

# 3D Motion Sensor MDP-A3U7

## Outline

This sensor unit, in combination with a ceramic gyro, acceleration sensor and terrestrial magnetism sensor, detects in real time the 3-dimensional posture angle of the body on which it is installed. It can be easily connected via USB to a Windows 98 base personal computer system.

## Features

- Compact size and light weight
- Quick response at 125 Hz  
USB interface (plug & play)

## Applications

- Tracker for head mount display
- Input device for personal computer and various game machines
- Detection of mobile unit posture angle

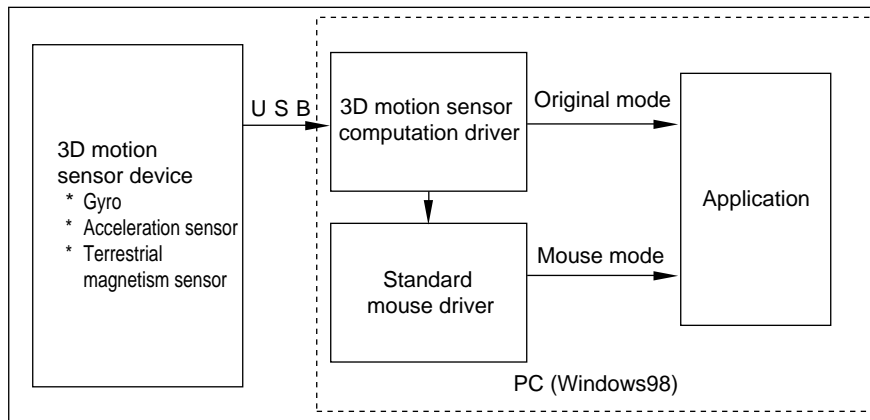


## Specifications

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)	$\pm 60\text{deg}$
	$\gamma$ (Roll angle, X-axis)	$\pm 60\text{deg}$
Resolution	$\alpha$ (Yaw angle, Z-axis)	1deg
	$\beta$ (Pitch angle, Y-axis)	1deg
	$\gamma$ (Roll angle, X-axis)	1deg
Maximun Error	$\alpha$ (Yaw angle, Z-axis)	$\pm 15\text{deg}$
	$\beta$ (Pitch angle, Y-axis)	$\pm 15\text{deg}$
	$\gamma$ (Roll angle, X-axis)	$\pm 15\text{deg}$
Data update speed		125Hz
Interface	USB	Comforms with USB spec.1.1 (applicable to power saving mode) Windows 98 device driver
Power supply voltage		5V (to be supplied via USB interface)
Current consumption		100mA or less
External Dimensions	Width×Depth×Height	25(W)×36(D)×22.5(H)
Weight		18g (Typ)
Operating Temperature		0~40°C
Applicable machine		A/T compatible machine with Windows 98 OS allowinguse of USB interface

Note: Windows is a trademark of U.S. Microsoft Corporation registered in the U.S.A. and other countries.

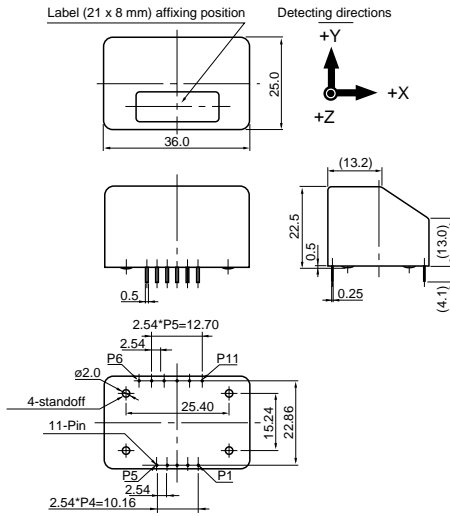
## Functional Block Diagram



Original mode : Performs angle computation based on the data from the 3D motion sensor device and returns the computed value to the application.

Mouse mode : Performs angle computation based on the data from the 3D motion sensor device, emulates the mouse cursor operation from the computed result, and returns it to the application.

## Shapes and Dimensions



PinNo	Function	Remarks
P1	Vcc	
P2	D-	USB communication terminals
P3	D+	
P4	GND	
P5	Bt1	Button switch terminals
P6	Bt2	
P7	Bt3	
P8	Bt4	
P9	Bt5	
P10	NC	*
P11	NC	

\* Keep P10 open. (GND not permissible)

[mm]

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### Precautions



- The names of the products and the specifications in this catalog are subject to change without notice for the sake of improvement. The manufacturer also reserves the right to discontinue any of these products. At the time of delivery, please ask for specifications sheets to check the contents before use.
- Descriptions in this catalog regarding product characteristics and quality are based solely on discrete components. When using these components, be sure to check the specifications with the component in question mounted on the products.
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- This catalog is current as of June 2003.

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