



## SPECIFICATIONS

Item No.: AKE390B

Description: MEMS Voltage Type Accelerometer

Version: Ver.06

### **Production implementation standard reference**

- Enterprise quality system standards: ISO9001: 2008 standard (certification number: 128101)
- Tilt sensor production standards: GB / T 191 SJ 20873-2003 inclinometer general specification of Level
- The Academy of metrology and quality inspection Calibrated in accordance to: JJF1119-2004 Electronic Level calibration Specification
- Gyro accelerometer test standard: QJ 2318-92 Gyro accelerometer test methods
- Software development reference standard: GJB 2786A-2009 military software development General requirements
- Product environmental testing standards: GJB150
- Electromagnetic anti-interference test standards: GB / T 17626



MEMS voltage type accelerometer sensor

High accuracy  
High stability



## General Description

AKE390B voltage type accelerometer sensor series products is RION company imported the Switzerland patented technology to produce for using widely, suitable for vibration testing, impact testing and more fields. This series products with firm structure, low power consumption, excellent deviation stability .etc characteristics to guarantee the reliability of outstanding output .

AKE390B is a monocrystalline silicon capacitive sensor, composed by a silicon chip of micro-mechanical treatment, low power ASIC for the signal adjustment, a microprocessor for storing compensation value and a temperature sensor. The product with low power consumption, after calibration, firm structure, stable output . New electronic configuration reset to provide a solid-state power, to provide comprehensive protection for over current. Scale factor in the full range of long-term stability and the deviation is typically less than 0.1%.

## Key Features

- Three axis measurement optional (X、 Y、 Z)
- Voltage supply: 9-36V
- Measuring range optional:  $\pm 01G$ ;  $\pm 02G$ ;  $\pm 04G$ ;  $\pm 08G$ ;  $\pm 16G$ ;  $\pm 32G$ ;  $\pm 40G$
- Excellent deviation stability
- Good environment performance shock, vibration and temperature)
- Size: L47×W47×H38mm
- Weight: 100g
- Working temperature:  $-40^{\circ}C$  to  $+85^{\circ}C$
- Storage temperature:  $-55^{\circ}C$  to  $+100^{\circ}C$
- Output signal: 0-5V
- Shock resistance: 2000G

## Application

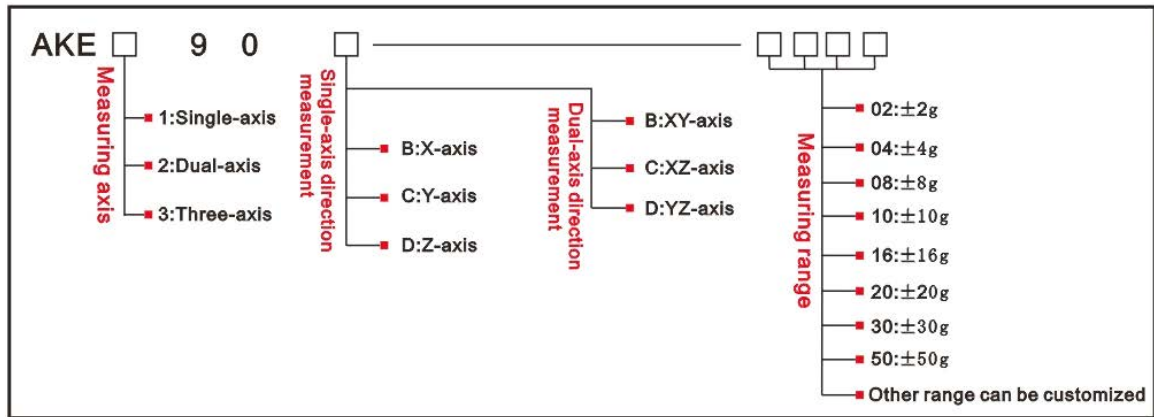
- Crash records, fatigue monitoring and forecasting
- Traffic system monitoring, the roadbed analysis and high-speed railway fault detection
- Military and civilian flight simulator
- The shipboard satellite tracking system
- Low frequency vibration and automatic monitoring



