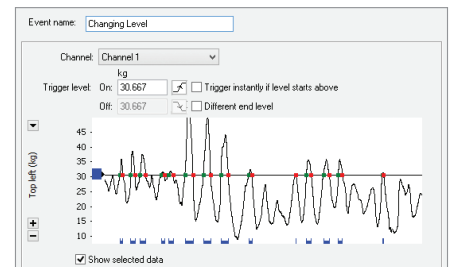
### Channel Settings

Get an overview of, and easily change your recording settings, calculations and channels.



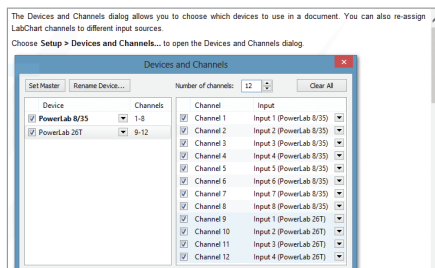
### Cyclic Measurements

Easy analysis for periodic waveforms. Find HR, systolic pressure, respiratory rate, integrate a waveform over a cycle.



### Event Manager

Monitors incoming signals and detects events defined by you in order to perform a specified action.



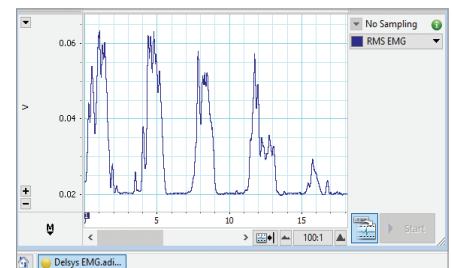
### Device and Channel Discovery

Easily manage signal inputs and LabChart channels all from one panel.

A	B	C	D	E	F	G
Time	Channel 1 Avg Freq	Channel 1 Avg Rate	Channel 1 Maximum Value	Channel 1 Time at Maximum	Channel 1 Maximum Power	Channel 1 Maximum Power Frequency
1 0:01:51.0	234.9845	16099.012	131.25	0:01:51.1361	0.0	175.7813
2 0:00:00.0	302.7852	18167.1132	366.7813	0:00:00.03235	0.0002	312.5
3 0:00:01.0	254.867	15292.022	321.1563	0:00:01.1457	0.0002	312.5
4 0:00:02.0	281.7287	16603.7199	266.5625	0:00:02.2916	0.0002	312.5
5 0:00:03.0	277.3469	16640.8135	308.8125	0:00:03.2971	0.0002	312.5
6 0:00:04.0	272.2276	16333.8542	312.25	0:00:04.84415	0.0003	312.5
7 0:00:05.0	249.4031	14864.1838	276.1875	0:00:05.1304	0.0002	312.5
8 0:00:06.0	274.2465	16454.8097	326.8125	0:00:06.7881	0.0002	312.5
9 0:00:07.0	292.5983	17555.9002	307.0625	0:00:07.9065	0.0002	312.5
10 0:00:08.0	288.9575	17337.4511	275.375	0:00:08.0481	0.0002	175.7813
11 0:00:09.0	274.4305	16705.0281	337.6875	0:00:09.77985	0.0002	312.5
12 0:00:10.0	264.6496	17078.9788	310.875	0:00:10.99545	0.0002	312.5
13 0:00:11.0	276.3528	16581.1684	285.5	0:00:11.6146	0.0002	312.5

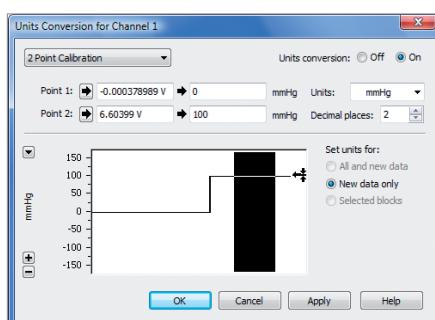
### Data Pad

Analyze different segments of your time based data in a tabulated format.



