

# AX6 Datasheet

6-Axis logging movement sensor



# AX6

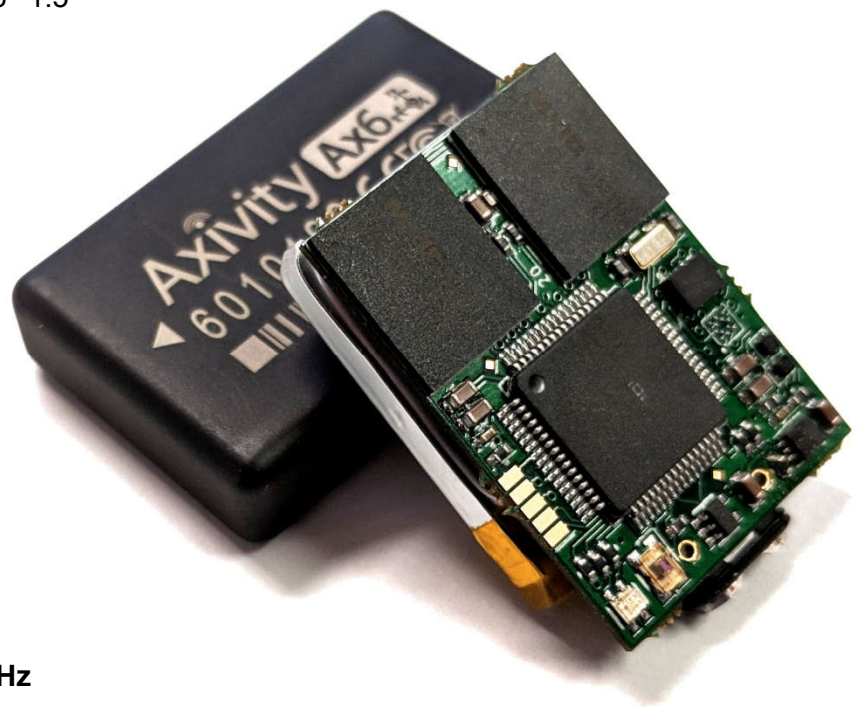
Axis logging movement sensor

## Description

The AX6 is a low cost logging 6-axis inertial movement sensor (IMU). At the heart of the sensor is a 6-axis movement sensor and a non-volatile flash memory chip linked by a USB enabled microcontroller. A temperature sensor, ambient light sensor, real time clock (RTC) and lithium polymer battery are also integrated into the sealed polycarbonate puck. The charge time is approximately 120 minutes and the sensor will record for **7 days of continuous 6-axis IMU data at 100Hz**. The device is suitable for use in a variety of environments, is water resistant up to 1.5 meters and is CE safety mark approved.

## Applications

- Human movement science
- Sports research
- Instrumented environments
- Digital interaction
- Activity recognition



## Summary

- 6-axis 16-bit synchronised IMU
- Light sensor
- Temperature sensor
- 1024MB memory
- **7 days recording gyro/accel @ 100Hz**
- **34 days recording accel @ 50Hz**
- Rechargeable lithium battery
- Water resistant and CE marked
- Configurable logging options

## Specification: AX6

PARAMETER	VALUE	NOTES
Puck Size	23x32.5x8.9 mm	
Puck Weight	11g	
Enclosure Material	Polycarbonate	
Battery Capacity	250mAh	Rechargeable lithium polymer
Battery Charge Current	250mA	
Connectivity	Micro USB	
<b>ENVIRONMENTAL</b>		
Moisture Ingress	Water-resistant to 1.5m	IPx8
Dust Ingress	Dust tight	IP6x
Operating Temperature	0 - 65°C (not charging)	40°C if charging
<b>TYPICAL CAPABILITIES</b>		
Memory	1024MB flash non-volatile	
Logging Frequencies	Configurable 12.5Hz - 1600Hz	
Typical Logging Periods	7 days	IMU mode @ 100Hz
	17 days	Accelerometer @ 100Hz
	34 days	Accelerometer @ 50Hz
	Up to 140 days	Accelerometer @ 12.5Hz
<b>REAL TIME CLOCK</b>		
Type	Quartz real time clock	
Frequency	32.768KHz	
Precision	± 50ppm (typical)	
<b>ACCELEROMETER AND GYROSCOPE</b>		
Sensor Type	MEMS	<a href="#">BMI160</a>
Accelerometer Range	±2/4/8/16 g	Configurable
Gyroscope Range	±125/250/500/1000/2000 dps	Configurable
Resolution	16 bit	Gyro and Accelerometer
<b>LIGHT</b>		
Sensor Type	APDS9007	Logarithmic light sensor
Wave Length	470-650 nm	Matched to human eye
Range	3-1000 LUX	At sensor
Digital format	10 bit	
<b>TEMPERATURE</b>		
Sensor Type	MCP9700	Linear thermistor
Range	0 - 40°C	
Resolution	0.3°C	
Accuracy	1°C typical (4°C max)	