## Technical Data

AKE390B Three-Axis accelerometer				
	AKE390B-02	AKE390B-08	AKE390B-40	Unit
Measuring range	±2	±08	±40	g
Deviation calibration	<10	<50	<150	mg
48h deviation stability	0.5	<1	<2	mg Typical value
Measuring Axis	X,Y,Z	X,Y,Z	X,Y,Z	Axis
Annual deviation stability[2]	1.5 (<5)	7.5 (<25)	22 (<75)	mg Typical value(Maximum value)
Power on/off repeatability	<2	<10	<20	mg(Maximum value)
Deviation temperature coefficient[3]	0.1	0.5	1.5	mg/°C Typical value
	±0.4	±2	±6	mg/°C maximum value
Annual scale factor stability	300 (< 1000)	300 (< 1000)	300 (< 1000)	ppm Typical value
Scale factor temperature coefficient	100	100	100	ppm/°C (Typical value)
	-50 / 250	-50 / 250	-50 / 250	(Minimum/Maximum value)
Resolution/threshold (@ 1Hz)	< 1	< 5	< 15	mg(Maximum value)
Nonlinearity	<0.1	<0.5	<0.6	% FS (Maximum value)
	<0.02	<0.09	<0.27	g(Maximum value)
Bandwidth[4 ]	1~≥400	1~≥400	1~≥400	Hz
Resonance frequency	1.6	6.7	6.7	kHz
Operating temperature	-40°C to +85°C			
Reliability	MIL-HDBK-217, Grade two			
Shock resistance	100g@11ms、3Times/Axis(half sinusoid)			
Recovery time	<1ms(1000g, 1/2 sin 1ms, impact in I shaft)			
Vibration	20g rms,20~2000Hz (Random noise, o ,p,l each shaft effect 30 minutes)			
LCC sealed	Meet MIL-STD-833-E			
Input (VDD_VSS)	9-36 VDC.			
Output voltage range	0~5 VDC @12VDC Input voltage ( 0 g as 2.5V±10mV)			
Operating current consumption	<3mA @ 12 VDC			
Weight	Typical value: 100g			
Size	Typical value : L47×W47×H38mm,			
<b>Unless other specified, all the parameter values were tested under ±20°C (±68°F) and 12VDC conditions.</b>				

## Ordering Information



E.g: AKE190B-02: single-axis、X Axis direction measurement、+/-2g selection

AKE290B-02: dual-axis、XY Axis directions measurement、+/-2g selection

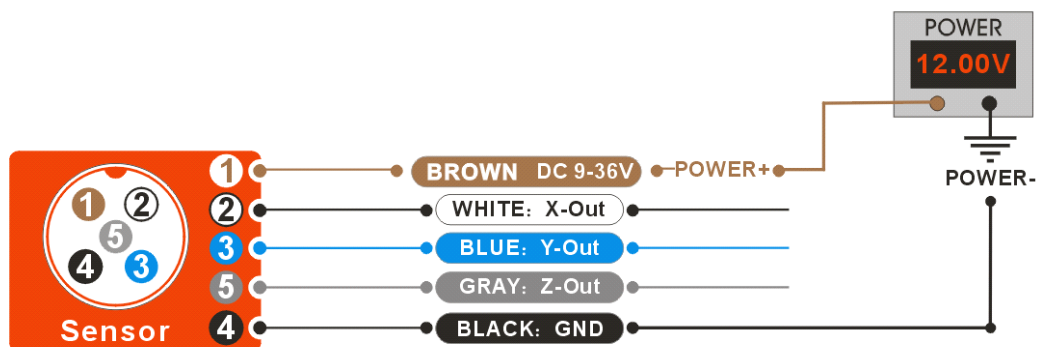
AKE390B-02: three-axis、XYZ Axis directions measurement、+/-2g selection