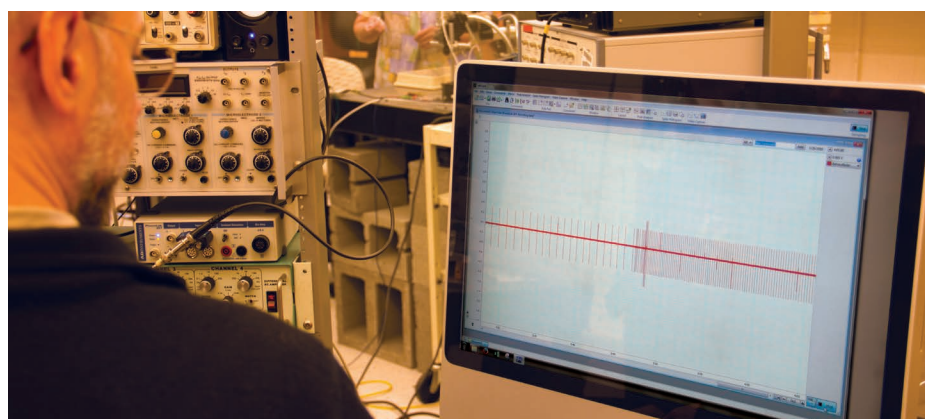
### RMS Function

Determine the energy content or intensity of your EMG signal in real time.



### Units Conversion

Calibrate your recorded data to real world units.

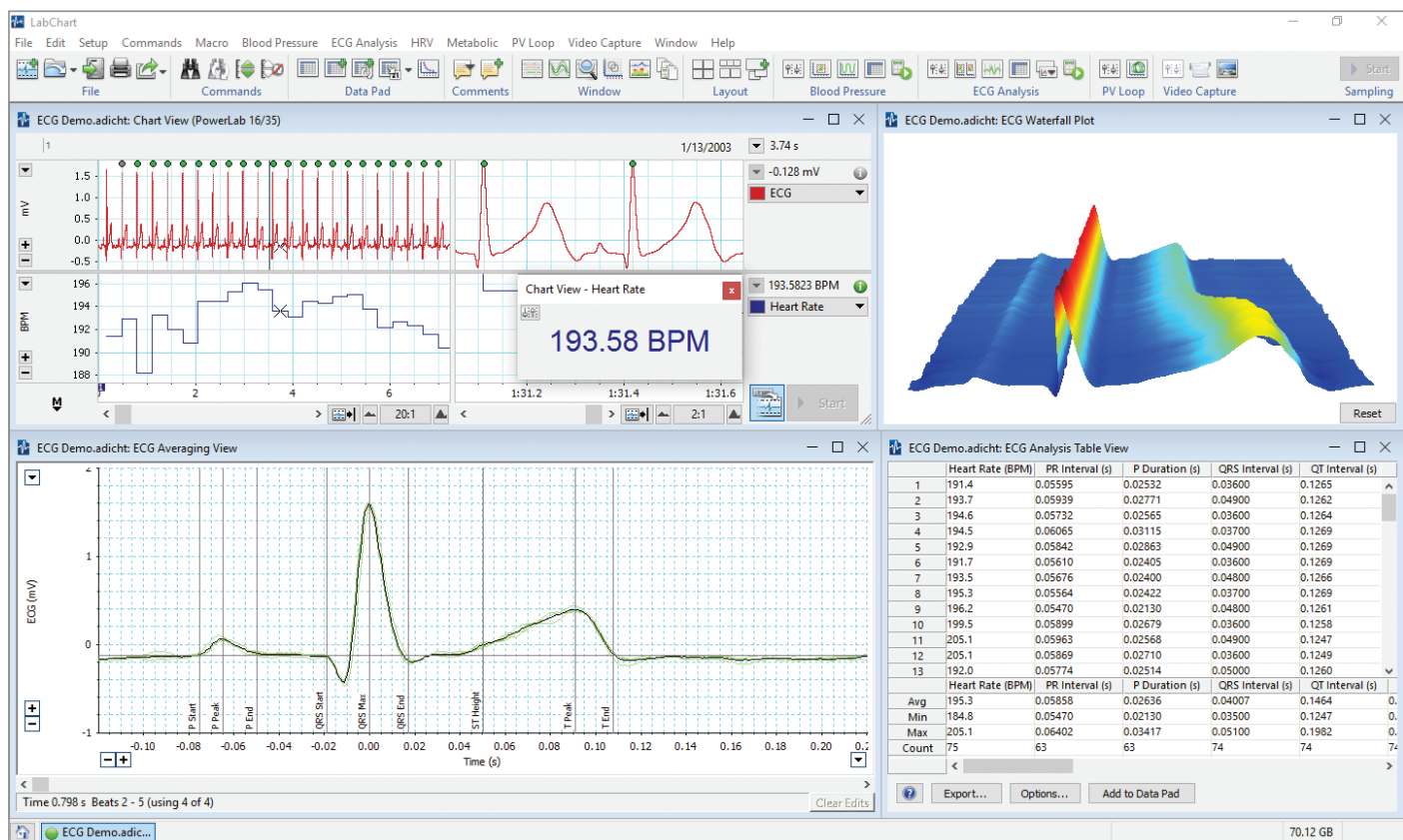






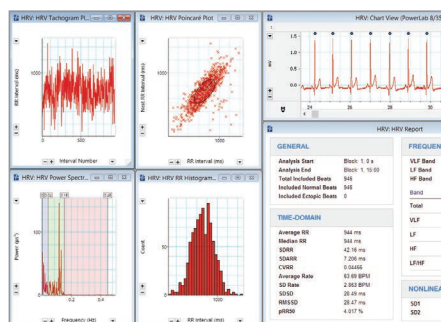
# Specialized LabChart Modules\*

\*All Modules are included with LabChart Pro, or download and purchase separately.



