

# Position and Attitude Sensor VSAS-2GM

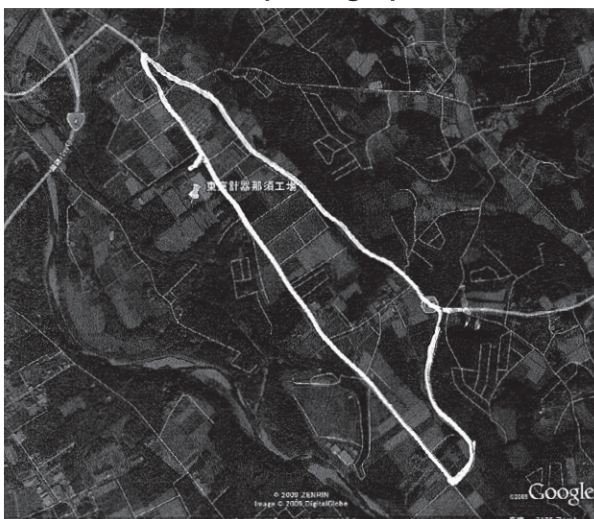
## Application: automobile



The compact VSAS-2GM sensor measures and outputs data on position (latitude, longitude), acceleration (X, Y, Z), angular rates (X, Y, Z), attitude angles (roll, pitch) and azimuth in realtime.

The following information was acquired by the VSAS-2GM installed on an automobile which was driven through city streets.

Aerial photograph

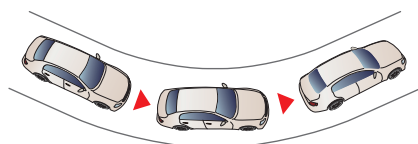


Latitude and longitude data output by the VSAS-2GM sensor matches exactly the vehicle's route shown in the aerial photo.

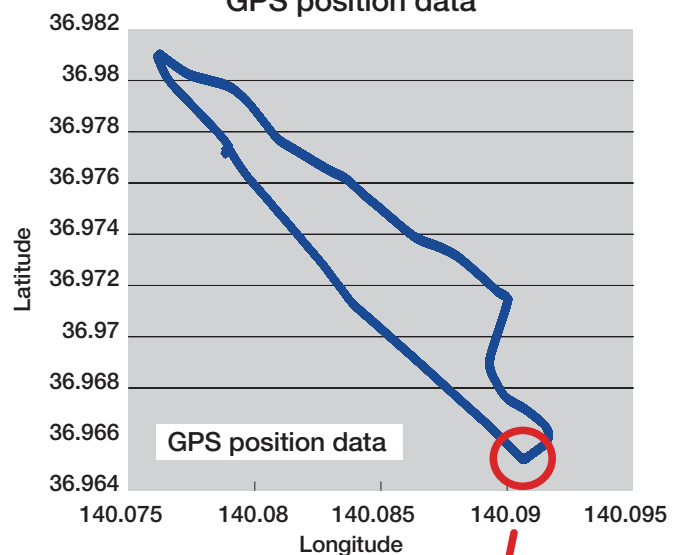
Onboard sensors and GPS input enable the VSAS-2GM to determine longitudinal and latitudinal position with a high degree of accuracy.

Precise latitudinal and longitudinal information is essential in capturing the motion at specific points along the vehicle's travel.

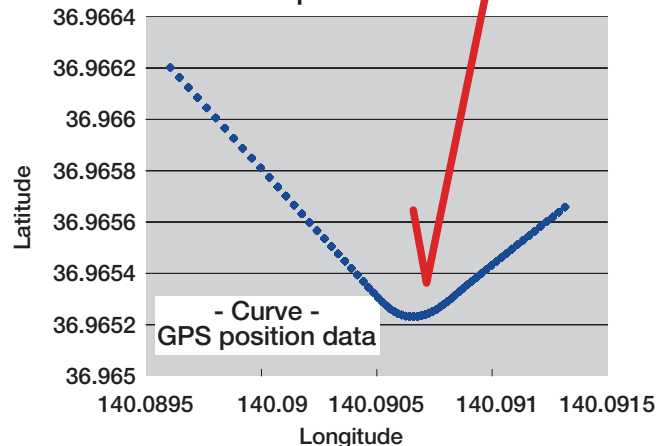
Data obtained by the VSAS-2GM when the vehicle negotiates the curve is described on the reverse page.



GPS position data

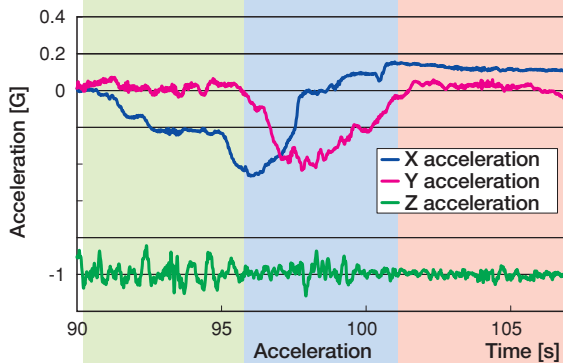
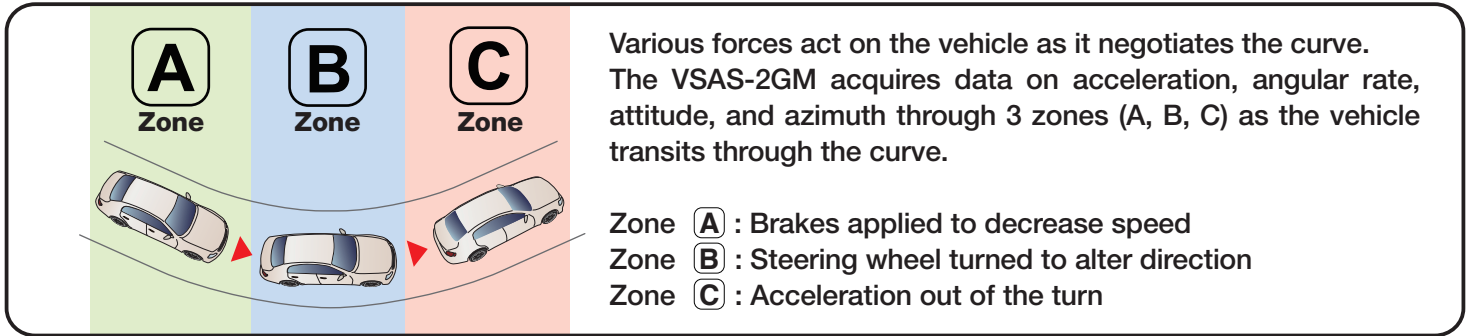


