



A trio of solutions

Actiwatch actigraphy systems for collecting objective and reliable sleep/wake data

Our trio of Actiwatch systems provides validated actigraphy technology for collecting and downloading reliable, continuous and objective sleep/wake history on your patients. The advanced-featured Actiwatch 2 and Actiwatch Spectrum devices help make actigraphy easier to use, the devices more comfortable to wear, and the data acquisition and analysis functions less complex and time-consuming. Our Actiwatch Score is well-suited for collecting sleep/wake history and subjective response scores on parameters such as pain, fatigue or depression.

PHILIPS
RESPIRONICS



Actiwatch 2



Actiwatch Spectrum



Actiwatch Score

Actiwatch 2

Parameter	Typical value
Size	43mm x 23mm x 10mm
Weight	16 grams (with band)
Case material	ABS blend (biocompatible)
Standard wrist band	Biocompatible BASF elastollan 1175A10W (TPU) with titanium buckle – accommodates 7mm hospital type band
Battery type	Lithium cell (rechargeable at dock)
Battery charge time	6 hours from empty to full
Logger battery life	30 days at 1-minute epoch lengths
Memory	Non-volatile 1 Mbit

Logging interval

Epoch length	Epochs per day	Logging time (activity only)	Logging time (activity and light)
15 seconds	5760	22.7 days	7.5 days
30 seconds	2880	45.5 days†	15.1 days
1 minute	1440	91 days†	30.3 days

† Actual recording time limited by battery life of 30 days typical before recharging is required.

Note: Device also records in two-minute and five-minute epoch lengths and in a light-only mode.

Accelerometer details

Type	Solid-state “piezo-electric” accelerometer
Range	0.5 – 2 G peak value
Bandwidth	0.35 – 7.5 Hz typical
Sensitivity	0.025 G (at 2 count level)
Sampling rate	32 Hz

Light sensor details

Type	Silicon photodiode
Wavelength range	400 – 900 nanometers
Wavelength peak sensitivity	570 nanometers
Measurement units	Photopic illuminance in lumens/m ² (lux)
Illuminance range	5 – 100,000 lux
Accuracy	10% at 3000 lux (typical)

Environmental attributes

Moisture protection	Waterproof 1m for 30 min per IPX7 IEC 60529
Operating temperature range	5°C to 40°C
Resistance	Resists dust, water, heat, perspiration and cold

Computer & communication dock attributes

Hardware platform personal computer	Pentium II or later
Operating system compatibility	Actiware: Windows® 2000, Windows XP or Windows Vista; Actiware CT: Windows 2000, Windows XP Professional, Windows Vista Business or Windows Vista Ultimate
USB compatibility	Version 1.1 and 2.0 full speed
Data communication rates	57.6 kbps
Dock functions	Battery charge, device configuration and data retrieval
Charge mode	USB connection or wall current

Actiwatch Spectrum

Parameter	Typical value
Size	48mm x 37mm x 14mm
Weight	30 grams (with band)
Case material	ABS blend (biocompatible)
Standard wrist band	Biocompatible BASF elastollan 1175A10W (TPU) with titanium buckle
Battery type	CR 2430 lithium coin cell (factory replaced)
Logger battery life	1 year with continuous use
Memory	Non-volatile 2 Mbits

Logging interval			
Epoch length	Epochs per day	Logging time (activity only)	Logging time (activity and RGB light)
15 seconds	5760	45.5 days	9 days
30 seconds	2880	91 days	18 days
1 minute	1440	182 days	36 days

Note: Device also records in two-minute and five-minute epoch lengths, in photopic light-only mode, and in an RGB light-only mode.

Accelerometer details	
Type	Solid-state "piezo-electric" accelerometer
Range	0.5 – 2 G peak value
Bandwidth	0.35 – 7.5 Hz typical
Sensitivity	0.025 G (at 2 count level)
Sampling rate	32 Hz

Light sensor details	
Type	Color sensitive photodiodes
Wavelength range	400 – 700 nanometers
Measurement units	Irradiance (microwatts/cm ²); photon flux (photons/cm ² /sec); photopic illuminance (lux)
Irradiance range	0.1 – 5500 microwatts/cm ²
Accuracy	10% at 1500 lux (typical)

Off-wrist detector	
Sensor	Capacitive
On-wrist activation range	<2mm

Environmental attributes	
Moisture protection	Waterproof 1m for 30 min per IPX7 IEC 60529
Operating temperature range	5°C to 40°C
Resistance	Resists dust, water, heat, perspiration and cold

Computer and communication dock attributes	
Hardware platform personal computer	Pentium II or later
Operating system compatibility	Actiware:Windows® 2000, Windows XP or Windows Vista; Actiware CT:Windows 2000, Windows XP Professional, Windows Vista Business or Windows Vista Ultimate
Communication interface	USB to infrared connection
USB compatibility	Version 1.1 and 2.0 full speed
Data communication rates	57.6 kbps

Actiwatch Score

Parameter	Typical value
Size	37mm x 35mm x 12mm
Weight	25 grams (with band)
Case material	Glass filled nylon
Frame & battery cover	Titanium
Standard wrist band	Nylon with buckle
Battery type	CR 2025
Logger battery life	3 months
Memory	32kb

Logging interval	
Epoch length	Logging time
15 seconds	5.5 days
30 seconds	11.1 days
1 minute	22 days

Note: Device also records in two-minute and five-minute epoch lengths. Logging time varies with programmed alarm schedule.

Accelerometer details	
Type	Cantilever beam "piezo-electric" accelerometer
Range	0.5 – 2 G peak value
Bandwidth	3 Hz – 11 Hz typical
Sampling rate	32 Hz

Scorepad details	
Scoring leads	0 – 15 user selectable
Number of scores per epoch	One

Environmental attributes	
Drip tight	To IEC standard 60529 IPX2 (resistant to dripping and light splashes of liquids)

Computer and communications	
Hardware platform personal computer	Pentium II or later
Operating system compatibility	Actiware:Windows® 2000, Windows XP or Windows Vista; Actiware CT:Windows 2000, Windows XP Professional, Windows Vista Business or Windows Vista Ultimate
Communication interface	DB9 serial port (a compatible USB to serial port adapter can be used)
Battery type	9V lithium