# Dimensions: AX6

REVISION HISTORY		DATE	APPROVED
REV	DESCRIPTION		

The drawing shows a rectangular container with a lid. The lid is shown in a perspective view and a top-down view. The top-down view of the lid has a width of 83 and a length of 242. The main body of the container has a width of 236 and a length of 353. The lid has a width of 68 and a length of 242. The drawing includes several dimension lines and radii: R.2 for the lid's side radii, R.07 for the main body's side radii, and R.01 for the lid's front radii. A 3D perspective view shows the container with a lid that has a latch mechanism on the front edge.

NAME	DATE	TITLE
83mm Length	07/02/16	AX Puck2

DRAWN	CHECKED	ENG. APPR.	MGR. APPR.	SIZE	DWG NO	REV
				A4		




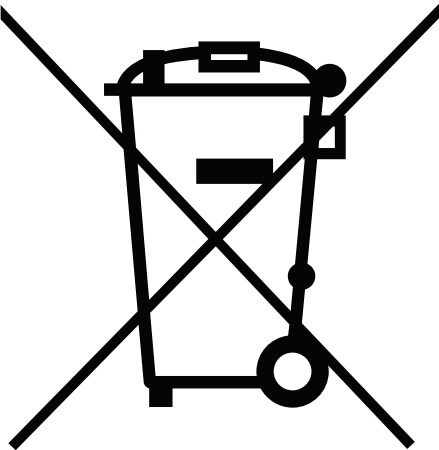
UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE IN MILLIMETERS  
ANGLES 4X4"

2 PL. 30XX.3 PL. 4XXXX

SCALE: WEIGHT: SHEET 1 OF 1

**Certification:**

The AX6 is certified to the following:

Certification	Test
	<p>The product is compliant with the Directive 2004/108/EC; the relevant Declaration of Conformity is available from Axivity</p> <p>The product has been tested to BS EN 61000-6-1:2007 and BS EN 61000-6-3:2007 (Electromagnetic compatibility (EMC), Generic standards, Immunity for residential, commercial and light-industrial environments).</p>
	<p>The AX6 manufactured by Axivity Ltd is tested to comply with FCC CFR 47 part 15.107 and 15.109 (Class B Device)</p>
	<p>The product has an ingress protection rating as defined in IEC 60529 to level 68. Due to the nature of the housing (potted enclosure) the device was passed on the basis that it was fully functional both before and after each testing criterion</p>
	<p>In accordance with the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), the product must not be disposed of in the normal unsorted municipal waste stream. Instead, it is the user's responsibility to dispose of this product by returning it to a collection point or directly to Axivity.</p> <p>Separate collection of this waste helps optimize the recovery and recycling of any reclaimable materials and also reduces the impact on human health and the environment. For more information concerning the correct disposal of this product, please contact your local authority or our issuing authority</p> <p>The lithium polymer cell has met the acceptance criterion for the UN Recommendations on the Transport or Dangerous Goods relating to lithium batteries, reference Para 38.3 of Manual tests and Criteria document No. ST/SG/AC.10.11/Rev.4:2003</p>

## **Disclaimer:**

Information in this document is believed to be accurate and reliable. However, the manufacturer does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. The manufacturer reserves the right to make changes to information published in this document, including without limitation, specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof. The manufacturer's products are not designed, authorized or warranted to be suitable for use in applications where failure or malfunction can reasonably be expected to result in personal injury, death or severe property or environmental damage. The manufacturer accepts no liability for inclusion and/or use of its products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Copyright (c) 2009-2015, Newcastle University, UK.

All rights reserved.

Licensed under Creative Commons 3.0 Attribution License (BY),  
<http://creativecommons.org/licenses/by/3.0/>