



# A step above traditional activity monitoring

Actical is a small, omnidirectional accelerometer that accurately measures a subject's physical activity energy expenditure level and step count. It enables real-time ambulatory monitoring and is as efficient in quantifying energy expenditure as doubly-labeled water (DLW)<sup>1</sup> and  $\text{VO}_2$  consumption<sup>2</sup>, but at a fraction of the cost.

**Actical** wireless noninvasive physical activity and energy expenditure activity monitoring system

Parameter	Value		
<b>Specifications</b>			
Size	1.14 in. x 1.45 in. x 0.43 in. without band		
Weight	0.56 ounces without band, 0.77 ounces with standard band		
Case materials	Polyurethane/polyester alloy		
Frame and battery cover	Titanium		
Standard wrist band	Nylon with buckle		
Battery type	CR2025 lithium coin cell (user replaceable)		
Logging time	44 days, 1-minute epoch		
Logger battery life	180 days		
<b>Accelerometer details</b>			
Range	0.05 G to 2 G		
Bandwidth	0.35 Hz to 3.5 Hz		
Resolution	100 counts or 0.02 G (at 1 G peak)		
Sampling rate	32 Hz		
Logging interval	Epoch length	Epochs per day in start time	Maximum delay
	15 seconds	5760	11 days
	30 seconds	2880	22 days
	1 minute	1440	44 days
<b>Environmental attributes</b>			
Moisture protection	Waterproof IEC60529 IPX7; water tight – 1 meter for 30 minutes		
Storage temperature	-4 to 140°F (-20 to 60°C) to 95% humidity		
Transportation temperature	-4 to 140°F (-20 to 60°C) to 95% humidity		
Operating temperature range	41 to 104°F (5 to 40°C) 15% to 95% humidity		
<b>Computer attributes</b>			
Hardware platform personal computer	Pentium® II or later		
Compatibility	Windows® 98, Millennium, Windows NT 4.0, Windows 2000, or Windows XP		
Communication interface	9-pin RS232 serial port (or USB to 9-pin serial port adapter)		

<sup>1</sup> 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.

<sup>2</sup> 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. K. Pfeiffer et al., *Validity of the Actigraph and Actical Accelerometers in 3-5 year-old Children*, North American Society for Pediatric Exercise Medicine, 2004.