

# Powerful, fast, and flexible monitoring

**Actical** – for the scientific professional

Now with 32 MB of on-board memory, and high speed sampling capabilities, the Actical system makes monitoring physical activity for days or weeks a practical reality. Powerful, fast, and flexible, Actical helps you collect valuable physical activity and energy expenditure data simply and reliably. The Actical system is a rigorous solution designed with the needs of serious researchers in mind.

**PHILIPS**

**RESPIRONICS**

# Base your research on valid, reliable

Power, speed, and flexibility make the Actical a useful research tool. Validity and day-to-day wearability make it a practical, reliable, and productive scientific instrument.

## Powerful

Get the power to store more data and explore analytical options:

- **Now with** the ability to collect up to 32\* MB of physical activity and steps
- Review data trends in customizable line charts or actograms
- Calculate physical activity, energy expenditure, and step statistics
- Select hourly, daily, or custom intervals for calculations

## Fast

Have the collection speed to deliver more useful measurements:

- **Now with** rapid 32\* Hz sampling rate
- **Now with** the ability to collect data in epochs as short as one second\*
- Automated calculation of more than 25 statistics
- Reports created with a single mouse click
- Batch processing performed on multiple data files simultaneously

## Flexible

Gain the flexibility to adapt to your research needs:

- **Now with** 1, 2, 5 second epoch lengths\* or raw data collection mode
- Validated energy expenditure (kcal or METS) when worn on the waist, wrist, or ankle
- Automated or user-defined energy expenditure cut points
- Statistics or raw data exported in multiple ways
- Convert between epoch lengths automatically

\*Features not available in previous Actical.

### Scientific validity

Actical has been validated in the following peer-reviewed papers:

- C.A. Blanton, M.J. Kretsch, D.J. Baer, R.C. Staples. Measuring Physical Activity Energy Expenditure in Normal-Weight, Premenopausal Women, *FASEB Journal* 17:A290.7, 2005.
- D. Heil, Predicting activity energy expenditure using the Actical activity monitor, *Research Quarterly for Exercise and Sport*, American Alliance for Health, Physical Education, Recreation and Dance, 77: 1, 64-80, 2006.
- N. Butte, et. al., Prediction of activity energy expenditure using accelerometers in children, *USDA/ARS Children's Nutrition Research Center Department of Pediatrics, Baylor College of Medicine, Houston, TX, Medicine & Science in Sports & Exercise*, 2004.
- K.A. Pfeiffer et al. 2006. Validation and Calibration of the Actical Accelerometer in Preschool Children, *Medicine & Science in Sports and Exercise* Vol 38, No. 1 pp. 152-157
- D. Heil et. al., 2009 Influence of activity monitor location and bout duration on free-living physical activity. *Research quarterly for exercise and sport*. Vol 80 No 3, pp 423-433
- D. Esliger and M.S. Tremblay. Technical reliability assessment of three accelerometer models in a mechanical setup. *Med Sci Sports Exerc* 2006 Vol 38 no 12, pp 2173-2181
- S. Hooker, et. al., 2011 Validation of the Actical activity monitor in middle-aged and older adults *Journal of Physical activity and health*, 2011, volume 8 pp 372-381

### Day-to-day wearability

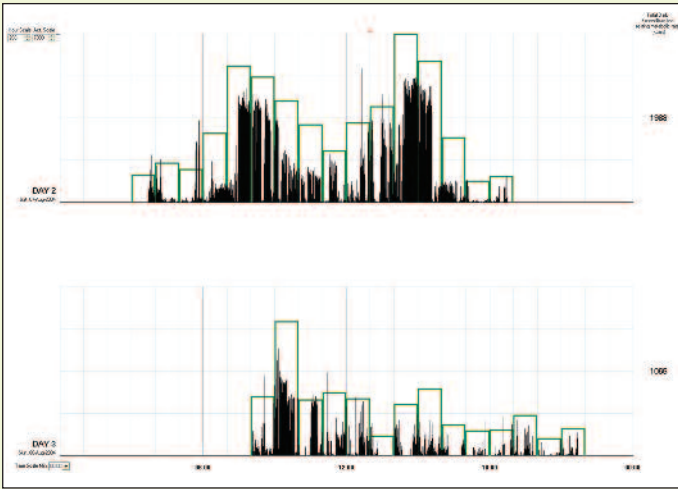
Actical's small size, waterproof case, and ability to be worn in multiple locations makes it easy for subjects to wear regardless of their activity. The device is positioned securely on the subject using a wristband, waistband, or ankle band. Once the device is on, subjects can wear it and forget it. They can go about their normal, daily activities, including rigorous exercise, swimming, or bathing. There is no need to worry about subjects repositioning, damaging, or removing the device.



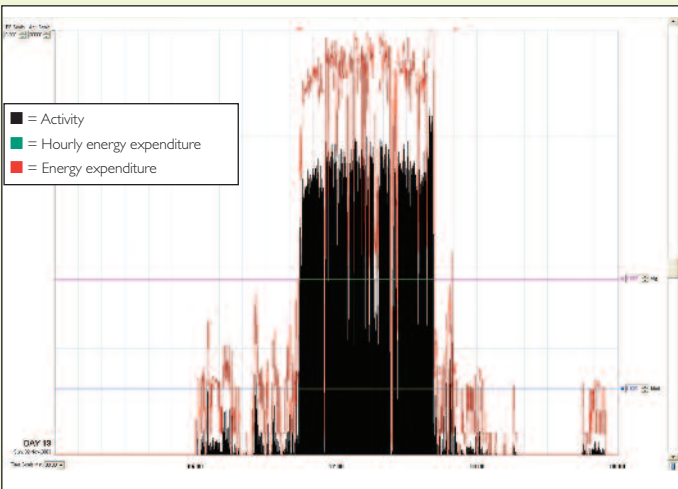
# measurements

The Actical system allows you to easily collect and examine detailed data on subjects' physical activity, steps, and energy expenditure levels. You can quickly change how you view data, what data you want to analyze, and rapidly calculate values over minutes, hours, days or weeks. After selecting the data you want to analyze, automated reports – that are easily exported – provide you with the useful outcome measures you need to answer your research questions.

**Actical software allows you to view and analyze activity for energy expenditure in multiple ways.**



View of two days of minute-by-minute physical activity data with hourly averages for energy expenditure in kilocalories. Total activity energy expenditure for the day is shown on the right. You can view anywhere from one day to 99 days of physical activity, steps, and energy expenditure.



View of five hours of minute-by-minute physical activity and activity energy expenditure on the day of a marathon run. Activity energy expenditure is compared to programmable cut points for scoring as light, moderate or vigorous. Select custom intervals ranging in length from one minute to 99 days for calculation of outcome measures.

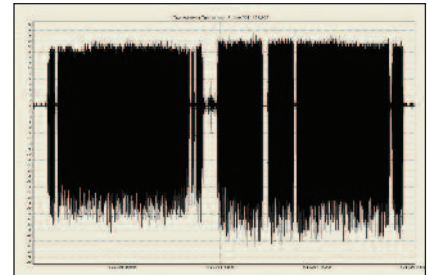
## System components



Actical physical activity monitor



ActiReader communications interface



Actical software

**Note:** A nylon wristband is included; additional waist, ankle or wristband options are available.

### Dependable service and support

Our knowledgeable and dedicated technical and support representatives are available to help you throughout your studies. You can reach them at: 1-541-598-3800 or by email at: [respironics.service10@philips.com](mailto:respironics.service10@philips.com).

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