GPS position data



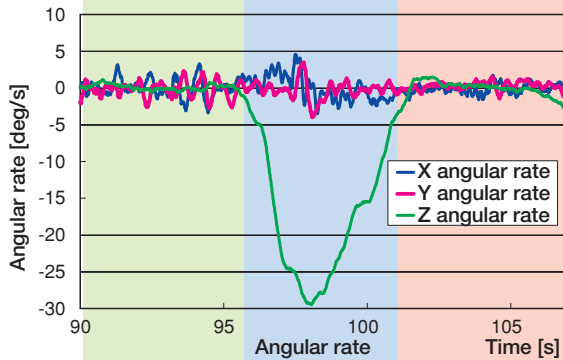
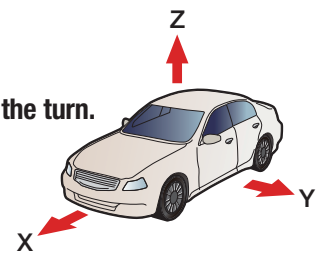
# Curve data acquired by the VSAS-2GM sensor

## VSAS-2GM



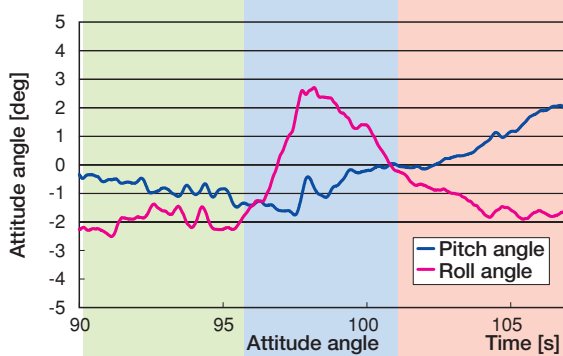
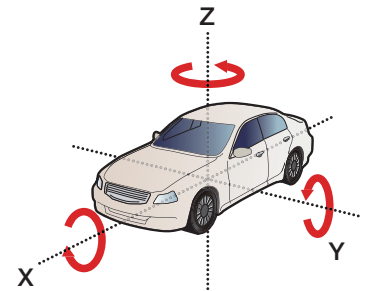
### Acceleration

- A** Brakes applied to decrease speed. [negative X-axis acceleration]
- B** Lateral acceleration generated when starting the turn. [large changes in Y-axis acceleration]
- C** Increasing speed gradually out of the curve. [positive X-axis acceleration]



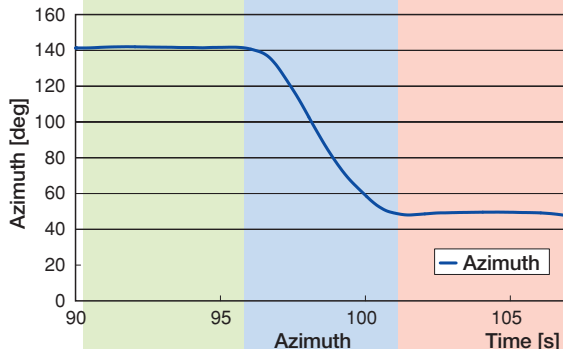
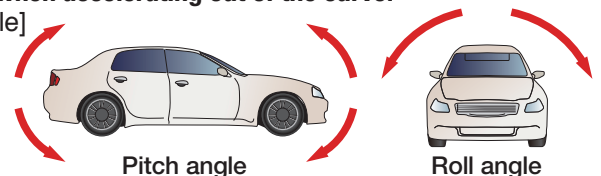
### Angular rate

- A** Straight ahead travel.
- B** Steering wheel turned to alter direction. [large changes in Z-axis angular rate]
- C** Resume straight ahead travel after completing the curve.



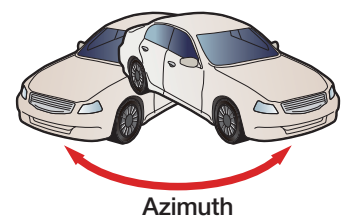
### Attitude angle

- A** Forward tilt as vehicle decelerates. [change in pitch angle]
- B** Sideway incline due to centrifugal forces. [change in roll angle]
- C** Slight backward tilt when accelerating out of the curve. [change in pitch angle]



### Azimuth

- A** Straight ahead travel.
- B** Altering direction in response to curve.
- C** Resume straight ahead travel after completing the curve.



\*True north azimuth, 0 degrees.