

# 3D Motion Sensor Developer's Kit MDP-A3U9S-DK

## ● Handling instructions for 3D Motion Sensor Developer's Kit ●

3D Motion Sensor Developer's Kit (MDP-A3U9S-DK) is a product to be used for evaluating 3D Motion Sensor and designing/developing product using 3D Motion Sensor. Do not utilize otherwise. Please be advised that NEC TOKIN accepts no responsibility for the performance of the products that utilizes the sensor included in this developer's kit. Please consult with NEC TOKIN when manufacturing and selling such products.

## Outline

This 3D motion sensor with a ceramic gyro, acceleration sensor and terrestrial magnetism sensor, detects the 3-dimensional posture angle of the device on which it is installed.

By connecting to personal computer using USB interface, this unit realizes easy and real time measurement of 3-dimensional posture angle. Its small volume (20×20×15 mm typ.) enables installation in small spaces.

Developer's Kit MDP-A3U9S-DK is a package for developing application software and hardware. The kit includes sensor unit, dedicated USB cable + dedicated device driver and support CD-ROM disk including demonstration software. With this kit, it enables connection of 3D motion sensor to personal computer to perform trials and evaluation.

## Features

- Compact size and light weight
- High response speed
- Possibility of installation in desired direction
- Possibility of full range measurement (yaw angle:  $\pm 180^\circ$ , pitch angle:  $\pm 90^\circ$ , and roll angle:  $\pm 180^\circ$ )
- No need of adjustment (readjustment necessary depending on the environment for use)

## Options

- UART output
  - Direct mounting of USB cable
- \*Please consult NEC TOKIN beforehand, when ordering products with these options



Sensor Unit



Developer's Kit

## Applications

- Tracker for head mounted display
- Motion capture
- Attitude angle detection of mobile object

## Kit Composition

- 3D Motion Sensor MDP-A3U9S unit
- Dedicated USB cable
- Cable connection board
- Support disk (CD-ROM)



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- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read "Precautions" and other safety precautions listed in the printed version catalog.

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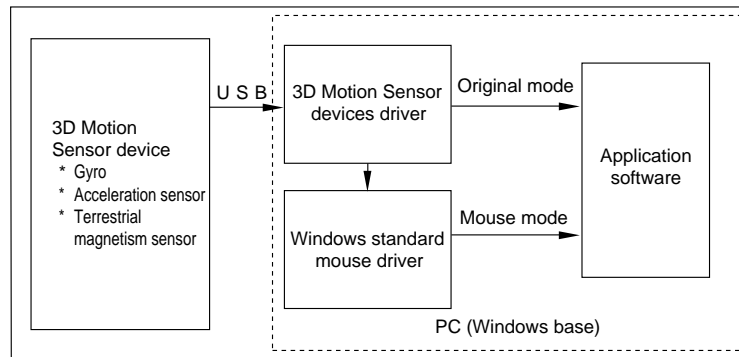
### Specifications

Items		Specifications
Output Form		Z-Y-X Euler's angle
Dynamic Range	$\alpha$ (Yaw angle, Z-axis)	$\pm 180\text{deg}$
	$\beta$ (Pitch angle, Y-axis)	$\pm 90\text{deg}$
	$\gamma$ (Roll angle, X-axis)	$\pm 180\text{deg}$
Resolution	$\alpha$ (Yaw angle, Z-axis)	1deg
	$\beta$ (Pitch angle, Y-axis)	1deg
	$\gamma$ (Roll angle, X-axis)	1deg
Maximum Error	$\alpha$ (Yaw angle, Z-axis)	$\pm 10\text{deg}$
	$\beta$ (Pitch angle, Y-axis)	$\pm 10\text{deg}$
	$\gamma$ (Roll angle, X-axis)	$\pm 10\text{deg}$
Data Update Speed		125Hz
Interface	USB	Comforms with USB spec.1.1
Power Supply Voltage		DC5V (to be supplied via USB interface)
Current Consumption		100mA or less
External Dimensions	Width×Depth×Height	20×20×15mm (Typ) (Not including prominent portion and cable)
USB Cable Length		1.8m
Weight		6g (Typ)
Operating Temperature		0~40°C
Applicable Machine		IBM PC/AT 100% compatible machine with USB interface
Applicable OS		Microsoft Windows 98SE, Me, 2000, XP

\*1: This is no guarantee of performance in all kind of models.

\*2: Microsoft Windows 98SE, Windows Me, Windows 2000, Windows XP is a trademark of U.S. Microsoft Corporation registered in the U.S.A. and other countries.

### Functional Block Diagram



Original mode : Performs posture angle calculation according to the data from the 3D Motion Sensor and transfers the result to the application software.

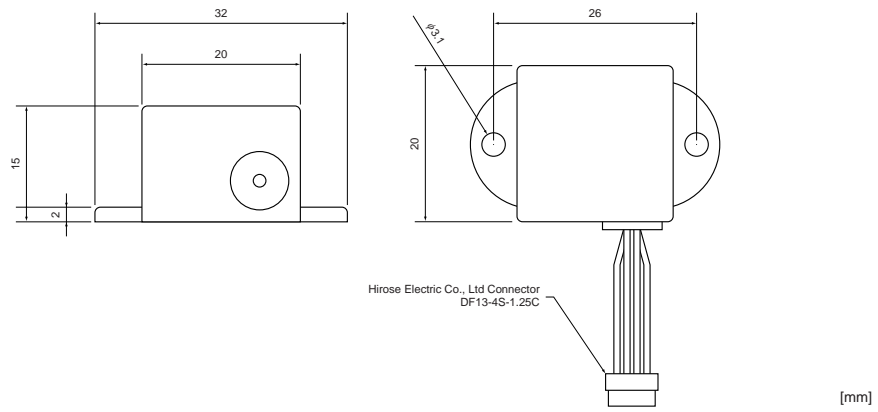
Mouse mode : Performs posture angle calculation according to the data from the 3D Motion Sensor, emulates the mouse operation based on the result, and transfers it to the application software.



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## ■ Shapes and Dimensions



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## NEC TOKIN Corporation

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