## Mechanical Parameters

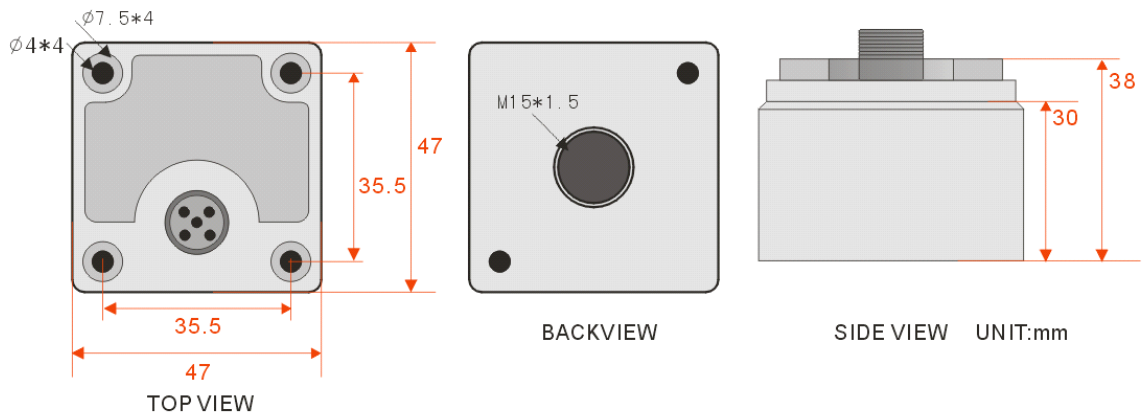
- Connectors: waterproof air-plug
- Protection class: IP67
- Enclosure material: Aluminum Oxide
- Installation: 2XM4 screws or M15\*1.5 bottom screws installation

## Electrical Connection

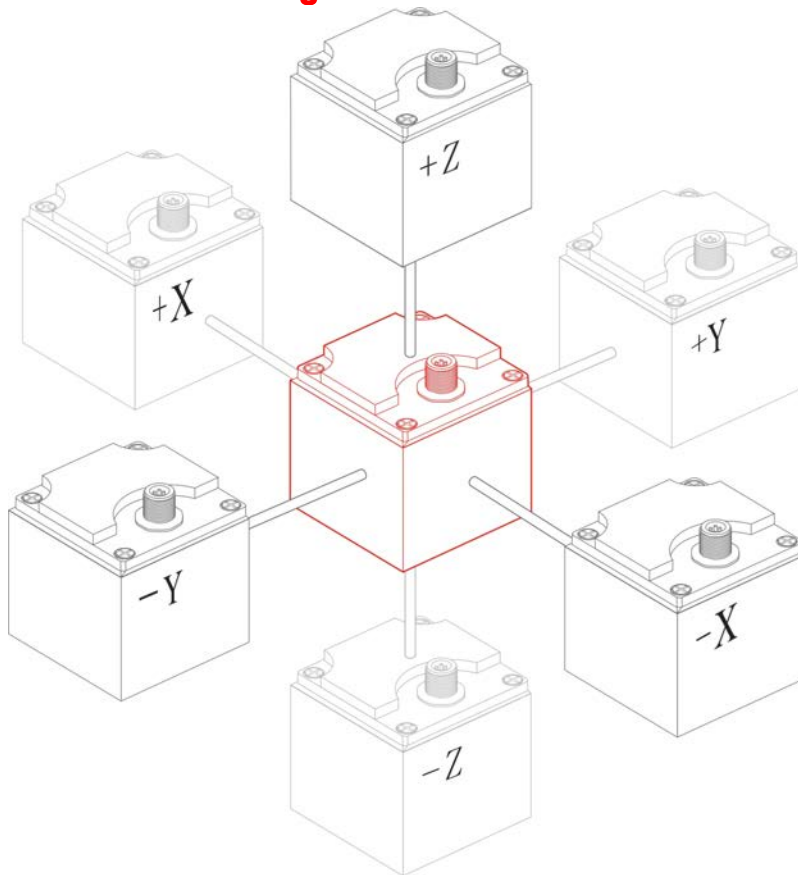
4cables socket pin	5cables socket pin	Cable color	Single-axis accelerometer	Dual-axis accelerometer	Three-axis accelerometer
1	1	Brown	Power positive	Power positive	Power positive
2	2	White	X Axis voltage signal	X Axis voltage signal	X Axis voltage signal
3	3	Blue	Y Axis voltage signal	Y Axis voltage signal	Y Axis voltage signal
4	4	Black	Power GND	Power GND	Power GND
	5	Gray	Z Axis voltage signal	Z Axis voltage signal	Z Axis voltage signal



## Dimension



## Products measuring directions



※More information please visit Rion's company website: [www.rion-tech.net](http://www.rion-tech.net)



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