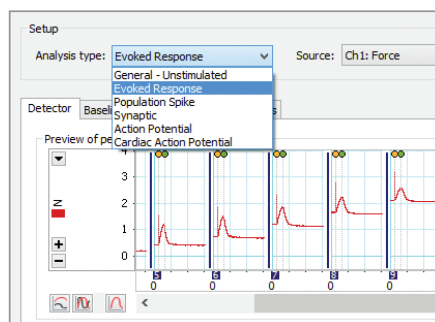
## ECG Analysis

Analyze the morphology of your ECG waveform. Automatically detects and reports the PQRST onset, amplitude, and interval in real time, or after recording. The screenshot above shows LabChart's split screen view, DVM (large numerical display of heart rate data), ECG Analysis, and Cyclic Measurements.



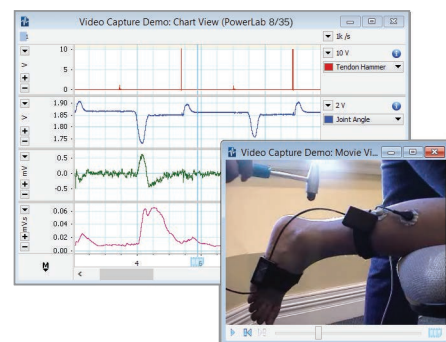
## HRV

Analyze beat-to-beat interval variation in your ECG recordings. Can be performed during recording or on a previously recorded file.



## Peak Analysis

Automatic detection and analysis of multiple (non-overlapping) signal waveforms from a recording. Use in real-time or with pre-recorded data.



## Video Capture

Record and synchronize a movie with your LabChart data file. Compare any data point against the video, or vice versa.

## Extend your research into new territories

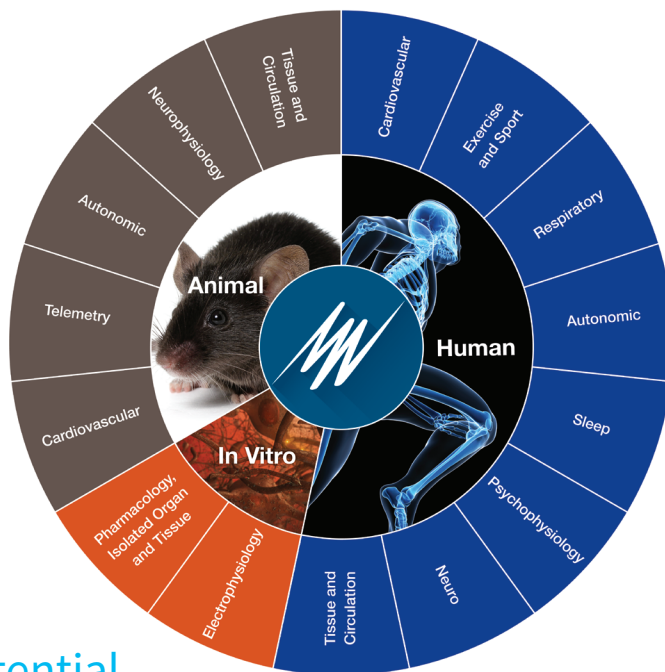
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### Animal

Autonomic  
Behavior, Sleep  
and Neuroscience  
Cardiovascular  
Telemetry  
Tissue and Circulation

### In Vitro

Electrophysiology  
Isolated Organ



### Human

Autonomic  
Cardiovascular  
Exercise and Sport  
Neurophysiology  
Psychophysiology  
Respiratory  
Sleep  
Speech Pathology  
Tissue and Circulation

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### SOFTWARE TRAINING

We provide three levels of training:

- 1 The basics of data acquisition
- 2 Improving signal processing and data analysis
- 3 Automation and advanced analysis



### PERSONALIZED TRAINING



### APPLICATION WORKSHOPS



### LIVE PRODUCT DEMONSTRATIONS



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